A Monograph of the Genus *Psidium* (Myrtaceae)

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Abstract: This paper is a taxonomic monograph of the American genus *Psidium* (Myrtaceae) based primarily on morphology. *Psidium* is recognized as a group of 63 species plus 6 additional varieties, ranging from Mexico and the Caribbean to Argentina and Uruguay. The greatest species diversity is in eastern Brazil (Mata Atlantica and adjacent biomes), with secondary centers in Andean countries from Bolivia to Venezuela, and the Greater Antilles of the Caribbean. In the introduction there is discussion of similar genera, subgeneric groups of *Psidium* and their geography, the citation of types, specimen databases, the species concept used, possible future work, and important characteristics. In the taxonomic treatment each accepted species, and any subspecific taxa are described with a brief discussion of phenology, habitat, distribution, and distinguishing characteristics. Geographically based keys distinguishing species are provided for: 1) Brazil and adjacent non-Andean regions; 2) Andean countries from Bolivia to Venezuela; 3) Central America and Mexico; and 4) the Caribbean region. The complete citation of the original publication along with type specimens observed, or seen as images, is included for all accepted names and their synonyms. All species are mapped and 62 are illustrated with line drawings and/or photographs. Lists are provided of 1) the 63 accepted species names and their ca. 460 synonyms; 2) the approximately 120 excluded or doubtful names; 3) the more than 5000 numbered specimen records examined, organized by collector, number, and species or variety; and 4) 81 known lectotypes. A new combination, *Psidium salutare* var. *cuspidatum* is proposed; a new variety, *Psidium salutare* var. *resiliens* is described; a neotype is selected for *Myrtus lurida* Spreng.; and lectotypes are designated for *Mitranthes eugenioides* var. *ovata* O. Berg, *Mitropsidium oblanceolatum* Burret, *Myrcianthes brunnea* var. *grandifolia* O. Berg, *Myrtus corynantha* Kiaersk., *Myrtus jacquiniana* O. Berg, *Pseudocaryophyllus uniflorus* Burret, *Psidium* sect. *Clidopsidium* Griseb., *Psidium acranthum* Urb., *Psidium albescens* Urb., *Psidium argenteum* var. *angustifolium* O. Berg, *Psidium balium* Urb., *Psidium benthamianum* O. Berg, *Psidium celastroides* Urb., *Psidium claraense* Urb., *Psidium coriaceum* var. *longipes* O. Berg, *Psidium cymosum* Urb., *Psidium densicomum* DC., *Psidium glaziovianum* Kiaersk., *Psidium grandiflorum* Ruiz & Pav., *Psidium harrisianum* Urb., *Psidium hians* DC., *Psidium macrospermum* O. Berg, *Psidium minutifolium* Krug & Urb., *Psidium monticola* O. Berg, *Psidium multiflorum* Cambess., *Psidium orbifolium* Urb., *Psidium parvifolium* Griseb., *Psidium paucinerve* Urb., *Psidium ruizianum* O. Berg, *Psidium rutidocarpum* Ruiz & Pavon ex G. Don, *Psidium rypdocarpum* Ruiz & Pavon, *Psidium scopulorum* Ekman & Urb., *Psidium tenuirame* Urb., and *Psidium versicolor* Urb.

Resumen: Este artículo es una monografía taxonómica del género americano *Psidium* (Myrtaceae), basada principalmente en su morfología. *Psidium* se reconoce como un grupo de 63 especies y 6 variedades adicionales, que se extienden desde México y el Caribe hasta Argentina y Uruguay. La mayor diversidad de especies se encuentra en el este de Brasil (Mata Atlántica y biomas adyacentes), con centros secundarios en países andinos desde Bolivia hasta Venezuela y las Antillas Mayores del Caribe. En la introducción se discuten géneros similares, grupos subgenéricos de *Psidium* y su geografía, la cita de tipos, bases de datos de especímenes, el concepto de especie utilizado, posibles trabajos futuros y características importantes. En el tratamiento taxonómico se describe cada especie aceptada y cualquier taxón subespecífico, con una breve discusión de la fenología, el hábitat, la distribución y las características distintivas. Se proporcionan cuatro claves geográficas que distinguen las especies: Brasil y regiones no andinos adyacentes, países andinos desde Bolivia hasta Venezuela, Mesoamérica y México, y la región del Caribe. Se incluye la cita completa de la publicación original, junto con los especímenes tipo observados o visualizados como imágenes, para todos los nombres aceptados y sus sinónimos. Todas las especies están cartografiadas y 62 están ilustradas con dibujos lineales y/o fotografías. Se proporcionan listas de 1) los 63 nombres de especies aceptados y sus ca. 460 sinónimos; 2) los ca. 120 nombres excluidos o dudosos; 3) los más de 5000 registros de especímenes examinados, organizados por colector, número y especie o variedad; and 4) 81 lectotipos conocidos. Se propone una nueva combinación, *P. salutare* var. *cuspidatum*, y se describe una nueva variedad, *P. salutare* var. *resiliens*; se selecciona un neotipo para *Myrtus lurida* Spreng. y se designan lectotipos para *Mitranthes eugenioides* var. *ovata* O. Berg, *Mitropsidium*

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oblanceolatum Burret, *Myrcianthes brunnea* var. *grandifolia* O. Berg, *Myrtus corynantha* Kiaersk., *Myrtus jacquiniana* O. Berg, *Pseudocaryophyllus uniflorus* Burret, *Psidium* sect. *Clidopsidium* Griseb., *Psidium acranthum* Urb., *Psidium albescens* Urb., *Psidium argenteum* var. *angustifolium* O. Berg, *Psidium balium* Urb., *Psidium benthamianum* O. Berg, *Psidium celastroides* Urb., *Psidium claraense* Urb., *Psidium coriaceum* var. *longipes* O. Berg, *Psidium cymosum* Urb., *Psidium densicomum* DC., *Psidium glaziovianum* Kiaersk., *Psidium grandiflorum* Ruiz & Pav., *Psidium harrisianum* Urb., *Psidium hians* DC., *Psidium macrospermum* O. Berg, *Psidium minutifolium* Krug & Urb., *Psidium monticola* O. Berg, *Psidium multiflorum* Cambess., *Psidium orbifolium* Urb., *Psidium parvifolium* Griseb., *Psidium paucinerve* Urb., *Psidium ruizianum* O. Berg, *Psidium rutidocarpum* Ruiz & Pavon ex G. Don, *Psidium rypdocarpum* Ruiz & Pavon, *Psidium scopulorum* Ekman & Urb., *Psidium tenuirame* Urb., y *Psidium versicolor* Urb.

INTRODUCTION

My studies of *Psidium* L. (Myrtaceae) began about 40 years ago when I was working as a post-doctoral fellow at the California Academy of Sciences (CAS) in San Francisco and have continued at Arizona State University (ASU) where I worked as Herbarium Curator and Research Scientist. My initial intention was to complete a Flora Neotropica monograph like those I had previously published on *Myrceugenia* O. Berg (Landrum 1981) and *Campomanesia* Ruiz & Pav., *Pimenta* Lindl., *Blepharocalyx* O. Berg, *Legrandia* Kausel, *Acca* O. Berg, *Myrrhinium* Schott, and *Luma* A. Gray (Landrum 1986). In recent years I have not been sure I could complete an entire monograph and have chosen to publish regional treatments alone or in collaboration with colleagues for the Brazilian state of Bahia (Landrum 2017), Bolivia and Paraguay (Landrum 2022), and the Greater Antilles (Landrum et al. 2024). Carlos Parra-O. invited me to coauthor a treatment of *Psidium* of Colombia (Parra-O. & Landrum 2023). All these regional treatments together cover the majority of *Psidium* species, and I hope will serve as useful references for those working with those floras.

The present paper is a comprehensive treatment of the entire genus, and some parts of my previous papers are repeated so that all pertinent information is found in one publication. I choose to publish it in *Canotia*, a journal I edit at the Arizona State University Herbarium, so that the editorial process can be simplified and so the paper can be "open access" and available to the widest possible audience. It has gone through a peer review by experts in taxonomy in general and Myrtaceae in particular. About 50 print copies of *Canotia* are distributed to libraries and herbaria in the Americas and Europe and PDF copies are posted at https://canotia.org/.

This paper is posted at *Canotia.org* as two PDF files or parts. Part 1 (pages 1–211) consists mainly of text, including this introduction, the important taxonomic characteristics, and the taxonomic treatment. Part 2 (pages 212–280) is a collection of illustrations and/or photographs of all but one species, and distribution maps of every species. This division into two parts facilitates formatting and also allows the reader to have both files open at once so figures can easily be compared with descriptions or keys. The paper will be printed and distributed with the parts combined and will be posted as a single file on ResearchGate.

A list of the 72 accepted names, with authors, appears in Table 2, on page 18. The figure numbers that correspond to each name are included. Table 4, pages 174–178, is an alphabetical list of the 72 accepted names and their over 460 synonyms. Table 5, pages 178–181, is an annotated list of doubtful or unplaced names. Table 6, pages 182–211, is a list of specimens examined with collector and number. Table 7, page 211, is a list of lectotypifications and their designators that are cited in this paper.

The Myrtaceae is considered to have a Gondwanan origin, being found as living plants or fossils on all the southern continents (Thornhill et al. 2015). It grows in tropical, subtropical,

and Mediterranean climates with only a few species tolerating high elevation habitats or colder maritime climates (Landrum 1988a,b). The family has been divided into two subfamilies. The Psiloxyloideae has two species-poor Tribes: Psiloxyleae (1 species of Reunion and Mauitius islands) and Heteropyxideae (3 species of southeastern Africa). The Myrtoideae with 15 tribes, about 130 genera (WCSP), and more than 5500 species (Wilson 2011), is widespread in tropical areas and especially diverse in the Neotropics and Australasia. Tribe Myrteae, to which *Psidium* belongs, is the largest with about 50 genera and about 2500 species (Lucas et al. 2007) with most genera and species found in the Americas from Mexico and the Caribbean to the tip of South America. About 15 genera and 450 species are found in other regions (Vasconcelos et al. 2017). The other tribes of the Myrtoideae are mainly Australasian. All the native American genera and species of Myrtaceae belong to tribe Myrteae except *Metrosideros stipularis* (Hook. & Arn.) Hook. f. (=*Tepualia stipularis* [Hook. & Arn.] Griseb.) of the Metrosidereae. This species is only found in temperate southwestern South America.

When I began this study, the limits of *Psidium* were not well understood. Previous workers had not noticed the distinctive seed coat of *Psidium* (Landrum & Sharp 1989) that helps to distinguish it from similar genera such as *Myrtus* L., *Calycolpus* O. Berg, and *Mosiera* Small. Some species of *Calycolpus* and *Mosiera* were being included in *Psidium*. Two undescribed genera were also discovered among the species of *Psidium*: *Accara* Landrum (1990), endemic to Minas Gerais, Brazil; and *Chamguava* Landrum (1991), endemic to southern Mexico and Central America. Both *Accara* and *Chamguava* are 4-merous (not 5-merous as is usual in *Psidium*). *Chamguava* has a submembranous seed coat and swollen embryo similar to *Pimenta* Lindl. *Accara* has a lustrous, hard, thin seed coat and an embryo with cotyledons and hypocotyl of about equal length, similar to *Myrtus*. These taxonomic changes were made based on morphological information and have been confirmed by molecular studies (e.g., Vasconcelos et al. 2017; Flickinger et al. 2020).

The distinguishing characters of *Psidium* are discussed in Landrum (2003) and in Landrum & Sharp (1989) and are: flowers (4–)5(–6)-merous (rarely with more petals) with multiovulate locules; placenta often peltate; seed coat rough or dull, covered with a pulpy layer when wet (rarely lustrous in young seeds); hard portion of seed coat (5–)8–30 cells thick at the narrowest point, with the cells thick-walled, elongate, and overlapping; and a C-shaped embryo with cotyledons much shorter than the hypocotyl. Proença et al. (2022) provide an extensive discussion of important taxonomic characteristics of *Psidium* and descriptions of the four sections they recognize. Traditionally *Psidium* has been recognized as belonging to the subtribe Myrtinae *sensu lato*, which has been shown to be a paraphyletic group through molecular phylogenetic studies (Vasconcelos et al. 2017). Lucas et al. (2019) divide traditional Myrtinae into six subtribes, considered by them to be monophyletic, based primarily on molecular data. In their classification *Psidium* belongs to the subtribe Pimentinae.

In this paper I accept *Psidium* as a genus of 63 species. My previous and contemporary colleagues have estimated the number at about 100 (McVaugh 1968) or more (Proença et al. 2022). I realize that my colleagues will sometimes disagree with me about species limits and I try to acknowledge this disagreement; about most species limits I think we agree. The genus ranges from Mexico and the Caribbean to Argentina and Uruguay. The coastal forest region of Brazil (Mata Atlantica) and adjacent inland drier regions (caatinga, cerrado) are particularly rich in species of *Psidium*. According to my taxonomic opinion 45 of the 63 species occur in Brazil, and most of these in Mata Atlantica. A few species have been introduced as cultivated

plants in the Old World and Pacific Island tropics and subtropics, and some of these are now weedy invasives (Global Invasive Species Database 2017).

Taxonomic studies of *Psidium* have been numerous in the last few years, either clarifying species limits (Landrum 2003, 2005a, 2016), or describing new species (Landrum 2005b, Landrum & Acosta 2023; Landrum & Cornejo 2016; Landrum & Funch 2008; Landrum & Parra-O. 2014; Landrum & Proença 2015; Landrum & Sobral 2006; Maruyama et al. 2024; Proença et al. 2011; Soares-Silva & Proença 2008; Tuler et al. 2016a, 2017, 2020a, 2020b). A monograph facilitates the discovery of new species, so I expect additional new species will be proposed.

Similar genera. *Psidium* is not likely to be confused with most other genera of Myrtaceae. Species of *Myrcia* DC. (including *Calyptranthes* Sw.), with 5-merous (sometimes calyptrate) flowers, generally have paniculate inflorescences, red or black small fruits with few seeds with thin seed coats, and embryos with leafy cotyledons folded into a bundle, with a long hypocotyl encircling that bundle. *Eugenia* L., *Myrcianthes* O. Berg, and *Myrciaria* O. Berg have 4-merous flowers, fruits with usually one or two seeds, and embryos with the cotyledons fused into a subspherical mass or plano-convex as in a bean.

The recently recognized Bahia-endemic genus *Algrizea* Proença & NicLugh. (Proença et al. 2006) has been confused in the past with *Psidium*. It has 5-merous flowers in dichasial inflorescences (similar to some species of *Psidium*), but the calyx lobes are well developed and separate, the seed coat is thin and not operculate, the ovary is 2-locular, and the placenta is not peltate. The embryo of *Algrizea* is unique in Myrtaceae, somewhat intermediate between *Myrcia* and *Myrcianthes*. Phylogenetically *Algrizea* appears to be most closely related to the *Myrcia* complex of genera (Lucas et al. 2007) or *Myrciaria* and related genera, i.e., the "*Plinia* group" (Vasconcelos et al. 2017).

In most of the geographic range of *Psidium* only *Campomanesia* and *Calycolpus* are likely to be confused with *Psidium* because they have generally 5-merous flowers, and seeds and embryos similar to *Psidium*. The three genera are compared in the key below.

1. Ovary with (3–)6–18 locules, the locules when fertile usually 1-seeded; locular wall in fruits glandular, functioning as a false seed coat in the fruit so that the "seed coat" appears to be glandular, the locules arranged in a ring in the fruit, several often without a seed inside; leaves with broadly arching lateral veins and often no clear marginal vein; bark flaky or crusty; hypocotyl swollen; anthers usually with 0–1 gland in the connective..... ***Campomanesia***

1' Ovary with 2–5(–6) locules, the locules when fertile with 1 to many seeds; locular wall in fruits usually not glandular, not functioning as a false seed coat, the true seed coat not glandular, the seeds distributed throughout the fruit, not oriented in a ring; leaves variable but often with a distinct marginal vein; bark variable, but often smooth; hypocotyl not swollen; anthers often with >1 gland in the connective.

2. Seed coat dull or rough (rarely shiny when immature), several cells thick; cells of the hard seed coat surface elongate, overlapping (Fig. 5A–E); calyx closed or nearly so in the bud, or the calyx lobes usually broader than long, more or less triangular, sometimes only evident as a sinuate margin..... ***Psidium***

2' Seed coat shiny, 1 to a few cells thick; cells of hard seed coat surface not elongate, abutting each other in a mosaic-like pattern (Fig. 5F,G); calyx open in the bud, the lobes often longer than broad...***Calycolpus***

For comparison with other genera of Myrtaceae of Brazil, see Landrum and Kawasaki (1997). In the Caribbean region and parts of Mexico and Central America, *Mosiera* has been confused with *Psidium*. *Mosiera* has 4-merous flowers and when in flower looks like *Eugenia*. The seeds are similar to *Psidium* but have a smooth lustrous or verrucose-glandular seed coat. See Landrum et al. (2024) for a more extensive comparison of these two genera.

Subgeneric groups and geography. *Psidium* is naturally an American genus, although *P. guajava*, *P. guineense,* and *P. cattleyanum* are subtropical and tropical weedy species in many other parts of the world. The greatest number of species (ca. 50) is found in South America and those of Central America and Mexico are a subset of that group. Presumably then, these North American species are geologically recent arrivals, because they have not diverged from their South American relatives. The Caribbean Islands are home to 16 species, most of which are endemic to the Caribbean, and may, because of their diversity and distinctness from mainland species, represent multiple, geologically old, colonizations.

About half of the South American species of *Psidium* are found in Bahia, Brazil and several (e.g., *P. bahianum, P. ganevii, P. rotundidiscum, P. schenckianum*) are endemic or nearly endemic to that state (Landrum 2017). The Atlantic Coastal Forest and the adjacent cerrado and caatinga can be considered a center of diversity for *Psidium*. We can speculate, at least, because of that diversity and endemism, that *Psidium* has a long history in the Atlantic Coastal Forest and adjacent areas. It is notable that it is not found in temperate southwestern South America; in this respect it is similar to the large Neotropical genera *Eugenia* and *Myrcia,* both of which are quite diverse in the Atlantic Coastal Forest (Sobral et al. 2009). *Psidium* is present but less locally diverse in the rest of Brazil, the Andean countries (excluding Chile), and the Guianas.

The Isthmus of Panama has been dated at ca. 2.8 million years old (O'Dea et al. 2016). So, prior to that date direct migration without dispersal over water barriers may have been impossible to Central America and beyond. *Psidium oligospermum*, at least, clearly is able to cross significant water barriers, having become established on some oceanic islands (e.g., Galapagos). Colonization of islands, especially when they are new, relatively uninhabited, and with reduced biologic competition, would be more likely than colonization of a continent with many resident species already. Because of their edible fruits some species of *Psidium* in Central America and Mexico may have been carried there by humans. I do not know of any fossil evidence of *Psidium* in Central America and Mexico other than archeological finds of *P. guajava* that are about 2000 years old in the Tehuacán Valley of Mexico (Smith 1965).

An interesting disjunct pattern exists between east-central Brazil (Bahia and nearby states), and the Caribbean coast of Venezuela. *Psidium appendiculatum*, *P. brownianum*, and *P. schenckianum* are all found in both areas (Bello Pulido et al. 2020). *Psidium amplexicaule* has a similar distribution but is found on Caribbean islands instead of the Venezuelan coast. The pattern is found in other groups and Pennington et al. (2000) propose the existence of a dry tropical forest that connected the two areas, probably in the Pleistocene.

In previous publications I have proposed complexes of species and have given them informal names: *Psidium salutare* complex (Landrum 2003); *P. grandifolium* complex (Landrum 2005); *P. amplexicaule* complex (Landrum et al. 2024); *P. acidum* complex, *P. acutangulum* complex, and *P. guajava* complex (Landrum 2021). I here update a key to the *Psidium* complexes (with minor modifications) from Landrum (2021), that may be useful as a guide to the various groups in the genus; it is not meant to be used for specimen identification.

Key to the species complexes of *Psidium*

1. Flowers large: style usually 10–15 mm long (shorter in *P. grandifolium* complex); stamens often over 200 (up to 800); ovary locules often 4–5; ovules per locule usually 20–200; calyx closed in most species (open in some species of *P. grandifolium* and *P. acutangulum* complexes); young twigs frequently 4-winged to quadrangular.

2. Leaves brochidodromous, with a clear marginal vein from the base to the apex.
    3. Seeds rounded or with some flat sides; southern Mexico to Peru including upper Amazon basin (some species cultivated); locules usually 3–5; anthers often with a few to several co-equal glands; twigs always 4-winged; peduncle sometimes 4-winged; calyx always closed. ***P. acidum* complex**: *P. acidum, P. friedrichsthalianum, P. guayaquilense, P. huanucoense, P. montanum,* and *P. rostratum*
    3' Seed angular; mainly Amazon basin (one species in Paraná river basin); locules usually 2–4; anthers with a terminal gland and often with smaller glands below; twigs 4-angled or terete; peduncle not winged; calyx open in some species. ***P. acutangulum* complex**: *P. acutangulum*, *P. densicomum*, *P. kennedyanum, P. maribense, P. riparium*, and *P. striatulum*
2' Leaves eucamptodromous (entirely without a clear marginal vein), or eucamptodromous proximally and brochidodromous distally (with a clear marginal vein for part of the leaf).
    4. Placenta barely protruding into locule; locule walls sometimes incomplete; calyx open or with a terminal pore in the bud; anthers up to about 1 mm long; seeds mostly less than 85, 3–5(–6) mm long; tertiary veins connecting lateral veins in a dendritic pattern; shrubs and subshrubs of open areas (campo, cerrado, savannas). ***P. grandifolium* complex**: *P. australe, P. grandifolium, P. missionum, P. ratterianum,* and *P. suffruticosum*
    4' Placenta protruding into locules as a peltate structure; locule walls complete; calyx closed or with a terminal pore in the bud; anthers often over 1 mm long; seeds sometimes few but often over 100, 2.5–5(–11) mm long; tertiary veins commonly connecting lateral veins in a ladder-like pattern, less often in a dendritic pattern; shrubs and trees of forested areas, sometimes in riparian or disturbed habitats. ***P. guajava* complex**: *P. guajava, P. guineense, P. guyanense, P. nutans,* and *P. rutidocarpum*

1' Flowers small: style usually 3–8 mm long; stamens usually less than 200; ovary locules rarely 4–5; ovules per locule usually 3–50; calyx closed or open and bowl-like; young twigs terete to compressed (rarely 4-winged or quadrangular).
    5. Flowers cauliflorous; eastern Brazil (Bahia, Espirito Santo, Rio de Janeiro). ***P. cauliflorum* complex**: *P. cauliflorum* and *P. grazielae*
    5' Flowers not cauliflorous; widespread.
        6. Calyx with apical appendages (not always in *P. oligospermum*), appearing closed or nearly so in bud, tearing into nearly regular lobes at anthesis (or usually irregularly or calyptrate in *P. oligospermum*). ***P. oligospermum* complex**: *P. appendiculatum*, *P. glaziovianum*, *P. oligospermum*, and *P. schenckianum*
        6' Calyx without apical appendages, open or closed in bud.
            7. Shrubs and subshrubs usually less than 1 m tall, of open areas (campo, cerrado, savannas); calyx open. ***P. salutare* complex**: *Psidium laruotteanum* and *P. salutare*
            7' Shrubs or trees of forests and open habitats; calyx open or closed in bud.
                8. Andean tree species about 10–30 m tall; calyx open in bud with closed corolla clearly visible; dichasial inflorescences common (these sometimes aggregate into panicles); calyx open; styles 3–6 mm long. ***P. pedicellatum* complex**: *P. fulvum, P. pedicellatum*, and *P. occidentale*
                8' Species of eastern South America (mainly Brazil) or the Caribbean; dichasial inflorescence occasional; calyx open or closed in bud; style sometimes over 6 mm long.
                    9. Species of Caribbean islands (*P. amplexicaule* reaching coastal habitats of Bahia and northward) with the calyx closed or nearly closed in bud, often with a small apical pore through which minute hairs protrude, the inner surface of the calyx moderately to densely covered with minute hairs, these usually reddish brown; leaves frequently suborbicular or orbicular. ***P. amplexicaule* complex**: *P. acranthum, P. amplexicaule, P. harrisianum, P. parvifolium, P. nannophyllum, P. nummularia, P. minutifolium, P. rotundatum,* and *P. urquiolanum*
                    9’ Species mainly of continental America with calyx open or closed in bud; indumentum various; leaf shape various. **Miscellaneous species without clear affinities**.

Proença et al. (2022) have recently published a molecular phylogenetic study and classification of *Psidium* based on a sample of thirty species using two chloroplast genes and two nuclear regions. Based on this phylogeny they subdivide *Psidium* into four sections:

Psidium (type, P. *guajava* L.); *Obversifolia* O. Berg (type, *P. cattleyanum*); *Mitranthes* (O. Berg) Tuler & Proença (type, *P. brownianum*); and *Apertiflora* O. Berg (type, *P. myrtoides*).

Two Caribbean species, *Psidium acranthum* and *P. amplexicaule*, are included in the study of Proença et al. (2022) and appeared as sister taxa in the section *Mitranthes*. Based on the molecular studies of Proença et al. (2022) and Flickinger et al. (2020) and our own morphological studies, Landrum et al. (2024) proposed and described an informal group, the "*P. amplexicaule* complex" mentioned above, that includes the Caribbean species *P. acranthum, P. albescens*, *P. amplexicaule*, *P. harrisianum*, *P. nannophyllum*, *P. nummularia*, *P. minutifolium*, *P. parvifolium*, *P. rotundatum*, and *P. urquiolanum*. Subsequently I discovered that Grisebach proposed *Psidium* sect. *Clidopsidium* Griseb., [Cat. Pl. Cub. [Grisebach] 91. (1866)] as a formal name for the group.

There is substantial agreement between the five formal sections proposed by other authors and the complexes of species I and my co-authors have proposed. Comparisons between sections and complexes are presented in Table 1 along with a brief statement on the distribution of the complexes.

Proença et al. (2022) divide *Psidium* sect. *Psidium* into two subsections: *Psidium* sect. *Psidium* subsect. *Psidium* and *Psidium* sect. *Psidium* subsect. *Albotomentosa* (O. Berg) Tuler & Proença. The latter subsection corresponds closely to the *Psidium grandifolium* complex.

Table 1. Comparison of sections of *Psidium* as proposed by Proença et al. (2022) and Grisebach (1866) with complexes proposed by Landrum (2003, 2005, 2021) and Landrum et al. (2024).

Section	Complex Name	Spp. Distribution
Psidium sect. *Psidium*	*P. acidum* complex	Mainly western South America, in Andes below 1000 m and lowland areas adjacent to the Andes; also, in Mexico, Central America, and Jamaica.
Psidium sect. *Psidium*	*P. acutangulum* complex	Mainly Amazon and Orinoco river basins; one species in Paraná river basin.
Psidium sect. *Psidium*	*P. grandifolium* complex	Mainly from Argentina to Goiás Brazil; reaching Mexico.
Psidium sect. *Psidium*	*P. guajava* complex	Mainly widespread; one species endemic to eastern slope of Andes below 2000 m.
Psidium sect. *Mitranthes*?	*P. cauliflorum* complex	Mata Atlantica, Bahia, Espirito Santo, Rio de Janeiro.
Psidium sect. *Mitranthes*	*P. oligospermum* complex	Minas Gerais, Bahia, Brazil to north coast of Venezuela; one widespread species from Mexico and Caribbean to Argentina.
Psidium sect. *Apertiflora*	*P. salutare* complex	Mainly from Argentina to Goiás, Brazil; reaching, Central America, Mexico and Caribbean.
Psidium sect. *Apertiflora?*	*P. pedicellatum* complex	High elevations (1000–3000 m) of Andes, Peru to Venezuela.
Psidium sect. *Clidopsidium*	*P. amplexicaule* complex	Caribbean region, one species reaching Bahia, Brazil.
Psidium sects. *Apertiflora, Mitranthes, Obversifolia*	Many unplaced species	Eastern Brazil.

Citation of types. One objective of a monograph is to establish which names should be used for each accepted taxon, and to verify what additional names are synonyms of the

accepted names. In addition to *Psidium* other generic names had to be considered, e.g., *Calyptropsidium, Campomanesia*, *Mitropsidium, Mosiera*, and *Myrtus*. For this study over 650 names were examined. Over 530 belonged to *Psidium*, either as one of the 72 accepted names or the ca. 460 synonyms of these (Table 4). Another 123 names were excluded because they had been described as *Psidium* but did not belong there or were not clearly identifiable (Table 5). In most cases I have found type specimens or images of type specimens and cite these with each basionym. The Global Plants Initiative (GPI; JSTOR 2025), funded by the Mellon Foundation and administered by JSTOR, is a resource that has greatly facilitated the discovery of type specimens and has been extremely helpful in my efforts.

Any type specimen that is in the GPI database has an identifier that is a combination of the herbarium acronym and the specimen number, e.g., "NY-567890." Many times, the numerical part of this identifier includes zeros to the left that do not change the value of the number and I have not included these. An identifier such as NY-0005678 is cited as NY-5678. If I personally have seen a specimen, and it has my annotation, I cite it with an exclamation point (e.g., NY-5678!). If I have only seen it as an on-line image it is cited without an exclamation point. If I have seen a type specimen and it is not in the GPI database, I cite it with an exclamation point but no identifying number. Several type specimens at LE were photographed and the images kindly sent to me in 2003. In exchange I sent annotation labels that are now with the specimens, but I have not seen the specimens themselves.

Specimen databases. This paper is based on studies of ca. 4300 *Psidium* herbarium specimens at various herbaria seen on visits or sent to ASU on loan and recorded in my research database online (Myrtaceae Research Database) and another ca. 1850 specimens housed at ASU. Both these databases can be queried at CoTRAM, Cooperative Taxonomic Resource for American Myrtaceae. At CoTRAM there are about 30 other specimen databases, but since I have not always seen these specimens, the identifications are less reliable. I have only added specimens to my research database when the images are excellent (e.g., from NY) and the identity is clear. The ASU specimens have been photographed and are posted with their specimen data; they can be searched and viewed at CoTRAM or at the SEINet using the ASU barcode number or by collector plus collection number. I have been able to access many Brazilian collections with *Species*Link and have selected a few records with good images and posted them on CoTRAM. These help by documenting localities for which I otherwise do not have information. Many records in these databases are georeferenced. I am very grateful to Daryl Lafferty for writing a computer program that allowed me to make maps of distribution and the corresponding lists of georeferenced representative specimens for each species.

Species Concepts. I try to follow a species concept in which each species is a morphological continuum with no significant gaps in variation. *Canis familiaris*, the dog, is an example of a geographically widespread and variable species, that still is a morphological continuum. Occasionally a local population can include notable variation, but all individuals belong to the continuum of the species. Between species I believe there should be consistent and significant gaps in character variation. Local cases of hybridization may occur between species and do not necessarily require changing species concepts. I suspect that a morphological continuum may be the result of: 1) individuals being derived from a common ancestor or ancestors; 2) selection by the environment that causes individuals to be similar; or 3) gene flow. But I have no way of being sure which of these influences is most important, especially because I base most of my work on herbarium specimens. I must admit that sometimes what I think is a morphological continuum one year is later seen as discontinuous

in another year. That has been the case with *Psidium acidum* and *P. acutangulum* (Landrum 2016). And what I thought to be one disjunct species of *Myrceugenia*, *M. ovata* (Hook. & Arn.) O. Berg, with four varieties (Landrum 1981) is probably at least two distinct species based on molecular studies (Murillo et al. 2012). I hope that the species concepts presented in this paper will be tested by future workers with new techniques, such as DNA sequencing. As molecular techniques become less expensive, it should be possible to work with large numbers of specimens as is done with traditional herbarium-based taxonomic work.

Future research. My studies of Myrtaceae have mainly been of herbarium specimens conducted far from natural populations. There are many kinds of studies that can more conveniently be done by researchers that work near living populations. These include: phenology, molecular phylogenetics, pollination studies, comparative cytology and genome size, naturally occurring hybridization, population studies of variable species, ethnobotanical/medicinal use studies, essential oils analysis, and evaluation of conservation status. For all these it is imperative that good voucher specimens be made so that the results of any study can be traced back to actual specimens. Posting excellent images (including close-up images) of vouchers on the internet will make them especially useful. The identification of the vouchers may change, but the results of particular experiments or observations will always be linked to them and will never lose their importance.

Particularly useful field studies could be done of variable and widespread species such as *Psidium australe*, *P. grandifolium*, *P. guineense*, *P. nutans, P. oligospermum, P. salutare*, and *P. striatulum*. Hybridization studies are another interesting type of research that sometimes reveals subtle ecological differences in species. Based on the examination of numerous herbarium specimens and some fieldwork, I believe that hybridization occurs between the following pairs of species: *P. oligospermum* and *P. schenckianum*; *P. appendiculatum* and *P. schenckianum*; *P. brownianum* and *P. ganevii; P. brownianum* and *P. schenckianum; P. australe* and *P. grandifolium*; and *P. guineense* with *P. guajava*, *P. australe, P. grandifolium,* and perhaps *P. oligospermum.* If these suspected cases of hybridization prove to be true, then their correspondence to different levels of ploidy should be helpful information (see section on chromosome number and genome size below).

IMPORTANT CHARACTERISTICS

There are several morphological characteristics that have been particularly important in distinguishing species. These are briefly discussed below.

Indumentum. The hairs (trichomes) in *Psidium* are unicellular and unbranched, never dibrachiate (T-shaped) as they commonly are in some other genera of Myrtaceae (e.g., *Myrceugenia, Myrcia*). Species vary from being glabrous, or nearly so, to densely covered with indumentum on some or most structures. The pattern of indumentum cover in flower buds and open flowers can be especially important as it allows for the comparison of species at a similar stage of development. Indumentum of leaves and twigs is often deciduous with time and therefore less reliable. The indumentum may be appressed or spreading, of nearly straight to curled hairs, and of essentially clear, whitish, yellowish, or reddish brown hairs.

Twigs. Young twigs vary from terete or compressed, to quadrangular and somewhat 4-winged. The way the first epidermis cracks or flakes off, and its color in dried specimens, may also be important. In some species there are specialized protective "bud scales" that may be associated with species that grow in seasonally deciduous vegetation. Nodes in these species can be significantly wider than the internodes (e.g., *P. pulcherrimum*, Fig. 54B).

Leaves. Leaves provide characters of texture, shape, and color when dried as herbarium specimens. Petiole length, blade shape, and size are all useful. The venation of leaves is especially important. The most common type is brochidodromous with the lateral veins (i.e., secondary veins) looping towards the apex near the margin to connect with each other to form a marginal vein that follows the margin, either as a series of arches (e.g., *Psidium brownianum*, Fig. 18G) or as a scarcely arching vein that nearly parallels the margin (e.g., *P. firmum*, Fig. 23G). Less common is eucamptodromous venation where the laterals diminish near the margin and no clear marginal connecting vein is evident. In these species leaves may be eucamptodromous proximally with no clear marginal vein and brochidodromous distally with a weak marginal vein (e.g., *P. guineense*, Fig. 32D). Cardoso and Sajo (2006) have found a similar situation in Brazilian Myrtaceae but consider it to be a mixture of acrodromous and brochidodromous venation. The tertiary veins that connect the lateral, marginal, and midveins may have a dendritic pattern or a ladder-like pattern (the latter found in eucamptodromous leaves only). The dendritic pattern may seem to be without clear direction or may seem to arise from the marginal vein (e.g., *P. firmum*, Fig. 23G). Klucking (1988) has done an extensive survey of leaf venation in Myrtaceae. I have not tried to follow his terminology but have consulted his work and recognize similarities in our ways of categorizing venation patterns in *Psidium*. His "Type I" basically corresponds to eucamptodromous and intermediate conditions; his "Type III" corresponds to brochidodromous. He has subtypes of both, that I do not accept.

In the axils of leaves it is common to find colleters (small acicular or conical structures), that mimic stipules. Colleters are secretory and protect young growing regions (Silva et al. 2012). So far, they do not appear to be taxonomically useful.

Calyx. The calyx structure is especially important in *Psidium*. For convenience, calyx morphology may be divided into two types: bowl-like, with the surface of the closed corolla clearly visible in the closed flower bud (Fig. 1A; 2C); or closed, hiding the closed corolla completely or enclosing it except for a terminal pore (Fig. 1B; 2A, G). The amount of closure of the calyx is variable between and sometimes within species. Intermediate states between these conditions occur and several species may have more than one condition. When calyx lobes are evident, as they usually are in an open calyx, the portion of the calyx between the lobes and the summit of the ovary I call the calyx tube. The calyx tube might be considered a hypanthium tube. In this paper I restrict the term hypanthium to that tissue covering the inferior ovary.

As the flower bud opens, tears form in the calyx. In a species with a completely closed calyx the tears may be: more or less regular and tear into 5 lobes; irregular (Fig. 2H) tearing into usually 2 or 3 parts; or the whole calyx may fall as a calyptra (Fig. 2I; frequently but not always in *P. oligospermum* and *P. brownianum*). If the calyx is open and bowl-like, tears generally form between the lobes (Fig. 2D). The lobes may be quite reduced and in some cases they are only evident as the sinuate margin of the bowl-like calyx (Fig. 2C).

When the calyx is closed, it is not clear where the stamens and petals are attached: on the summit of the ovary (Fig. 1A); or on the inner surface of a calyx tube (Fig. 1B). As the bud opens, the tears forming in the calyx may cut to the staminal ring but not into it (Fig. 2D), or they may cut into the staminal ring (Fig. 2B, F). In the second case the stamens and petals are attached to the inner surface of the calyx tube.

Another modification of the calyx is the presence of protuberances (flange-like or wart-like) on the outer surface of the calyx near the apex (e.g., *P. appendiculatum*, Fig. 2E, F).

Ovary. Ovaries are 2–5(–6)-locular. The number of ovules per locule varies from as few as 3 to over 250 (Fig. 3). Numbers below 10 and more than 100 are relatively rare. The placenta usually protrudes as two lamellae that form a peltate structure. The number of rows (or seriations) of ovules on the edge of a lamella varies from 1 to about 4. The great variation in ovule number in an ovary between species and sometimes within species is remarkable. Increased numbers of ovules may be accomplished by: 1) a longer placenta; 2) multiple rows of ovules on the edges of the placenta; 3) larger numbers of locules. Larger numbers of ovules will generally mean larger numbers of seeds, but apparently only a small minority of ovules become seeds. The purpose of the extra ovules might be investigated. Arathi et al. (1996), worked with *Syzygium cuminii* (L.) Skeels (Myrtaceae), which has about 30 ovules per ovary but normally produces a single seed per fruit. They experimentally found that some substance in developing ovules can inhibit the growth of other ovules. They suggested that there may exist a form of "sibling rivalry" among ovules, those fertilized first inhibiting the others.

The best way to observe the placentas and ovules is to first rehydrate a bud or flower by boiling it in water or soaking it overnight in water and a few grains of detergent, and then cutting off the distal portion of a bud, which will contain the stamens (this can be saved for later dissection). Place the cut surface of the proximal portion down. With a dissecting microscope and sharp razor blade progressively slice off sections from the base of the inferior ovary. When the locules are evident, slice away part of an ovary wall to reveal the ovules and placenta. I have found that the placenta with ovules can be photographed submerged in water with a camera mounted on a dissecting microscope.

Stamens, anthers, and pollen. Stamens vary in length and number (50–800). When all the stamens have fallen, it is sometimes possible to estimate the number by counting scars on the staminal disk. When the number of stamens is very large, counting a half, fourth or fifth of the stamens can give a good approximation of the total. Vasconcelos et al. (2015) have investigated the relative inward curvature of the stamens in the flower bud of the Myrteae and consider it to be a phylogenetically important character. *Psidium* belongs to their "*Pimenta*-group," which they report as being variable. I have not paid close attention to this character so far, but I suspect that it is fairly variable among the species of *Psidium*, varying from somewhat incurved to nearly straight in the bud. Longitudinal sections of flower buds illustrated in Figs. 19 (*P. cattleyanum*), 27 (*P. glaziovianum*), 35 (*P. huanucoense*), 44 (*P. myrtoides*), and 50 (*P. oligospermum*) show a sample of that variability.

In *Psidium* anthers vary in size from 0.3–3 mm long. The number of glands in the anthers is variable. Some genera typically have no glands or only one or two (e.g., *Campomanesia*) and in a few genera (e.g., *Calycolpus*) multiple glands are common (Landrum & Bonilla 1996). In *Psidium* the number of anther glands varies from 0 or 1 in some species to numerous in others and can help to distinguish species (Fig. 4). The glands can be observed by soaking the anthers in water with detergent and bleach for an hour or so in a clear container with a dark background beneath. When most tissue is nearly white, the glands, which remain a darker amber color, can usually be seen with the aid of a microscope and may be photographed while they are under water.

Tuler et al. (2016b) have researched pollen morphology in a sample of 13 species and have found that species and even species groups can be distinguished. They found that exine ornamentation, polar diameter in equatorial view, and pollen shape were important characteristics. Additional studies would be desirable.

Fruits. As in all Myrteae, the fruits of *Psidium* are berries and range in size from 0.5 to 10 cm in diameter but most are between 1 and 3 cm in diameter. There is little information about the color of fruits, but it is probable that when ripe they are at least different shades of green, yellow, orange, and red. Photographic documentation of fruit colors is desirable. Fruit morphology is reported to be correlated with the animals that tend to eat them (Janson 1983). Large yellow or green fruits with relatively thick walls are likely to be eaten by mammals. This is a common type in *Psidium*. Small red or purple fruits with thin walls are likely to be eaten by birds. This second type is common in *Eugenia* and *Myrtus*, for instance, but probably less common in *Psidium*. Observations of fruit predators are encouraged and should be reported on herbarium labels and in publications.

Seeds. The seeds of *Psidium* are unique among the Myrteae because of their dense cell structure (Landrum & Sharp 1989; Fig. 5A–E). The cells of the seed coat are elongate, with little or no lumen, and closely packed together and in a few to several layers (Fig. 6). The seed surface is not a smooth, shiny mosaic of non-overlapping cells as in most other genera of subtribe Myrtinae *sensu lato* with hard seeds (e.g., *Calycolpus,* Fig. 5F, G; *Mosiera*, Fig. 5H, I), but rather a rough or dull surface when dry and a pulpy layer when wet. The very hard dense seed coat is hard to break, and this characteristic may be related to fruit predators. The germinating embryo emerges via a pore in the hard seed coat covered by a plug-like operculum (Rotman 1976).

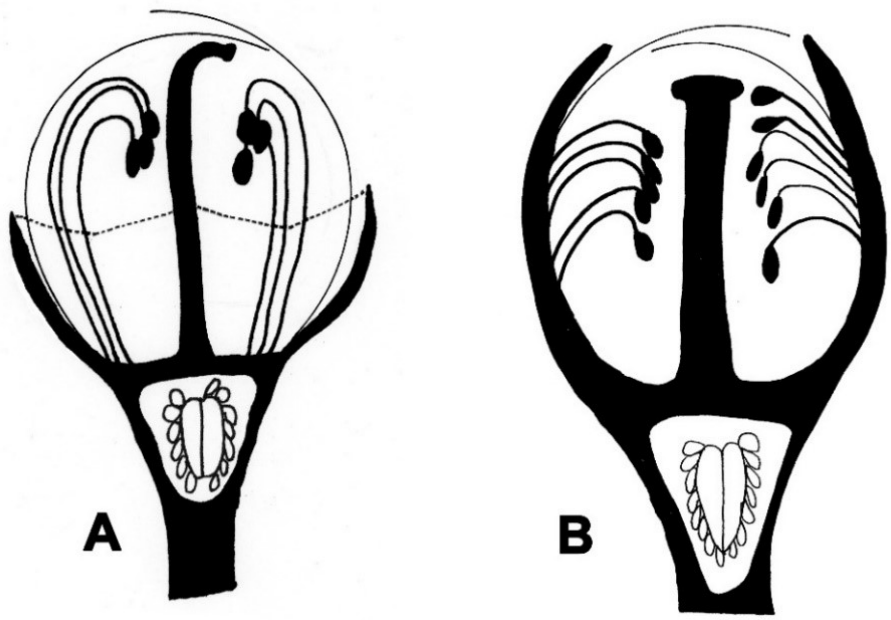

Figure 1. Schematic drawings of closed flower buds of *Psidium* in longitudinal section showing a single locule with placenta and ovules below; and with calyx, 2 petals, a few stamens and the style above. **A**. Flower bud with a bowl-like open calyx (as might be found in *P. firmum*; the hidden calyx rim indicated by a dotted line) with stamens and petals attached on about the same level as the calyx at the summit of the ovary. **B**. Flower bud with a nearly closed calyx (such as is often found in *P. cattleyanum*) with stamens and petals attached to the inner surface of the calyx tube, well above the summit of the ovary. As the bud opens and tears form in the calyx, the tears will not cut into the staminal ring in A but will cut into the staminal ring in B. Reproduced from Landrum 2017.

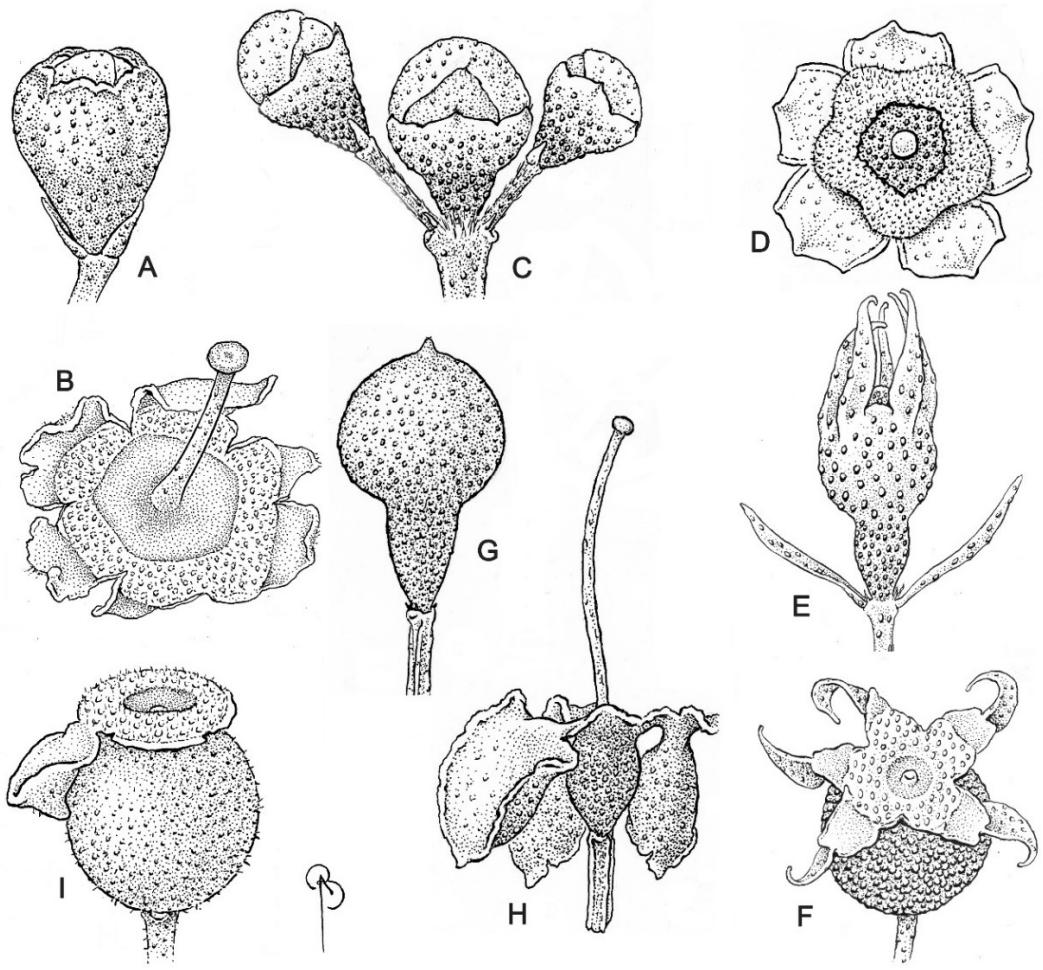

Figure 2. *Psidium* flowers before and after anthesis. *P. cattleyanum*: **A**, closed bud before anthesis with apical pore; **B**, apical view of flower after anthesis showing tears in staminal ring. *P. occidentale*: **C**, 3-flowered dichasium with closed buds; **D**, view from above after anthesis, tears forming between lobes but not penetrating the staminal ring. *P. appendiculatum*: **E**, a nearly closed calyx before anthesis with a flange-like apical appendage on each lobe; **F**, after anthesis, tears forming between lobes penetrating the staminal ring. *P. acidum*: **G**, bud with completely closed calyx; **H**, calyx tears irregularly at anthesis, the staminal ring, not visible in this drawing, is not penetrated by tears at anthesis. *P. brownianum*: **I**, side view of immature fruit showing persistent calyptra and no tears in staminal ring. (A, from *Rossato et al. 4855*, ASU; B, from *Folli 4925*, ASU; C, D, from the isotype *Rubio & Quelal 659*, ASU; E, from *Proença et al. 1445,* ASU; F, from *Filgeiras & Lopes 2406*, ASU; G, H, from *Perea et al. 2098*, ASU; I, from *Stannard et al. H515615,* ASU). All illustrations by Bobbi Angell. Reproduced from Landrum 2017.

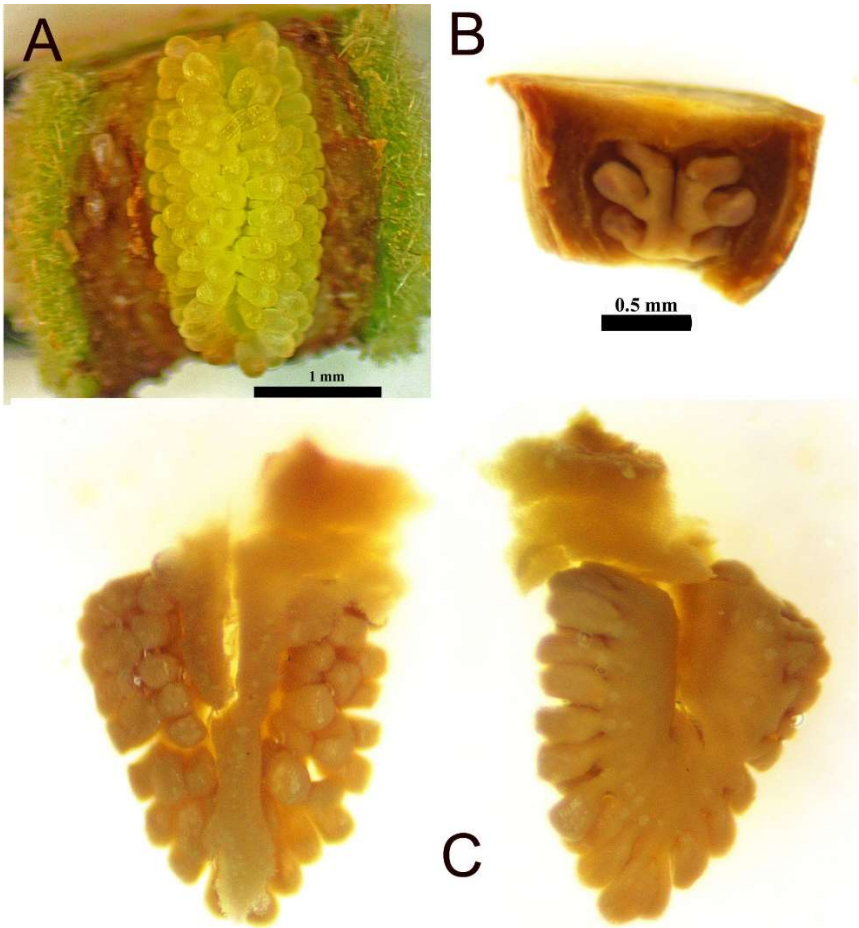

Figure 3. Examples of *Psidium* placentas and ovules. **A**, *P. guineense*: with numerous ovules ca. 4 seriate on each lamella of placenta. **B**, *P. ovale*: with ovules 1-seriate, 3 per lamella. **C**, *P. salutare*: peltate placenta ca. 1.5 mm long, with ovules 2–3-seriate on each lamella: left, inward view; right, outward view. (A, from *Landrum 12046*, ASU0079343; B, from *Landrum 2371*, ASU0015604; C, from *da Silva 1880*, ASU0015567).

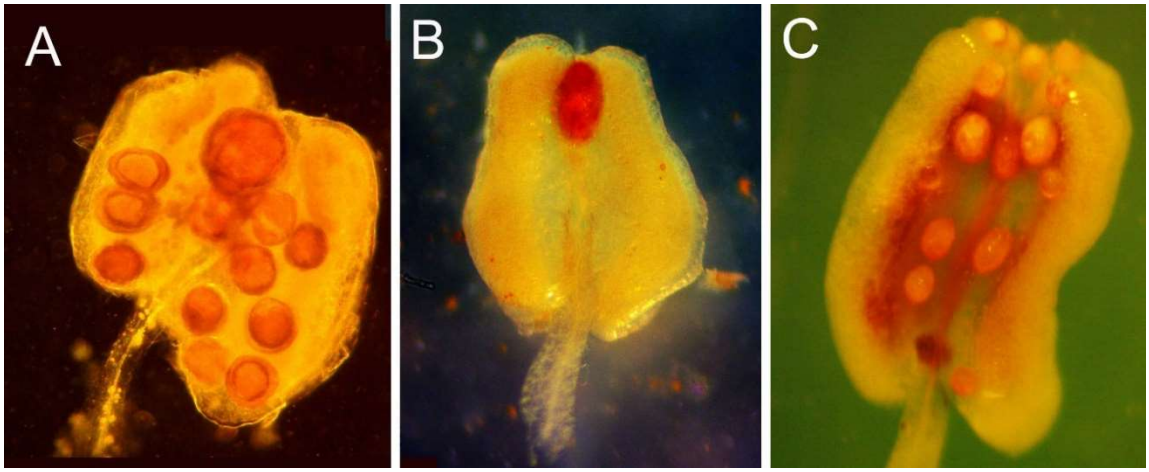

Figure 4. Examples of *Psidium* anthers with glands. **A**, *P. rotundatum*: anther with a larger terminal gland and smaller glands below. **B**, *P. sessiliflorum*: anther with only a terminal gland. **C**, *P. friedrichsthalianum*: anther with glands of nearly equal size. All photographs taken with anthers submerged in water. (A, from *Bisse & Rojas 1980*, JE; B, from *Faria 2184*, ASU0082992; C, from *Landrum 12321*, ASU0310759).

Seeds. The seeds of *Psidium* are unique among the Myrteae because of their dense cell structure (Landrum & Sharp 1989; Fig. 5A–E). The cells of the seed coat are elongate, with little or no lumen, and closely packed together and in a few to several layers (Fig. 6). The seed surface is not a smooth, shiny mosaic of non-overlapping cells as in most other genera of subtribe Myrtinae *sensu lato* with hard seeds (e.g., *Calycolpus,* Fig. 5F, G; *Mosiera*, Fig. 5H, I), but rather a rough or dull surface when dry and a pulpy layer when wet. The very hard dense seed coat is hard to break, and this characteristic may be related to fruit predators. The germinating embryo emerges via a pore in the hard seed coat covered by a plug-like operculum (Rotman 1976).

In *Psidium* the number of seeds varies from 1 to over 200 (perhaps as many as 300), but the ranges for a particular species are much smaller. The size of seeds varies from ca. 2.5 mm to 12 mm long. Seed morphology is often important. Seeds may be approximately reniform with uniformly rounded surfaces (e.g., *P. firmum*, Fig. 7A). In this case I believe the seeds mature in the fruit without abutting the fruit wall or other seeds. When seeds develop tightly packed within the fruit they may have nearly flat sides where they abut other seeds and rounded sides that are adjacent to the fruit wall (e.g., *P. myrtoides*, Fig. 7E). In the *P. acutangulum* complex the seeds are tightly packed in the fruit and are often angular with few rounded surfaces (*P. riparium*, Fig. 7B).

Chromosome number, genome size and microsatellites. These are not subjects that I have worked on myself but they have been researched by others and should be valuable in better understanding the evolution of *Psidium*. The common chromosome number in Myrtaceae is 2n=22 but polyploidy is found in *Eugenia* L. and *Psidium* (Rye 1979). Chromosome numbers for *Psidium* have been reported by Atchison (1947), Costa and Forni-Martins (2006), Costa and Forni-Martins (2007), Costa et al. (2008), Chakraborti et al. (2010), and Marques et al. (2016). Genome size can be a measure of ploidy level in *Psidium* and may prove to be a valuable tool in assessing ploidy level in many species of *Psidium* (Costa et al. 2008; Marques et al. 2016). Based on my own studies, hybridization appears to be frequent in *Psidium*; hybridization coupled with polyploidy may explain some of the confusing variation in *Psidium* in such groups as the *P. grandifolium* complex (Landrum 2005a) and in *P. guineense*. Tuler et al. (2019a), based on a sample of seven species (diploids to octoploids), propose that diploid species may be more restricted in habitat tolerance than higher ploidy species. Tuler et al. (2015) have found SSR markers (microsatellites) useful in distinguishing species of *Psidium*; perhaps they will prove useful in identifying hybrids and their parents as well.

Phytochemistry and Medicinal uses. *Psidium guajava* is known around the world for medicinal properties and has been frequently studied for its chemical components and their effects (Sam Arul Raj et al. 2025). Pérez Gutiérrez et al. (2008) offer an excellent summary of these subjects complete with an illustrated appendix of the known chemical components of *P. guajava*. The use of the guava in self-care health practices is still common and is likely to continue (Oliveira et al. 2024). Nwankudu and Ifenkwe (2025) found that guava leaf extract can prevent bacterial disease in chickens. The lesser-known relatives of *P. guajava* have not been studied as frequently but I here cite a few recent contributions: *P. guineense* (Fernandes et al. 2012; Vielma-Puente et al. 2025); *P. acutangulum* (Houël et al. 2015; Wen et al. 2011); *P. friedrichsthalianum* (Flores et al. 2013); *P. cattleyanum* (Medina et al. 2011). Further studies of the medicinal potential of other *Psidium* species should prove rewarding.

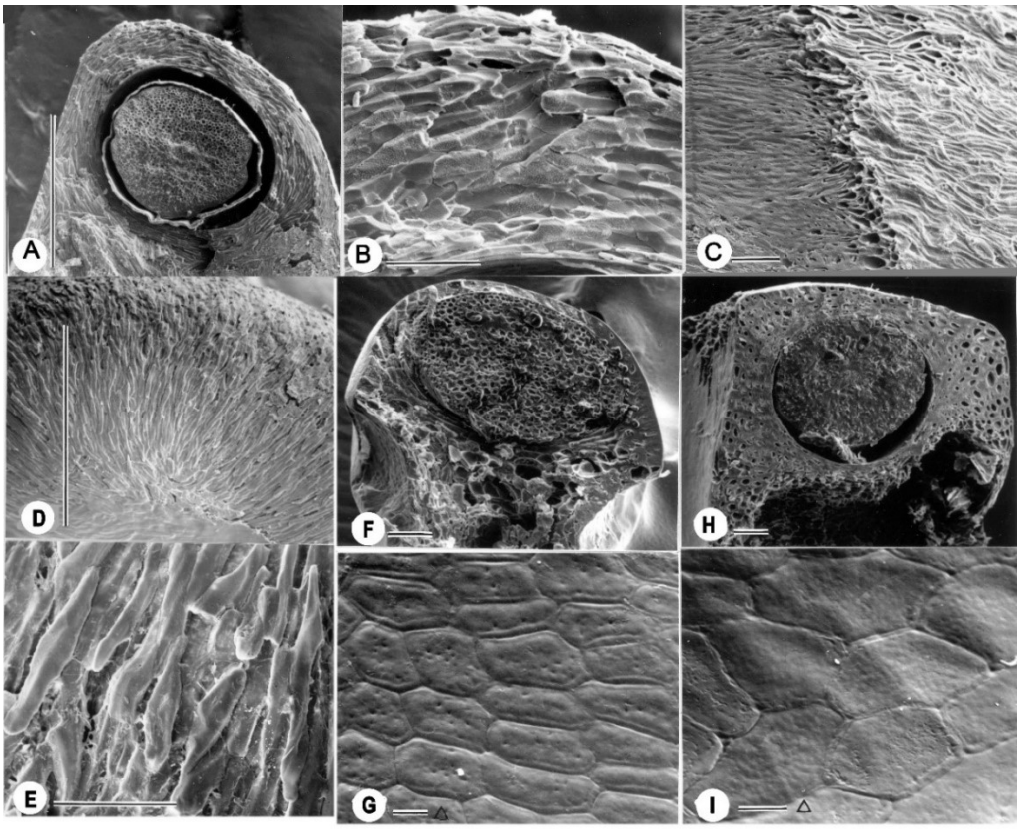

Figure 5. SEM photographs of seed coats or *Psidium*, *Calycolpus* and *Mosiera*. **A–C**, *P. acidum*: section of seed showing cylindrical cavity and embryo (A), upper portion of seed coat in section (B), and outer surface of seed on right and tangential section (C). **D, E**, *P. australe*: outer seed surface from which outer pulpy covering has rotted away. **F, G,** Seed of *Calycolpus moritzianus*. **H, I,** Seed of *Mosiera elliptica*. Note dense overlapping, elongate cells of *Psidium* versus the mosaic pattern of non-overlapping cells in *Calycolpus* and *Mosiera*. (A–C, from *Huashikat 1311*, MO; D, E, from *Montes 851*, NY; F, G, from *Davidse & Gonzalez 21134*, MO; H, I, from *Clemente 2831*, NY). Vertical lines = 1 mm; horizontal lines without triangle = 1/10 mm; horizontal lines with triangle = 1/100 mm. All photos reproduced from Landrum & Sharp (1989).

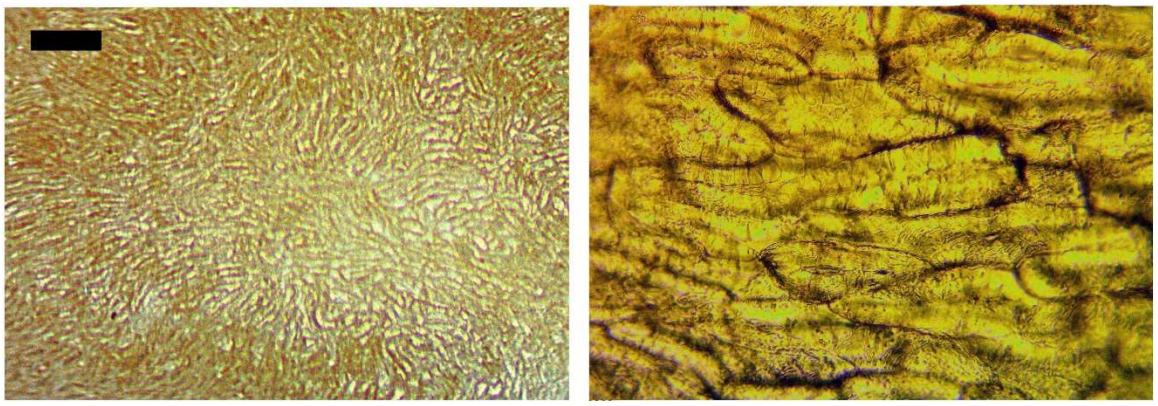

Figure 6. Seedcoat of *Psidium guineense.* Left, view with dissecting microscope of cleaned surface showing narrow, irregular cells. Right, view with compound microscope of tangential section of seedcoat showing thick-walled overlapping cells. Bar in upper left ca. 0.1 mm long. (From *Landrum 12046*, ASU0079343). Modified from Landrum et al. 2024.

Essential oils are the most frequently studied compounds in *Psidium*. Commonly several essential oils are found in a single individual, but a few will be much more abundant than the others. Among the more common dominant essential oils in *Psidium* are: α-pinene, α-selinene, γ-selinene, 1,8-cineole, β-pinene, β-caryophyllene, β-bisabolene, and p-cymene (Tucker et al. 1995; Silva et al. 2003). There seems to be considerable variation within species as to which oils dominate and whether or not essential oils will be taxonomically important is still unclear.

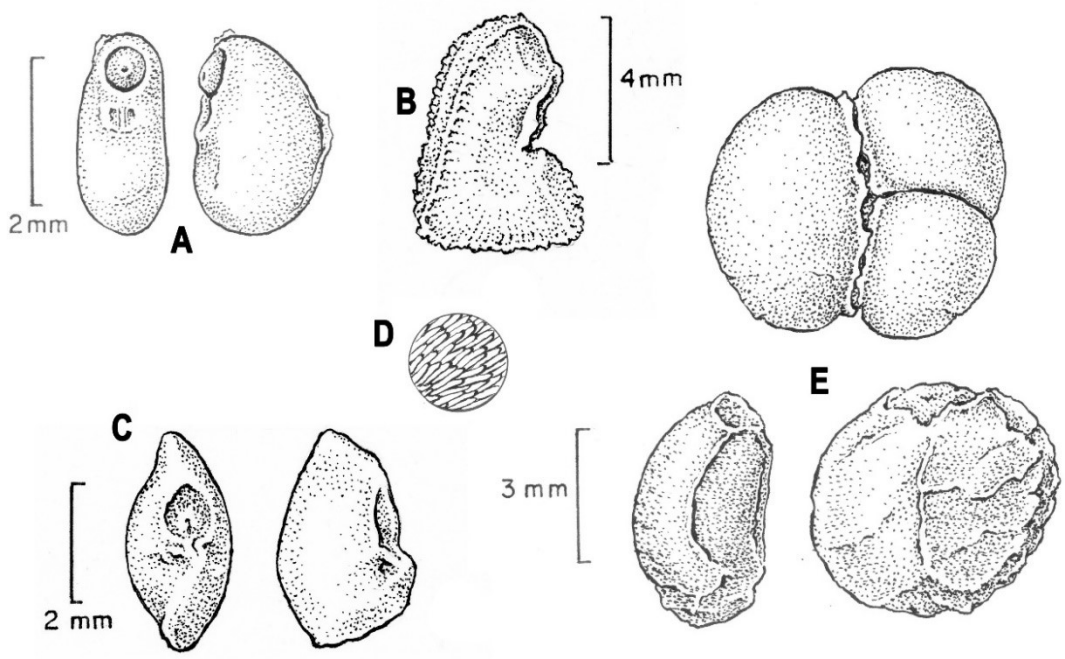

Figure 7. Seeds of *Psidium.* **A**, *P. firmum*: Two views of seed with rounded edges and generally smooth surface. **B**, *P. riparium*: Angular seed with rough surface. **C**, *P. myrsinites*: Two views of seed with compressed sides. **D**, Close-up of internal cell structure of a general *Psidium* seed. **E**, *P. myrtoides*: Above: three seeds of a fruit with rounded smooth surface towards fruit wall and flat rough surface where two seeds abut. Below: two views of a seed showing the internal rough surface. (A, from *Irwin et al. 9189*, MICH; B, from *da Silva et al. 4200*, ASU; C, from *Azevedo et al. 1098*, ASU; E, from *Pereira s.n.*, ASU). Reproduced from Landrum 2017. All illustrations by Bobbi Angell.

Phenology. Flowering and fruiting times may prove to be taxonomically useful but for most species there is little information available. Some species of arid habitats may lose their leaves for part of the year and new vegetative growth may be timed to a rainy season. I have tried to summarize the flower and fruit phenology of each species based on herbarium specimens but I realize that my estimates cannot be very accurate because specimens may have flowers and/or fruits at a wide range of development stages. Only when there are numerous fertile specimens can a good estimate of the common flowering and fruiting times be made and these can vary with geography within a species. In the lists of specimens examined the phenological condition is usually indicated using: “fl” (flower), “fr” (fruit), “ofl” (old flower), “yfr” (young fruit), and “st” (sterile). Specimens from areas near the equator tend to have less discernible phenologies than those in subtropical or temperate zones. Plants of *Psidium guineense*, *P. guajava*, and *P. friedrichsthalianum* that I have growing in Arizona at about 33°N tend to flower 6 to 10 weeks after the spring equinox, which I suspect is related to the increase in daylight hours. This is even the case of a plant of *P. friedrichsthalianum* grown

from seed collected near the equator where there is little change in day length. Fruits of *P. guineense* and *P. guajava* tend to develop about 8 to 12 weeks after flowering in Arizona. Phenological studies should be done with living plants and in their natural ranges if possible.

Table 2. Numerical list of accepted Species, with figure numbers and geographic distribution indicated. Species conservation concern is indicated informally based on localities known: 1) least concern—black font unhighlighted, known from many localities. 2) moderate concern—black font, highlighted yellow, known from a few to several localities; 3) greatest concern—red font, unhighlighted, usually known from 1–3 localities.

1. ***Psidium acidum*** (DC.) Landrum – Fig. 8 [Bolivia, Brazil, Colombia, Ecuador, Peru]
2. ***Psidium acranthum*** Urb. – Fig. 9 [Dominican Republic, Haiti]
3. ***Psidium acutangulum*** DC. – Fig. 10 [Bolivia, Brazil, Colombia, Guyana, French Guiana, Ecuador, Peru, Surinam, Venezuela]
4. ***Psidium albescens*** Urb. – Fig. 11 [Jamaica]
5. ***Psidium amplexicaule*** Persoon – Fig. 12 [Brazil, Dominican Republic, Haiti, Jamaica, Puerto Rico, Virgin Islands]
6. ***Psidium appendiculatum*** Kiaersk. – Fig. 13 [Brazil, Venezuela]
7. ***Psidium araucanum*** Soares-Silva & Proença – Fig. 14 [Brazil]
8. ***Psidium australe*** Cambess. – Fig. 15 [Argentina, Belize, Brazil, Colombia, Guyana, Paraguay, Venezuela]
Psidium. australe var. ***argenteum*** (O. Berg) Landrum [Brazil]
Psidium australe var. ***australe***
9. ***Psidium bahianum*** Landrum & Funch – Fig. 16 [Brazil]
10. ***Psidium brevipedunculatum*** Tuler & Landrum – Fig. 17 [Brazil]
11. ***Psidium brownianum*** DC. – Fig. 18 [Brazil, Venezuela]
12. ***Psidium cattleyanum*** Sabine – Fig. 19 [Brazil, Colombia, Ecuador, Guadeloupe, Guatemala, Jamaica, Panama, USA]
13. ***Psidium cauliflorum*** Landrum & Sobral – Fig. 20, map Fig. 76ª [Brazil]
14. ***Psidium decussatum*** DC. – Fig. 21 [Brazil]
15. ***Psidium densicomum*** DC. – Fig. 22 [Bolivia, Brazil, Guyana, Peru, Venezuela]
16. ***Psidium firmum*** O. Berg – Fig. 23 [Brazil]
17. ***Psidium friedrichsthalianum*** (O. Berg) Niedenzu – Fig. 24 [Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela]
18. ***Psidium fulvum*** McVaugh – Fig. 25 [Peru]
19. ***Psidium ganevii*** Landrum & Funch – Fig. 26 [Brazil]
20. ***Psidium glaziovianum*** Kiaersk. – Fig. 27 [Brazil]
21. ***Psidium grandifolium*** DC. – Fig. 28, map Fig. 77A [Argentina, Bolivia, Brazil, Mexico, Paraguay]
22. ***Psidium grazielae*** Tuler & M. C. Souza – map Fig. 76B [Brazil]
23. ***Psidium guajava*** L. – Fig. 29 [probably in all countries from southern USA to northern Argentina]
24. ***Psidium guayaquilense*** Landrum & Cornejo – Fig. 30 [Ecuador]
25. ***Psidium guedesiae*** Stadnik & Landrum – Fig. 31 [Brazil]
26. ***Psidium guineense*** Sw. – Fig. 32 [probably in all countries from southern USA to northern Argentina]
27. ***Psidium guyanense*** Persoon – Fig. 33 [Brazil, Venezuela]
28. ***Psidium harrisianum*** Urb. – Fig. 34 [Jamaica]
29. ***Psidium huanucoense*** Landrum – Fig. 35 [Peru]
30. ***Psidium kennedyanum*** Morong – Fig. 36 [Argentina, Bolivia, Brazil, Paraguay]
31. ***Psidium laruotteanum*** Cambess. – Fig. 37 [Bolivia, Brazil, Colombia, Costa Rica, Guyana, Paraguay, Venezuela]
32. ***Psidium longipetiolatum*** D. Legrand – Fig. 38 [Brazil]
33. ***Psidium maribense*** DC. – Fig. 39 [Brazil, Colombia, Venezuela]
34. ***Psidium minutifolium*** Krug & Urb. – Fig. 40 [Cuba]
35. ***Psidium missionum*** D. Legrand – Fig. 41 [Agentina, Paraguay]
36. ***Psidium montanum*** Sw. – Fig. 42 [Jamaica]
37. ***Psidium myrsinites*** DC. – Fig. 43 [Bolivia, Brazil, Guyana, Suriname]
38. ***Psidium myrtoides*** O. Berg – Fig. 44 [Brazil, Colombia]
39. ***Psidium nannophyllum*** Alain – Fig. 45 [Dominican Republic]
40. ***Psidium nummularia*** (C. Wright ex Griseb.) C. Wright – Fig. 46 [Cuba]
41. ***Psidium nutans*** O. Berg – Fig. 47 [Argentina, Bolivia, Brazil, French Guiana, Guyana, Honduras, Paraguay, Venezuela]
42. ***Psidium oblongatum*** O. Berg – Fig. 48 [Brazil]
43. ***Psidium occidentale*** Landrum & C. Parra O. – Fig. 49, map Fig. 76C [Colombia, Ecuador]
44. ***Psidium oligospermum*** DC. – Fig. 50, map Fig. 77B [probably in all continental countries from Mexico to northern Argentina, Cuba, Puerto Rico, Saint Lucia]
45. ***Psidium ovale*** (Spreng.) Burret – Fig. 51 [Brazil]
46. ***Psidium parvifolium*** Griseb. – Fig. 52 [Cuba]
47. ***Psidium pedicellatum*** McVaugh – Fig. 53 [Colombia, Ecuador, Perú, Venezuela]
48. ***Psidium pulcherrimum*** Tuler & C. M. Costa – Fig. 54 [Brazil]
49. ***Psidium ratterianum*** Proença & Soares-Silva – Fig. 55 [Brazil]
50. ***Psidium rhombeum*** – Fig. 56 [Brazil]
51. ***Psidium riparium*** DC. – Fig. 57 [Brazil]

52. ***Psidium rostratum*** McVaugh – Fig. 58 [Ecuador, Peru]
53. ***Psidium rotundatum*** Griseb. – Fig. 59 [Cuba]
54. ***Psidium rotundidiscum*** Proença & Tuler – Fig. 60 [Brazil]
55. ***Psidium rufum*** DC. – Fig. 61 [Brazil]
56. ***Psidium rutidocarpum*** G. Don – Fig. 62 [Peru]
57. ***Psidium salutare*** (Kunth) O. Berg – Figs. 63-69 [probably in all continental countries from Mexico to northern Argentina, Cuba, Dominican Republic]
Psidium salutare var. ***cuspidatum*** (O. Berg) Landrum [Argentina, Paraguay, Brazil]
Psidium salutare var. ***pohlianum*** (O. Berg) Landrum [Brazil, Bolivia, Venezuela]
Psidium salutare var. ***resiliens*** Landrum [south central Brazil]
Psidium salutare var. ***salutare*** [Mexico to Paraguay, Cuba, Dominican Republic]
Psidium salutare var. ***sericeum*** (Cambess.) Landrum [Argentina, Paraguay, Brazil, Paraguay]
58. ***Psidium schenckianum*** Kiaersk. – Fig. 70 [Brazil]
59. ***Psidium sessiliflorum*** (Landrum) Proença & Tuler – Fig. 71 [Brazil]
60. ***Psidium sobralianum*** Landrum & Proença – Fig. 72 [Brazil]
61. ***Psidium striatulum*** DC. – Fig. 73 [Bolivia, Brazil, Guyana, Suriname, Venezuela]
Psidium striatulum var. ***rondoniense*** Landrum [Brazil, Bolivia]
Psidium striatulum var. ***striatulum*** [Brazil, Guyana, Suriname, Venezuela]
62. ***Psidium suffruticosum*** O. Berg – Fig.74 [Brazil, Paraguay]
63. ***Psidium urquiolanum*** Landrum & Z. Acosta – Fig. 75 [Cuba]

PSIDIUM GENERIC SYNONYMY AND DESCRIPTION

Psidium L. Species Plantarum 470. 1753. Guava, Guayaba [Greek name for *Punica*, which it resembles]. Type species. *Psidium guajava* L.

Guajava P. Miller, Gard. Dict. Abr. ed. 4. 28 Jan 1754. Nom. illeg. nom. superfl. based on the same type as *Psidium* L.

Cuiavus C. J. Trew, Pl. Sel. Pinx. Ehret 4: 12. 1754. Nom. illeg. nom. superfl. based on the same type as *Psidium* L.

Guaiava Adanson, Fam. 2: 88, 563 ('*Guiava*'). Jul-Aug 1763. Nom. illeg. nom. superfl. based on the same type as *Psidium* L.

Guayaba Noronha, Verh. Batav. Genootsch. Kunsten 5(4): 16 (1790), nom. nud.

Calyptropsidium O. Berg, Linnaea 27: 347, 349. Jan 1856 ('1854'). Type species. *C. friedrichsthalianum* O. Berg [≡ *Psidium friedrichsthalianum* (O. Berg) Nied.].

Mitranthes O. Berg, Linnaea 27: 316. 1856. Lectotype species *P. brownianum* DC. (see Proença & Lucas 2023).

Psidium sect. ***Apertiflora*** O. Berg, in Mart. Fl. bras. 14(1): 383. 1857. – LECTOTYPE. *P. myrtoides* O. Berg (Designated by Proença et al. 2022).

Psidium sect. ***Costata*** O. Berg, in Mart. Fl. bras. 14(1): 396. 1857. – LECTOTYPE. *P. guajava* L. (Designated by Proença et al. 2022), *nom. illeg.* to be replaced by *P.* sect. *Psidium.*

Psidium sect. ***Obversifolia*** O. Berg, in Mart. Fl. bras. 14(1): 399. 1857. – LECTOTYPE. *P. cattleyanum* Sabine (Designated by Proença et al. 2022).

Psidium sect. ***Albotomentosa*** O. Berg, in Mart. Fl. bras. 14(1): 402. 1857. – LECTOTYPE. *P. grandifolium* DC. (Designated by Proença et al. 2022).

Psidium sect. ***Crenatifolia*** O. Berg, in Mart. Fl. bras. 14(1): 407. 1857. – LECTOTYPE. *P. alatum* O. Berg = *P. suffruticosum* O. Berg (Designated by Proença et al. 2022).

Psidium sect. ***Rigidifolia*** O. Berg, in Mart. Fl. bras. 14(1): 409. 1857. – LECTOTYPE. *P. macahense* O. Berg (Designated by Proença et al. 2022).

Psidium sect. ***Clidopsidium*** Griseb., Cat. Pl. Cub. [Griseb.] 91.1866. SYNTYPE species: *P. parviflorum* and *P. rotundatum*; *Psidium parvifolium* designated here as LECTOTYPE of the section.

Myrtus subgen. ***Corynemyrtus*** Kiaersk., Enum. Myrt. Brasil. 39: 18. 1893. Type species. *Myrtus corynantha* Kiaersk. [≡*Corynemyrtus corynantha* (Kiaersk.) Mattos, =*Psidium myrtoides* O. Berg.]

Mitropsidium Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 486. 30 Mar 1941. Type species. *M. pittieri* Burret [=*P. oligospermum* DC.].

Episyzygium Suess. & A.Ludw., Mitt. Bot. Staatssamml. München 1: 18 (1950). Type species *Episyzygium* oahuense Suess. & A.Ludw. [= *P. cattleyanum* Sabine]

Corynemyrtus (Kiaersk.) Mattos, Loefgrenia 10: 1. May 1963.
Psidium subgen. ***Myrtopsidium*** Kausel, Lilloa 32: 362. 1966. Type species. *Myrtus mucronata* Cambess. [≡*Psidium mucronatum* (Cambess.) Burret, =*Psidium cuspidatum* (Cambess.) Burret].
Psidium sect. ***Mitranthes*** (O. Berg) Tuler & Proença, Ann. Bot. (Oxford) 129(4): 383. 2022.

Trees and shrubs; *hairs* simple, unicellular**.** LEAVES opposite (rarely ternate or alternate), persistent, or drought deciduous, the venation brochidodromous to eucamptodromous. INFLORESCENCES axillary, uniflorous, a dichasium of usually no more than 3 flowers, or a bracteate shoot (raceme-like). FLOWERS (4–)5(–6)-merous, occasionally with extra petals; *calyx lobes* essentially free or more commonly their bases fused together in a bowl-like tube, or in some species the calyx lobes fused together in a cap-like calyptra that encloses the closed corolla or that is open only as a terminal pore, at anthesis tearing between the lobes or irregularly or the calyptra falling as a unit; *petals* usually elliptic, obovate, or oblanceolate, about equal to unequal in shape and size, usually 5, but occasionally more, attached just distal to the staminal ring, sometimes densely glandular, sometimes appressed pubescent without, the outer petals, concave, enclosing the inner ones in the closed bud; *stamens* ca. 100 to over 700, attached to the ovary summit or on the inner surface of the bowl-like calyx tube as a ring, the ring of stamen scars often clearly visible after anthesis; *stigma* usually wider than the style, often peltate; *ovary* inferior, (2–)3–5(–6)-locular; *placenta* bilamelate and often protruding in a peltate structure; *ovules* few to numerous, uniseriate, biseriate or multiseriate on each lamella. FRUITS greenish, yellowish or reddish berries, crowned by the calyx lobes, remnants of the calyx, or by a circular scar. SEEDS few to numerous, the seed coat bony, dull or rough, ca. 9–30 cells thick at narrowest point, covered with a thin layer of pulpy tissue when wet (or a glaze or crusty tissue when dry), with a C-shaped or curved cavity that opens by means of an operculum upon germination; *cells* of the hard seed coat surface elongate, overlapping, dense; *embryo* C-shaped to curved conforming to the seed's inner cavity, oily, the cotyledons short, usually reflexed, the hypocotyl much longer than the cotyledons.

REGIONAL IDENTIFICATION KEYS

Key 1 for Argentina, Brazil, Guianas, Paraguay, and Uruguay, with 9 subkeys, 1-A to 1-I.
Key 2 for the Andean countries of Bolivia, Colombia, Ecuador, Peru, and Venezuela with three subkeys, 2-A to 2-C.
Key 3 for Central America and Mexico.
Key 4 for the Caribbean Islands and Florida.

In previous publications keys have been provided for Bahia, Brazil (Landrum 2017), Bolivia and Paraguay (Landrum 2022), Colombia (Parra-O. and Landrum 2023), and the Caribbean region (Landrum et al. 2024). Those keys may be more useful in some cases.

KEY 1: THE SPECIES OF ARGENTINA, BRAZIL, GUIANAS, PARAGUAY, AND URUGUAY

1. Calyx with (4–)5 evident flange-like or wart-like abaxial protrusions in bud.....**KEY 1-A**
1' Calyx without evident protrusions in bud.
  2. Inflorescences borne on stems or trunks as clusters of flowers, some clusters with 20 or more flowers; calyx tearing irregularly at anthesis, usually into 4 parts .....**KEY 1-B**
  2' Inflorescences borne on young twigs in axils of leaves, or bracts, or at leafless nodes; calyx in bud closed or open, if closed tearing irregularly into 3 to 5 parts.
    3. Hypanthium and lower surface of at least young leaves densely covered with hairs, the hypanthium surface at anthesis usually obscured by hairs.
      4. Calyx open, the lobes usually evident; tears sometimes forming between the (4–) 5 lobes ….. .....**KEY 1-C**
      4' Calyx closed in flower bud or open only as a terminal pore, tearing regularly or irregularly as the bud opens .....**KEY 1-D**
    3' Hypanthium and lower leaf surface of leaves glabrous, puberulent, or only sparsely covered with hairs, the hypanthium surface at anthesis visible under any hairs.
      5. Calyx open, bowl-like with a prominent calyx-tube or with the calyx-tube reduced, scarcely evident; calyx lobes prominent or not in the bud.
        6. Lateral veins usually connecting to a marginal vein only in distal half of leaf... **KEY 1-E**
        6' Lateral veins connecting to a marginal vein from near base to apex or the lateral and marginal veins obscure.
          7. Calyx with a sinuate margin, the lobes not, or scarcely distinguishable..... **KEY 1-F**
          7' Calyx with clear, well-developed lobes..... **KEY 1-G**
      5' Calyx closed or with only a terminal pore, the lobes usually not notable in the flower bud.
        8. A clear marginal vein not evident in at least lower half of leaf; seeds rounded or flattened-lenticular ..... **KEY 1-H**
        8' A clear marginal vein evident from near base of leaf to apex or venation obscure; seeds angular or rounded.....**KEY 1-I**

KEY 1-A *Calyx with evident flange-like or wart-like abaxial protrusions in bud*

1. Calyx protrusions wart-like, apical, to ca. 0.5 mm long, rounded.
  2. Leaves membranous to submembranous at anthesis; buds 4-5 mm long; style ca. 3 mm long; petals ca. 2 mm long; fruit ca. 6 mm long.....20. ***P. glaziovianum***
  2' Leaves coriaceous to subcoriaceous at anthesis; buds 3.5-9 mm long; style ca.4–5 mm long; petals 2.5–6 mm long; fruit 5–25 mm long .....44. ***P. oligospermum***
1' Calyx protrusions flange-like, subapical, usually over 1 mm long.
  3. Flange-like protrusions of calyx elongate, acute; leaf blades submembranous to subcoriaceous, the venation clearly visible; hairs if present up to 1.5 mm long; peduncles 3–5 mm long; bracteoles linear to linear-elliptic, 5–8 mm long, 0.2–1.2 mm wide .....6. ***P. appendiculatum***
  3' Flange-like protrusions of calyx not elongate, rounded; leaf blades thickly coriaceous, the venation indistinct; hairs if present ca. 0.2 mm long; peduncles 8–15 mm long; bracteoles linear-filiform, 1.5–5 mm long, 0.1–0.2 mm wide..... 58. ***P. schenckianum***

KEY 1-B *Cauliflorous species*

1. Young growth sparsely to densely pubescent; calyx in bud closed except for an apical pore, with hairs sometimes protruding from pore .....13. ***P. cauliflorum***
1' Young growth glabrous; calyx closed, apiculate..... 22. ***P. grazielae***

KEY 1-C *Hypanthium with dense indumentum; calyx open.*

1. Marginal veins not present proximally, arching broadly distally; lateral veins 4–9.
  2. Leaf blades subcoriaceous to coriaceous; calyx lobes up to ca. 3 mm long; seeds19-85, (2–)3–4(–6) mm long .....21. ***P. grandifolium***
  2' Leaf blades submembranous; calyx lobes 3–4.8 mm long; seeds 2–8, 6–8 mm long...7. ***P. araucanum***

1’ Marginal veins present throughout leaf, closely following the margins; lateral veins 7–13.
3. Shrub or tree to 8 m high; hairs mainly reddish brown, mostly erect, usually not obscuring the lower surface of mature leaves; midvein and often lateral veins impressed above; petiole (2–)3–9 mm long; calyx lobes mainly broadly rounded, 0.5–2 mm long (rarely triangular and up to 6 mm long)……. ..... 55. ***P. rufum***
3’ Shrub usually no more than 1.5 m high; hairs grayish, yellowish, or reddish brown, usually curled and tangled, obscuring the lower surface of mature leaves; midvein and lateral veins flat or slightly raised above; petiole 0–2(–3) mm long; calyx lobes triangular or subtriangular, 1–4 mm long.
4. Mature leaf blades stiffly coriaceous, generally widest near the base, essentially sessile; leaf apex thickened, slightly acuminate; lateral veins slightly impressed above; indumentum silvery…… ..... 59. ***P. sessiliflorum***
4’ Mature leaf blades leathery coriaceous; generally widest above the base, usually petiolate; leaf apex not thickened, usually not acuminate; lateral veins not notably impressed above; indumentum usually yellowish ..... 31. ***P. laruotteanum***

KEY 1-D *Hypanthium with dense indumentum; calyx closed*

1. Leaves strongly revolute, elliptic to oblanceolate, usually about 3 times as long as wide; flower buds and young growth densely covered with reddish brown indumentum; seeds 3–4, 6–9 mm long …….. ..... 54. ***P. rotundidiscum***
1’ Leaves not strongly revolute, variously shaped, often less than 3 times as long as wide; flower buds and young growth various, often covered with whitish or yellowish indumentum; seeds 4 to over 200, 3–4 mm long.
2. Lateral veins usually more than 10; hairs on lower leaf surface appressed, whitish or silvery; plants commonly cultivated..... 23. ***P. guajava***
2’Lateral veins usually less than 10; hairs on lower leaf surface not appressed, spreading or curled and tangled, whitish, yellowish brown or reddish brown; plants not cultivated (except rarely *P. guineense*).
3. Indumentum whitish; shrubs of grasslands and cerrado. ..... 21. ***P. grandifolium***
3’ Indumentum yellowish brown or reddish brown; shrubs or trees of various habitats.
4. Leaves 3–6.6 cm long, the lateral veins 4–6 pairs; seeds less than 8; known only from south central Bahia in caatinga..... 10. ***P. brevipedunculatum***
4’ Leaves 4–11.5 cm long, the lateral veins 5–10 pairs; seeds usually over 20; widespread in many habitats, somewhat weedy. ..... 26. ***P. guineense***

KEY 1-E *Hypanthium glabrous to sparsely pubescent; calyx open, venation eucamptodromous in part at least*

1. Leaves mainly less than 5 cm long; petals 2–5 mm long; flower buds 4–5 mm long; petiole 3–7 mm long; seeds 1–5; cerrado or caatinga ..... 50. ***P. rhombeum***
1’ Leaves mainly 5–12 cm long; petals 5–10 mm long; flower buds 5–12 mm long; petiole 0–4 mm long; seeds 6–50.
2. Leaves lanceolate to narrowly lanceolate, mostly 6–16 cm long and 3–7 times as long as wide; peduncles frequently bearing dichasia, 0.5–4 cm long, often clustered on leafless terminal or lateral shoots; style 12-17 mm long; seeds angular; riparian habitats of Amazon basin..... 51. ***P. riparium***
2’ Leaves elliptic, oblanceolate, or obovate, rarely over 12 cm long, rarely over 4 times as long as wide; peduncles usually not bearing dichasia (except in *P. suffruticosum*), usually not clustered on leafless shoots; style 5-10 mm long; seeds rounded; cerrado and campo habitats.
3. Lateral veins not prominent, 5–12 pairs, leaving midvein at angle of 45–60 degrees; blades drying chocolate brown; young twigs compressed to terete, sometimes with longitudinal ridges……..... 37. ***P. myrsinites***
3’ Lateral veins prominent, 4–8 pairs, leaving midvein at an angle of 30–45 degrees; blades drying olive-green to reddish brown; young twigs often 4-winged, usually square in section.
4. Leaf venation conspicuously impressed above and prominent below; bracteoles persisting after anthesis ..... 49. ***P. ratterianum***
4’ Leaf venation not strongly impressed above or prominent below; bracteoles not persisting after anthesis.

5. Calyx of flower bud with lobes about triangular, 2–5 mm long, about as long as wide; leaves mainly oblanceolate, the apex usually acuminate. ..... 35. ***P. missionum***

5’ Calyx of flower bud nearly closed or the lobes truncate to broadly triangular, about 2 times wider than long; leaves and leaf apices various.

6. Leaves often 3 or more times as long as wide, lustrous above, glabrous or nearly so below; peduncles usually more than 2 cm long, usually 3-flowered; seeds up to ca. 11 ……..... 62. ***P. suffruticosum***

6’ Leaves usually less than 3 times as long as wide, usually dull above, usually covered with appressed hairs below (these minute and inconspicuous in var. *australe*); peduncles commonly all less than 2 cm long, usually 1-flowered; seeds up to ca. 50. ..... 8. ***P. australe***

KEY 1-F *Hypanthium glabrous to sparsely pubescent; calyx open, with a sinuate margin; venation entirely brochidodromous, or venation obscure*

1. Leaves mainly 0.5–1.5 cm long, 0.2–0.5 cm wide; venation obscure; flower buds ca. 4 mm long, with the calyx surrounding lower half of closed corolla; known only from Minas Gerais ..... 14. ***P. decussatum***

1’ Leaves mainly longer than 2 cm and 1 cm wide; venation usually evident; flower buds usually 5 mm long or longer; from many areas.

2. Leaves lanceolate to narrowly lanceolate, mostly 6–16 cm long and 3–7 times as long as wide; plants glabrous to villous; peduncles frequently bearing dichasia, 0.5–4 cm long, often clustered on leafless terminal or lateral shoots; style 12-17 mm long; seeds angular; riparian habitats of Amazon basin…. ..... 51. ***P. riparium***

2’ Leaves various, rarely over 12 cm long, rarely over 4 times as long as wide; plants glabrous to pubescent; peduncles usually not bearing dichasia, usually not clustered on leafless shoots; style 4-14 mm long; seeds usually rounded (angular in *P. striatulum*); habitats various (*P. striatulum* riparian in Amazon basin).

3. Leaves with a petiole 5–20 mm long, the base usually acuminate; forested areas of Santa Catarina to Espirito Santo..... 32. ***P. longipetiolatum***

3’ Leaves sessile or with a petiole 0–4 mm long, the base various; range and habitat various.

4. Calyx tube scarcely evident, the calyx in flower bud reduced to a sinuate rim encircling the base of the closed corolla

5. Subshrubs generally less than 1 m tall (reaching tree size in one variety), living in habitats subject to fires, resprouting from an underground or ground level stem after fires or disturbance; leaves often over 4 cm long and 2 cm wide, often more than 2.5 times as long as wide; petiole 0–2 mm long; flower bud 5–7 mm long ..... 57. ***Psidium salutare***

5’ Shrubs or trees, generally over 1 m high at maturity, living in habitats (e.g., forests) rarely subject to fires; leaves rarely over 4 cm long and 2 cm wide, generally less than 2.5 times as long as wide; petiole 1–4 mm long; flower bud 2–6 mm long .... 45. ***Psidium ovale***

4’ Calyx tube evident, the calyx in flower bud clasping the base of the closed corolla.

6. Leaves usually less than 4 cm long, the apex often emarginate; lateral veins obscure; seeds up to ca. 10, 7–8 mm long; style 8–10 mm long..... 19. ***P. ganevii***

6’ Leaves usually over 4 cm long, the apex not emarginate; lateral veins visible, often prominent; seeds various; style 5–14 mm long.

7. Calyx bowl extending 1–2 mm beyond the ovary summit (the lobes usually evident upon close inspection as 5 areas of pubescence on inner calyx surface); style 6–8 mm long; petals 5–8 mm long; leaves usually widest at the middle or above; petiole 0–1 mm long; seeds with rounded and flat sides ..... 37. ***P. myrsinites***

7’ Calyx bowl extending 3–6(–8) mm beyond the ovary summit; style 5–15 mm long; petals 6–12 mm long; leaves usually widest at the middle or below; petiole 1–4 mm long.

8. Leaf base rounded, subcordate, or obtuse; petals ca. 10 mm long; style 10–15 mm long; seeds angular, 4–5 mm long, usually over 20 ..... 61. ***P. striatulum***

8’ Leaf base cuneate to acuminate; petals up to ca. 8 mm long; style up to ca. 7 mm long; seeds rounded, 5–7 mm long, usually 5–10..... 60. ***P. sobralianum***

KEY 1-G *Hypanthium glabrous to sparsely pubescent; calyx open, with well-developed lobes; venation entirely brochidodromous, or venation obscure*

1. Lateral veins leaving midvein at an angle of 30–45 degrees; leaves mainly less than 5 cm long; blades submembranous to chartaceous; petals 2–5 mm long; flower buds 4–5 mm long..... 50. ***P. rhombeum***
1' Lateral veins leaving midvein at an angle of 45–90 degrees; leaves frequently over 5 cm long in some species; blades in some species coriaceous; petals 3–11 mm long; flower buds 4–12 mm long.
    2. Leaves mostly obovate to oblanceolate, the blades subcoriaceous to coriaceous.
        3. Marginal vein arching between the laterals, not closely following the margin; lateral veins not prominent; calyx lobes rounded.....37. ***P. myrsinites***
        3' Marginal vein closely following the margin; lateral veins prominent; calyx lobes obtuse to rounded.
            4. Subshrubs generally less than 1 m tall (reaching tree size in one variety), living in habitats subject to fires, resprouting from an underground or ground level stem after fires or disturbance; leaves often over 4 cm long and 2 cm wide, often more than 2.5 times as long as wide; petiole 0–2 mm long; flower bud 5–7 mm long ..... 57. ***Psidium salutare***
            4' Shrubs or trees, generally over 1 m high at maturity, living in habitats (e.g., forests) rarely subject to fires; leaves rarely over 4 cm long and 2 cm wide, generally less than 2.5 times as long as wide; petiole 1–4 mm long; flower bud 2–6 mm long .....45. ***Psidium ovale***
    2' Leaves mostly elliptic, ovate, or lanceolate, the blades chartaceous to subcoriaceous.
        5. Calyx lobes triangular, 2–7 mm long; leaf blades stiffly coriaceous at maturity.
            6. Shrub to about 1 m high; leaves usually ovate to elliptic 3.7–13 cm long; flower bud 8–10 mm long; calyx lobes 4–5 mm wide; peduncle 1–2.5 mm wide; disk 6–7 mm across; ovary 3–5-locular, the inner locule surface puberulent; fruit to ca. 25 mm in diameter; seeds ca. 3 mm long..... 16. ***P. firmum***
            6' Shrub or tree to 10 m high; leaves usually elliptic, obovate or oblanceolate, 4–9 cm long; flower bud 4–7 mm long; calyx lobe 2–3(–4) mm wide; peduncle 0.5–0.8 mm wide; disk 3–4(–5) mm across; ovary 2–3-locular, glabrous within; fruit to ca. 10 mm in diameter; seeds 4–8 mm long..... 57. ***P. salutare*** var. ***pohlianum***
        5' Calyx lobes absent or obscure, normally less than 1.5 mm long; leaf blades not stiffly coriaceous.
            7. Leaves sessile to subsessile, oblong, oblong-oblanceolate, less often elliptic, the apex rounded to obtuse; blade drying chocolate brown and lustrous above, lighter brown below; lateral and marginal veins obscure, the marginal vein often evident only distally, arching broadly between laterals, within 0.5–6 mm of the margin; peduncles often over 1 cm long……. .....37. ***P. myrsinites***
            7' Leaves sessile to petiolate, mainly elliptic, ovate or lanceolate, the apex often acute to acuminate; blade drying green to brown, usually dull above (somewhat lustrous sometimes in *P. brownianum*), usually not lighter below; lateral and marginal veins obscure or prominent, the marginal vein evident throughout leaf, not arching broadly between laterals, running more or less parallel to the margin, within 0.5–3 mm of the margin; peduncles mostly less than 1 cm long.
                8. Leaves mostly widest below the middle; base usually obtuse to cordate; petiole 0–4(–5) mm long..... 11. ***P. brownianum***
                8' Leaves usually widest at the middle or above; base usually acute to acuminate; petiole 3–13 mm long..... 38. ***P. myrtoides***

KEY 1-H *Hypanthium glabrous to sparsely pubescent; calyx closed or nearly closed with a terminal pore; venation eucamptodromous at least in part, or venation obscure*

1. Leaves membranous at anthesis, 2–6 cm long, the petiole 0.5–2 mm long, the tertiary venation reticulate; flower bud 5–6 mm long, the style 3–4 mm long ..... 25. ***P. guedesiae***
1' Leaves subcoriaceous to coriaceous at anthesis, 4–14 cm long, the petiole 0–12 mm long, the tertiary venation reticulate to ladder-like; flower bud 5–17 mm long, the style 8–15 mm long.

2. Subshrub to ca. 30 cm high, glabrous or nearly so; leaves mostly oblanceolate, obovate, often over 3 times as long as wide, the upper surface lustrous; petiole 0–2 mm long; ovules per locule 20 to 50; fruit usually about 1 cm long; seeds up to ca. 10. ..... 62. ***P. suffruticosum***

2' Shrubs or trees usually over 1 m high, usually pubescent on young growth; leaves usually elliptic, ovate to lanceolate, less than 3 times as long as wide, the upper surface lustrous or not; petiole 1–12 mm long; ovules per locule 50 to over 100; fruit often over 1 cm long; seeds usually 30 or more, sometimes over 100.

3. Lateral veins usually more than 10; hairs on lower leaf surface appressed, whitish or silvery; plants commonly cultivated..... 23. ***P. guajava***

3' Lateral veins usually less than 10; hairs on lower leaf surface lacking or if present spreading or curled and tangled, usually yellowish brown or reddish brown; plants not cultivated (except rarely *P. guineense*).

4. Young growth hirtellous, the hairs mainly less than 0.1 mm long; closed bud often with an apical pore exposing a portion of the corolla; leaves elliptic, the apex acute to acuminate; eastern Amazon basin .....27. ***P. guyanense***

4' Young growth glabrous to pubescent, the hairs mainly over 0.5 mm long; closed bud normally without an open apical pore; leaves elliptic-oblong, elliptic, or obovate, the apex obtuse, rounded, or acute; widespread.

5. Leaves, twigs and flowers usually abundantly pubescent; tertiary veins usually predominantly ladder-like; calyx closed completely, or nearly closed and with 5 minute lobes at the apex; disturbed habitats (rarely cultivated).....26. ***P. guineense***

5' Leaves, twigs and flowers glabrous or very sparsely pubescent; tertiary veins often predominantly reticulate, but ladder-like veins common; calyx nearly closed and with 5 minute lobes at the apex; habitats frequently wet. ..... 41. ***P. nutans***

KEY 1-I *Hypanthium glabrous to sparsely pubescent; calyx closed or nearly closed with a terminal pore; venation brochidodromous, or obscure*

1. Leaves linear to narrowly oblong-lanceolate, 1–1.5 cm long, mostly 7–9 times as long as wide; known only from central Bahia.....48. ***P. pulcherrimum***

1' Leaves elliptic, ovate, obovate, lanceolate, or oblanceolate, usually over 2 cm long, rarely over 4 times as long as wide.

2. Leaves suborbicular to oblong-orbicular (rarely over 2 times as long as wide), sessile or subsessile, the apex rounded or emarginate; sandy habitats near ocean. ..... 5. ***P. amplexicaule***

2' Leaves elliptic, ovate, obovate, oblanceolate (often over 2 times as long as wide), petiolate (except sometimes for *P. brownianum*), the apex various; habitats various.

3. Leaf apex most commonly rounded to emarginate; leaf base usually acute, cuneate, or acuminate.

4. Leaves coriaceous, the lateral veins ca 9 pairs, usually indistinct, the margin entire; style 8–10 mm long; style 8–10 mm long; seeds rounded, 7–8 mm long, 5–10; dry habitats of central Bahia ..... 19. ***P. ganevii***

4' Leaves membranous to submembranous, the lateral veins 8–16 pairs, easily visible, the margin irregularly crenulate; style 15–23 mm long; seeds angular, 3–6 mm long, over 100; riparian habitats of Amazon and Orinoco river basins ..... 33. ***P. maribense***

3' Leaf apex most commonly acute to acuminate; leaf base various but often rounded.

5. Style 3–8 mm long; petals 2.5–8 mm long; seeds usually less than 25 (sometimes more numerous in *P. cattleyanum*), rounded; non-riparian species of Mata Atlantica and adjacent inland habitats.

6. Leaves mainly obovate to oblanceolate; tears in opening calyx cutting deeply into the staminal ring; ovary locules 3–5; seeds frequently over 20 per fruit; common species of coastal Brazil and disturbed habitats in tropics worldwide, sometimes cultivated……..... 12. ***P. cattleyanum***

6' Leaves mainly elliptic, ovate, or lanceolate; tears in opening calyx not cutting deeply into the staminal ring; ovary locules 2–4; seeds 1–22 per fruit; less common species in natural inland habitats.

7. Leaves mostly less than 5 cm long; lateral veins leaving the midvein at an angle of about 45 degrees or less; tears in calyx cutting into staminal ring…… ..... 44. ***P. oligospermum***

7' Leaves often over 5 cm long; lateral veins leaving the midvein at an angle greater than 45 degrees; tears in calyx not cutting into staminal ring.

8. Peduncles over 10 mm long, borne on axillary bracteate shoots with a rachis 1.2–2.5 cm long, or solitary in the axils or leaves or at leafless nodes; anthers ca. 1 mm long ..... 9. ***P. bahianum***

8' Peduncles usually less than 10 mm long, solitary in the axils of leaves or at leafless nodes, or if borne on axillary bracteate shoots, these with a rachis less than 1 cm long; anthers 0.3–0.5 mm long.

9. Leaves 5–17.5 cm long; petiole 2–10 mm long; lateral veins 10–18 per side; fruit 2.5–6 cm long; seeds 7–10 mm long; ovules per locule usually more than 25; Rio de Janeiro, Espirito Santo and Minas Gerais .... 42. ***P. oblongatum***

9' Leaves 3–12 cm long; petiole 0–4 mm long; lateral veins 7–13 per side; fruit 7–20 mm wide; seeds 3–7 mm long; ovules per locule 4–25.

10. Leaf base cuneate to acuminate; stamens usually more than 200; flower buds ca. 9 mm long, with a terminal pore; seed 5–7 mm long; Pernambuco to Pará. ..... 60. ***P. sobralianum***

10' Leaf base acute, rounded, or slightly cordate; stamens usually less than 200; flower buds 4–13 mm long, with or without a terminal pore; seed 3–5 mm long; Espirito Santo, Bahia, and north coast of Venezuela..... 11. ***P. brownianum***

5' Style 8–15 mm long; petals 10–20 mm long; seeds frequently more than 25, angular or rounded; riparian species or Amazon and Paraná river basins.

11. Young twigs 4-angled and slightly winged; young growth usually sparsely strigose, the hairs appressed; petals 10–20 mm long; seeds mainly 6–9 mm long.

12. Seeds angular, more or less C-shaped but often irregular in shape; anthers generally with a prominent terminal gland and a few smaller glands below; twigs terete, compressed or quadrangular, sometimes 4-winged, the wings up to ca. 1 mm wide; remnants of calyx 0.1–0.3 mm thick; fruit wall 1–3 mm thick...3. ***P. acutangulum***

12' Seeds kidney shaped to flattened subglobose, more or less regular in shape; anthers generally with a few to several prominent glands of about equal size distributed through the connective; twigs quadrangular, often strongly 4-winged, the wings 1–2.5 mm wide; remnants of calyx usually 0.4–0.7 mm thick; fruit wall 4–13 mm thick.

13. Lateral and marginal veins prominent and easily visible, the laterals mostly 0.3–0.5 mm wide, the principal marginal veins clearly defined, mainly running 3–10 mm from the margin; peduncle 4-angled or winged; flower bud pyriform; dried leaves uniformly colored above; Amazon basin from Tefé, Brazil to east slopes of Ecuador and Peru ..... 1. ***P. acidum***

13' Lateral and marginal veins faint, the laterals mostly 0.1–0.2 mm wide, the marginal veins often not clearly defined, mainly running 1–4 mm from the margin when visible; peduncle flattened, terete, to weakly 4-angled; flower bud subglobose, fusiform, or pyriform; leaves commonly with small whitish spots above; southern Mexico, Central America, Colombia, northwestern Ecuador, Amazonian Peru and Acre, Brazil..... 17. ***P. friedrichsthalianum***

11' Young twigs usually terete (sometimes weakly 4-angled in *P. kennedyanum*), unwinged; young growth usually sparsely to moderately puberulent, the hairs spreading; petals 10–12 mm long; seeds mainly 4–5 mm long.

14. Leaves usually lanceolate to narrowly lanceolate, 1.5–6 times as long as wide; anthers oblong, 1.2–1.5 mm long; leaf base attenuate, rounded, or cuneate; petiole 1–7 mm long; marginal veins 1–2 mm from margin; lateral veins rarely over 8 mm apart; calyx closed or with a small obscure terminal pore, tearing in 2–3 parts that

fall soon after anthesis, the parts not truncate; seeds 5–6 mm long……
.....30. ***P. kennedyanum***

14’ Leaves elliptic, ovate, or oblong lanceolate, 1.5–3 times as long as wide; anthers attenuate, 1.5–4 mm long; leaf base rounded, subcordate or obtuse; petiole 1–3 mm long; marginal veins up to 7 mm from margin; some lateral veins often over 10 mm apart; calyx closed or with a large clear terminal pore, tearing irregularly or in 5 lobes at anthesis, the lobes usually truncate; seeds 4–5 mm long……
.....61. ***P. striatulum***

KEY 2: ANDEAN REGION, THE SPECIES OF BOLIVIA, PERU, ECUADOR, COLOMBIA, AND VENEZUELA

1. Calyx with (4–)5 evident flange-like or wart-like abaxial protrusions in bud.
   2. Calyx protrusions wart-like, apical, to ca. 0.5 mm long, rounded; widespread.....44. ***P. oligospermum***
   2’ Calyx protrusions subapical, flange-like, usually over 1 mm long; northern coast of Venezuela.
      3. Flange-like protrusions of calyx elongate, acute; leaf blades submembranous to subcoriaceous, the venation clearly visible; hairs if present up to 1.5 mm long; peduncles 3–5 mm long; bracteoles linear to linear-elliptic, 5–8 mm long, 0.2–1.2 mm wide. .....6. ***P. appendiculatum***
      3’ Flange-like protrusions of calyx rounded; leaf blades thickly coriaceous, the venation indistinct; hairs if present ca. 0.2 mm long; peduncles 8–15 mm long; bracteoles linear-filiform, 1.5–5 mm long, 0.1–0.2 mm wide..... 58. ***P. schenckianum***

1’ Calyx without evident protrusions in bud.
   4. Lower surface of at least young leaves densely covered with hairs, the hypanthium surface at anthesis usually obscured by hairs .....**KEY 2-A**
   4’ Lower leaf surface of leaves glabrous, puberulent, or only sparsely covered with hairs, the hypanthium surface at anthesis visible under any hairs.
      5. Calyx open, bowl-like in the flower bud, the lobes prominent or not. .....**KEY 2-B**
      5’ Calyx closed or with only a terminal pore, opening by irregular or regular tears or as a calyptra, the lobes usually not notable in the flower bud.....**KEY 2-C**

KEY 2-A *Hypanthium with dense indumentum*

1. Calyx open in flower bud, the lobes usually evident, with tears sometimes forming between the (4–)5 lobes.
   2. Peduncles commonly bearing 3-flowered dichasia; flower buds 2.5–4 mm long; petals 4–6 mm long; leaves about 1–2 times as long as wide; known only from area of Chachapoyas, Peru..18. ***P. fulvum***
   2’ Peduncles usually uniflorous; flower buds 5–15 mm long; petals 5–11 mm long; leaves1.4–4.5 times as long as wide; widespread.
      3. Indumentum whitish; Bolivia.
         4. Leaves 2–5.8 cm wide, the marginal veins not present proximally and arching broadly distally; placenta hidden by ovules, not peltate. .....21. ***P. grandifolium***
         4’ Leaves usually less than 1.5 cm wide, the marginal veins present throughout leaf and closely following the margin; placenta peltate, with 1 or 2 rows of ovules on each lamella…….....57. ***P. salutare*** var. ***sericeum***
      3’ Indumentum reddish brown, yellowish, silvery, or gray; Bolivia to Venezuela.
         5. Leaves silvery lanate, usually less than 1.5 cm wide; apex usually sharply acute to abruptly acuminate; hairs of leaves of two lengths, short and tangled and long and nearly straight…….. .....57. ***P. salutare*** var. ***sericeum***
         5’ Leaves yellowish to grayish short-tomentose, often over 1.5 cm wide; apex acute to rounded; hairs of leaves uniform in length, all tangled. .....31. ***P. laruotteanum***

1’ Calyx closed in flower bud or open only as a terminal pore, with tearing of calyx regular into 4 or 5 nearly equal parts or irregular in 2 to 4 unequal parts as the bud opens.
   6. Lateral veins usually more than 10.
      7. Lateral veins 5–10(–12) pairs; young twigs more or less terete or compressed (some vigorous shoots sometimes 4–winged); hairs of lower leaf surface more or less erect, reddish brown, or appressed, whitish or grayish; calyx usually tearing into 4 or 5 parts; anthers 1–3 mm long, often with more than 10 glands .....26. ***P. guineense***

7’ Lateral veins usually 9–22 pairs; young twigs quadrangular, more or less winged; hairs of lower leaf surface appressed, whitish, yellowish, or silvery; calyx usually tearing into 2 or 3 parts; anthers 0.7–1 mm long, usually with fewer than 10 glands.
8. Leaves usually 3–4 times as long as wide, narrowly lanceolate-elliptic, tapering from mid-leaf or below, with an acuminate apex; inner surface of calyx densely covered with reddish brown or whitish hairs; immature fruit with a few longitudinal ridges; ovules per locule up to about 40; endemic to eastern Peru; not cultivated. .....56. ***P. rutidocarpum***
8’ Leaves usually less than 3 times as long as wide, mostly elliptic-oblong, not tapering from below mid-leaf, usually with an acute to obtuse apex; inner surface of calyx glabrous to pubescent, the hairs whitish; immature fruit smooth; ovules per locule usually more than 90; widespread in subtropical and tropical regions; frequently cultivated..... 23. ***P. guajava***

6’ Lateral veins usually less than 10.
9. Shrubs or trees of various habitats, somewhat weedy; calyx closed or nearly so in the bud; anthers elongate, 1–3 mm long, usually 2–6 times as long as wide, with 1–50 glands in the connective; placenta laminar, sometimes peltate; tertiary veins often producing a ladder-like pattern; hairs of lower leaf surface often more or less erect and reddish brown, or whitish and appressed…….. .....26. ***P. guineense***
9’ Shrubs of grasslands and cerrado; calyx open or with a distinct opening in the closed bud; anthers not elongate, 0.5–1 mm long, about 1–2 times as long as wide, with 1–3 glands in the connective; placenta mound-like, not laminar or peltate (occasionally parietal, at least in part); tertiary veins reticulate; hairs of lower leaf surface generally appressed and straight to densely tangled, usually whitish. .....21. ***P. grandifolium***

KEY 2-B *Hypanthium surface at anthesis visible under any hairs; calyx open.*

1. Leaves lanceolate or ovate, tapering from near the base to an acute apex, often over 10 cm long; petiole 4–14 mm long; bracteoles 10–30 mm long, narrowly elliptic; 3-flowered dichasia common; petals 13–22 mm long; seeds angular; habitat riparian at 250 m or less. .....15. ***P. densicomum***

1’ Leaves variously shaped, often widest at or above the middle, mainly less than 10 cm long; petiole 0–4 mm long; bracteoles 1–3(–8) mm long, mainly narrowly lanceolate; 3-flowered dichasia occasional, or common in *P. suffruticosum* only; petals 5–12 mm long; seeds rounded or sublenticular (or angular in *P. striatulum*); habitat various.
2. Proximal lateral veins connecting to a marginal veins, the marginal vein present from near base to the apex; leaves mostly widest at or below the middle, mostly elliptic.
3. Calyx before anthesis with a sinuate margin, the lobes absent or obscure; seeds rounded, lenticular or angular.
4. Seeds angular; petals 10–12 mm long; style 10–15 mm long; habitat riparian…….. .....61. ***P. striatulum***
4’ Seeds with rounded and flat surfaces, but not angular; petals 5–8 mm long; style 6–8 mm long; habitat cerrado, campo rupestre.....37. ***P. myrsinites***

3’ Calyx before anthesis with easily distinguishable lobes; seeds rounded or lenticular.
5. Marginal vein arching between the laterals, not closely following the margin; lateral veins not prominent; calyx-lobes rounded. .....37. ***P. myrsinites***
5’ Marginal vein closely following the margin; lateral veins prominent; calyx lobes acute.
6. Shrubs or subshrubs, up to ca. 1 m high at maturity, resprouting from base after fires and disturbance; calyx lobes often longer than wide; peduncles 1–3-flowered usually arising from leaf axils..... 57. ***P. salutare***
6’ Shrubs or trees up to 30 m high at maturity; calyx lobes often wider than long; peduncles 1–3-flowered, these sometimes aggregated in bracteate shoots or panicles.
7. Leaves elliptic to lanceolate; young growth glabrous or nearly so; leaf apex and base acuminate to acute; flowers solitary of borne in bracteate shoots, not in dicharias; dry areas of Norte de Santander, Colombia, between 1400 and 1900 m……. ..... 38. ***P. myrtoides***
7’ Leaves elliptic, ovate, lanceolate, obovate, or oblanceolate; young growth pubescent to strigose; leaf apex and base rounded to acute; flowers solitary, or grouped

together in dichasia or panicles; Andes mountains at elevations between 1350 and 3000 m, and as low as 300 m on Pacific slopes.

8. Leaves elliptic, ovate or lanceolate, 1.5–9.5 cm long; lateral veins nearly straight, usually leaving the midvein at an angle of more than 45 degrees, the distance between lateral veins in the center of the leaf usually less than 1 cm; marginal vein closely following the margin, 0.5–4 mm from margin; peduncles not grouped together in bracteate shoots, sometimes borne at leafless nodes proximally on otherwise leafy shoots; tears between calyx lobes none or up to 1 mm long; generally growing above 2000 m ..... 47. ***P. pedicellatum***

8. Leaves elliptic, obovate or oblanceolate, 4–20 cm long; lateral veins arching towards apex, leaving the midvein at an angle of ca. 45 degrees, the distance between lateral veins in the center of the leaf more than 1 cm; marginal vein broadly arching between laterals, 2–15 mm from the margin; peduncles often grouped together in bracteate shoots, forming a panicle-like inflorescence; tears between calyx lobes usually 1–1.5 mm long; generally growing below 2000 m…….. .....43. ***P. occidentale***

2’ Proximal lateral veins not connecting to a marginal vein, the marginal vein only present from about mid-leaf and distally; leaves mostly widest above the middle, mostly obovate to oblanceolate.

9. Lateral veins not prominent, 5–12 pairs, leaving midvein at angle of 45–60 degrees; blades drying chocolate brown; young twigs compressed to terete, sometimes with longitudinal ridges …… ..... 37. ***P. myrsinites***

9’ Lateral veins prominent, 4–8 pairs, leaving midvein at an angle of 30–45 degrees; blades drying olive-green to reddish brown; young twigs often 4-winged, usually square in section.

10. Leaves often 3 or more times as long as wide, lustrous above, glabrous or nearly so below; peduncles usually more than 2 cm long, usually 3-flowered; seeds up to ca. 11……... ..... 62. ***P. suffruticosum***

10’ Leaves usually less than 3 times as long as wide, usually dull above, usually covered with appressed hairs below (these minute and inconspicuous in var. *australe*); peduncles commonly all less than 2 cm long, usually 1-flowered; seeds up to ca. 50.....8. ***P. australe***

KEY 2-C *Hypanthium surface at anthesis visible under any hairs; calyx closed.*

1. Marginal vein not clearly evident in at least lower half of leaf; seeds rounded or flattened-lenticular.

2. Subshrub to ca. 30 cm high, glabrous or nearly so; leaves often over 3 times as long as wide, the upper surface lustrous; petiole 0–2 mm long; ovules per locule 20 to 50; fruit usually about 1 cm long; seeds up to ca. 10 ..... 62. ***P. suffruticosum***

2’ Shrubs or trees usually over 1 m high, usually pubescent on young growth; leaves usually less than 3 times as long as wide, the upper surface not usually lustrous; petiole 1–12 mm long; ovules per locule 50 to over 100; fruit often over 1 cm long; seeds usually 30 or more, sometimes over 100.

3. Lateral veins usually 12–20 pairs; tertiary veins clearly ladder-like; leaves frequently more than 2.6 times as long as wide.

4. Leaves usually 3–4 times as long as wide, narrowly lanceolate-elliptic, tapering from mid-leaf or below, with an acuminate apex; inner surface of calyx densely covered with reddish brown or whitish hairs; immature fruit with a few longitudinal ridges; ovules per locule up to about 40; endemic to eastern Peru; not cultivated. .....56. ***P. rutidocarpum***

4’ Leaves usually less than 3 times as long as wide, mostly elliptic-oblong, not tapering from below mid-leaf, usually with an acute to obtuse apex; inner surface of calyx glabrous to pubescent, the hairs whitish; immature fruit smooth; ovules per locule usually more than 90; widespread in subtropical and tropical regions; frequently cultivated..... 23. ***P. guajava***

3’ Lateral veins usually 4–10 pairs; tertiary veins ladder-like or dendritic; leaves usually less than 2.6 times as long as wide.

5. Young twigs with 4 prominent wings; young growth densely puberulent; leaves 8.5–21 cm long; ovules per locule ca. 250; style 15 mm long; known only from Huánuco and Pasco, Peru ..... 29. ***P. huanucoense***

5’ Young twigs terete, compressed, rarely weakly winged; young growth various; leaves rarely over 13 cm long; ovules per locule up to ca. 100; style usually less than 15 mm long.

6. Seeds 4–12, 8–11 mm long; closed calyx often with a rostrate apex; ovules per locule up to ca. 26; stamens 500 or more; anthers 0.6–1 mm long, with 0 or 1 gland; endemic to northwestern Peru and western Ecuador..... 52. ***P. rostratum***

6’ Seeds 27–300, 3–5 mm long; closed calyx without a rostrate apex; ovules per locule 50 or more; stamens up to ca. 400; anthers 1–3 mm long, usually with a few to several glands; widespread species.

7. Young growth hirtellous, the hairs mainly less than 0.1 mm long; closed bud often with an apical pore clearly exposing a portion of the corolla; leaves elliptic, the apex acute to acuminate; eastern Amazon basin. .....27. ***P. guyanense***

7’ Young growth glabrous to pubescent, the hairs mainly over 0.5 mm long; closed bud normally without an open apical pore exposing the corolla; leaves elliptic-oblong, elliptic, or obovate, the apex obtuse, rounded, or acute; widespread.

8. Leaves, twigs and flowers usually abundantly pubescent; tertiary veins usually predominantly ladder-like; calyx closed completely or nearly closed (rarely with 5 minute lobes at the apex); disturbed habitats or occasionally cultivated. .....26. ***P. guineense***

8’ Leaves, twigs and flowers glabrous or very sparsely pubescent; tertiary veins often predominantly reticulate, but ladder-like veins common; calyx nearly closed and with 5 minute lobes at the apex; habitats frequently wet…….. ..... 41. ***P. nutans***

1’ Marginal vein clearly evident from near base of leaf to apex; seeds angular or rounded.

9. Petals 2.5–6 mm long; style 4–8 mm long; ovules per locule 6–34; leaves usually lanceolate, ovate, or obovate, less often elliptic; twigs and peduncles terete or compressed; seeds rounded or lenticular, not angular.

10. Leaves generally widest above the middle, obovate to oblanceolate, less often elliptic; leaf base usually acuminate to cuneate; stigma notably wider than style; seeds often more than 15; petiole 2–14 mm long; coastal and disturbed habitats; frequently cultivated..... 12. ***P. cattleyanum***

10’ Leaves generally widest near the middle or below, lanceolate to oblong or elliptic; leaf base sometimes rounded or slightly cordate; stigma slightly wider than style; seeds 1–13; petiole 1–6 mm long; various habitats, rarely cultivated.

11. Stamens attached to the summit of the ovary; tears in calyx not penetrating the staminal ring as the flower opens; leaves ovate, lanceolate, or lanceolate-oblong..... 11. ***P. brownianum***

11’ Stamens attached to inner surface of the calyx tube; tears in calyx penetrating the staminal ring as the flower opens; leaves mainly elliptic to lanceolate.....44. ***P. oligospermum***

9’ Petals 10–25 mm long; style 8–23 mm long; ovules per locule 12–80; leaves usually elliptic in most species (usually lanceolate in *P. kennedyanum*); twigs and sometimes peduncles quadrangular, to 4-winged; seeds rounded or angular.

12. Young growth sparsely to densely covered with hairs, the hairs spreading.

13. Young twigs with 4 prominent wings; leaves 8.5–21 cm long, 5.5–9 cm wide; petiole 5–12 mm long; seeds rounded; Huánuco and Pasco, Peru .....29. ***P. huanucoense***

13’ Young twigs usually terete (weakly 4-angled sometimes in *P. kennedyanum*), unwinged; leaves rarely over 8 cm long, 1–5 cm wide; petiole 1–7 mm long; seeds angular.

14. Leaves oblanceolate to elliptic, usually widest above the middle, the margin irregularly crenulate; lateral veins 8–16 pairs, easily visible; peduncles 4–12 mm long; riparian habitats of Amazon and Orinoco river basins..... 33. ***P. maribense***

14’ Leaves elliptic to lanceolate, usually widest at the middle or below, the margin entire; lateral veins 4–10 pairs, prominent or not; peduncles 9–25 mm long; Amazon and Paraná river basins.

15. Leaves usually lanceolate to narrowly lanceolate, 1.5–6 times as long as wide; leaf base attenuate, rounded, or cuneate; petiole 1–7 mm long; marginal veins 1–2 mm from margin; lateral veins rarely over 8 mm apart; calyx closed or with a small obscure terminal pore, tearing in 2–3 parts that fall soon after anthesis, the parts not truncate; seeds 5–6 mm long..... 30. ***P. kennedyanum***

15’ Leaves elliptic, ovate, or oblong lanceolate, 1.5–3 times as long as wide; leaf base rounded, subcordate or obtuse; petiole 1–3 mm long; marginal veins up to 7 mm from margin; some lateral veins often over 10 mm apart; calyx closed or with a

large clear terminal pore, tearing irregularly or in 5 lobes at anthesis, the lobes usually truncate; seeds 4–5 mm long..... 61. ***P. striatulum***

12’ Young growth glabrous, strigose to puberulent, the hairs appressed; young twigs 4-angled and slightly winged; seeds angular or rounded.

16. Seeds angular, more or less C-shaped but often irregular in shape; anthers generally with a prominent terminal gland and a few smaller glands below; twigs terete, compressed or quadrangular, sometimes 4-winged, the wings up to ca. 1 mm wide; remnants of calyx 0.1–0.3 mm thick; fruit wall 1–3 mm thick. ..... 3. ***P. acutangulum***

16’ Seeds kidney shaped to flattened subglobose, more or less regular in shape; anthers generally with a few to several prominent glands of about equal size distributed through the connective; twigs quadrangular, often strongly 4-winged, the wings 1–2.5 mm wide; remnants of calyx usually 0.4–0.7 mm thick.

17. Lateral and marginal veins faint, the laterals mostly 0.1–0.2 mm wide, the marginal veins often not clearly defined, mainly running 1–4 mm from the margin when visible; peduncle flattened to terete; flower bud subglobose, fusiform, or pyriform; dried leaves commonly with small whitish spots above; southern Mexico, Central America, Colombia, northwestern Ecuador, Amazonian Peru and Acre, Brazil, frequently cultivated……..... 17. ***P. friedrichsthalianum***

17’ Lateral and marginal veins prominent and easily visible, the laterals mostly 0.3–0.5 mm wide, the principal marginal veins clearly defined, mainly running 1–10 mm from the margin; peduncle 4-angled or winged; flower bud pyriform; dried leaves uniformly colored above; low elevation habitats of western Ecuador and western Amazon basin.

18. Leaves to 10 cm long; petiole 0.8–1.2 mm wide; principal marginal vein mainly 1–3 mm from margin; wings of twigs up to ca. 1 mm wide just below nodes; closed calyx with a prominent apiculum; ovules per locule 12–40; style 8–10 mm long; fruit 1.5–3 cm in diameter, the wall 0.5–2.5 mm thick; seeds 4–6; lowlands of western Ecuador .....24. ***P. guayaquilense***

18’ Leaves commonly over 10 cm long; petiole 1–2 mm wide; principal marginal vein 3–10 mm or more from margin; wings of twigs up to 2.5 mm wide just below the nodes; closed calyx without an apiculum or with only a weak apiculum; ovules per locule 50–70; style 12–16 mm; fruit 2–5 cm in diameter, the wall 4–13 mm thick; seeds 20–60 or more; Amazon basin from Tefé, Brazil to east slopes of Ecuador and Peru, frequently cultivated..... 1. ***P. acidum***

KEY 3: THE SPECIES OF MEXICO AND CENTRAL AMERICA

1. Calyx with (4–)5 evident wart-like abaxial protrusions at the apex of the flower bud; usually a shrub; this form apparently restricted to Honduras in Central America.....44. ***P. oligospermum***

1’ Calyx without evident protrusions in bud.

2. Hypanthium and lower surface of at least young leaves densely covered with hairs, the hypanthium surface at anthesis usually obscured by hairs.

3. Calyx open, the lobes usually evident; tears sometimes forming between the (4–) 5 lobes…… .....31. ***P. laruotteanum***

3’ Calyx closed in flower bud or open only as a terminal pore, tearing regularly or irregularly as the bud opens.

4. Anthers elongate, 1–3 mm long, usually 3–6 times as long as wide, usually with more than 10 glands; placenta laminar, sometimes peltate; tertiary veins often producing a ladder-like pattern; hairs of lower leaf surface usually more or less erect, mostly nearly straight, usually reddish brown; common in Central America and Mexico .....26. ***P. guineense***

4’ Anthers not elongate, 0.5–1 mm long, about 2 times as long as wide, usually with 1–3 glands; placenta mound-like, not laminar or peltate; tertiary veins reticulate; hairs of lower leaf surface generally appressed and straight to densely tangled, usually whitish; rare in southern Mexico .....21. ***P. grandifolium***

2’ Hypanthium and lower leaf surface of leaves glabrous, puberulent, or only sparsely covered with hairs, the hypanthium surface at anthesis visible under any hairs.

5. Calyx open, bowl-like with a prominent calyx-tube or with the calyx-tube reduced, scarcely evident; calyx lobes prominent or not in the bud.
   6. Lateral veins usually connecting to a marginal vein only in distal half of leaf; known only from Belize in Central America..... 8. ***P. australe***
   6' Lateral veins connecting to a marginal vein from near base to apex or the lateral and marginal veins obscure; widespread in Central America and Mexico..... 57. ***P. salutare***
5' Calyx closed or with only a terminal pore, the lobes usually not notable in the flower bud; all occasionally or frequently cultivated.
   7. Marginal vein not clearly evident in at least lower half of leaf.
      8. Lateral veins usually 9–22 pairs; young twigs quadrangular, more or less winged; indumentum of lower leaf surface appressed, whitish, yellowish, or silvery; calyx usually tearing into 2 or 3 parts; anthers 0.7–1 mm long, usually with less than 10 glands ..... 23. ***P. guajava***
      8' Lateral veins 5–10 pairs; young twigs more or less terete or compressed (some vigorous shoots sometimes 4–winged); indumentum of lower leaf surface more or less erect, reddish brown, or less often appressed, whitish or grayish; calyx usually tearing into 4 or 5 parts; anthers 1–3 mm long, usually with more than 10 glands.
         9. Leaves, twigs and flowers usually abundantly pubescent; tertiary veins usually predominantly ladder-like; calyx closed completely or nearly closed and with 5 minute lobes at the apex; disturbed habitats (rarely cultivated); common in area. .....26. ***P. guineense***
         9' Leaves, twigs and flowers glabrous or very sparsely pubescent; tertiary veins often predominantly reticulate, but ladder-like veins common; calyx nearly closed and with 5 minute lobes at the apex; habitats frequently wet; uncommon or absent in area. ..... 41. ***P. nutans***
   7' Marginal vein clearly evident from near base of leaf to apex or venation obscure.
         10. Style 8–15 mm long; petals 10–20 mm long; seeds frequently more than 25. .... 17. ***P. friedrichsthalianum***
         10' Style 3–8 mm long; petals 2.5–8 mm long; seeds usually less than 25 (sometimes more numerous in *P. cattleyanum*).
            11. Leaves mainly obovate to oblanceolate; tears in opening calyx cutting deeply into the staminal ring; ovary locules 3–5; seeds frequently over 20 per fruit; disturbed habitats in worldwide tropics..... 12. ***P. cattleyanum***
            11' Leaves mainly elliptic, ovate, or lanceolate; tears in opening calyx not cutting deeply into the staminal ring; ovary locules 2–4; seeds rarely more than 13 per fruit; natural habitats .....44. ***P. oligospermum***

KEY 4: THE SPECIES OF THE CARIBBEAN REGION INCLUDING FLORIDA, USA

1. Calyx open before anthesis, with 5 distinguishable lobes in flower bud and after anthesis, the closed corolla clearly visible before the bud opens; leaves mainly elliptic to lanceolate, mainly 2–5 cm long, 1.5–3 times as long as wide; lateral veins 5–13; usually a low subshrub ..... 57. ***P. salutare***
1' Calyx closed or with a small apical pore in flower bud, the lobes if any scarcely distinguishable in flower bud, the corolla usually hidden in the closed flower bud; calyx after anthesis often with only 4 distinguishable lobes; leaves various, often longer than 5 cm and/or less than 1.5 times as long as wide; lateral veins various, often less than 5; shrubs to trees.
   2. Flower buds 3–9 mm long just before anthesis; style 2–7 mm long; leaves 0.5–8(–10) cm long, often less than 1.5 times as long as wide.
      3. Leaves mainly 0.5–2 cm long, 0.4–1.5 cm wide; lateral veins often obscure (except sometimes in *P. acranthum*, which appears again below).
         4. Leaves elliptic to obovate, 1–2 times as long as wide, the apex acute to obtuse; peduncles 1–1.8 cm long, about as long or longer than the leaves; eastern Cuba.….....34. ***P. minutifolium***
         4' Leaves orbicular to ovate, 0.7–1.4 times as long as wide, the apex rounded to abruptly acuminate; peduncles generally shorter than the leaves; western Cuba and Hispaniola.

5. Leaves usually less than 1 cm long and wide, nearly sessile and appearing crowded on twigs; leaf apex often abruptly acuminate; stamens up to ca. 30; Hispaniola…… ..... 39. ***P. nannophyllum***

5’ Leaves often more than 1 cm long and wide, sessile to petiolate, usually not appearing crowded on twigs; leaf apex usually acute to rounded, rarely abruptly acuminate; stamens usually more than 80; Cuba and Hispaniola.

6. Leaves often lustrous above, the lateral veins often clearly visible; young twigs usually square in cross section or with 4 weak wings; stamens usually over 100; ovules per locule usually over 20; Hispaniola ..... 2. ***P. acranthum***

6’ Leaves usually dull above, the lateral veins indistinct or faint; young twigs terete to compressed, without 4 wings; stamens usually under 100; ovules per locules less than 20; Cuba..... 40. ***P. nummularia***

3’ Leaves mainly 1–8 cm long, 1.5–7 mm wide; lateral veins clearly visible (except in *P. urquiolanum*).

7. Laterals veins 3–4 pairs, mostly departing from midvein below mid-leaf, the distal laterals nearly equaling the midvein, the midvein sometimes appearing to terminate in two lateral veins; Jamaica……..... 4. ***P. albescens***

7’ Lateral 4–10 pairs, departing from midvein above and below mid-leaf, the distal laterals weaker than the midvein.

8. Leaves lanceolate to elliptic, usually widest at mid-leaf or below, mostly 2–4 times as long as wide; apex obtuse, acute, to acuminate; base acute to acuminate; petiole mostly 3–4 mm long. ..... 44. ***P. oligospermum***

8’ Leaves suborbicular, obovate, oblanceolate, or elliptic, usually widest at mid-leaf or above, mostly less than 2 times as long as wide; apex mostly rounded to obtuse; base various, often rounded to cordate; petiole often 0–2 mm long (up to 14 mm long in *P. cattleyanum*).

9. Lateral veins 8–13 pairs; petiole often over 4 mm long; apex usually acute to acuminate, less often broadly rounded; inner surface of calyx glabrous to puberulent, the hairs not reddish brown..... 12. ***P. cattleyanum***

9’ Lateral veins often obscure, when visible 4–6(–8) pairs; petiole 0–4 mm long; apex usually rounded to obtuse; inner surface of calyx usually covered with minute reddish brown hairs.

10. Leaves mainly obovate to oblanceolate, 1–2.2 times as long as wide, the base acute, acuminate, or cuneate; peduncle 6–32 mm long; Cuba……... ..... 46. ***P. parvifolium***

10’ Leaves mainly orbicular to ovate (sometimes obovate to oblanceolate in *P. urquiolanum*), 0.9–1.8 times as long as wide, the base rounded, cordate, truncate (sometimes broadly cuneate in *P. amplexicaule* of Hispaniola); peduncle frequently less than 6 mm long and rarely over 20 mm long.

11. Flower buds 6–12 mm long; peduncle 1–1.5 mm wide; style 6–12 mm long; stamens 150–270; anthers about 0.8–1 mm long; widespread in islands of Caribbean to the coast of northern Brazil.... 5. ***P. amplexicaule***

11’ Flower buds 3–7 mm long; peduncle 0.3–1 mm wide; style 2–7 mm long; stamens 35–150(–170); anthers 0.5–0.8 mm long.

12. Leaves elliptic, oblong, obovate, oblanceolate, mainly 1.5–2.3 times as long as wide; petiole 2–4 mm long; eastern Cuba…… ..... 63. ***P. urquiolanum***

12’ Leaves orbicular broadly elliptic, to ovate, mainly 0.7–1.5 times as long as wide; petiole 0–2 mm long; western and central Cuba, Jamaica, Hispaniola.

13. Leaves mainly less than 3 cm long and wide; stamens 120–170, the anthers ca. 0.8 mm long; ovules per locule 22–29; Hispaniola. ..... 2. ***P. acranthum***

13’ Leaves mostly over 5 cm long and wide; stamens 35–125, the anthers ca. 0.5 mm long; ovules per locule 4–19; Jamaica and Cuba.

14. Flower bud 3.5–4 mm long; style 2–3 mm long; stamens 35–47; leaves 2–8 cm long; peduncle 1-flowered, 3–8 mm long; Jamaica… .....28. ***P. harrisianum***

14’ Flower bud 4–6 mm long; style 5–6 mm long; stamens 85–125; leaves 1.7–5.5 cm long; peduncle 1–3-flowered, 4–18 mm long; Cuba. .....53. ***P. rotundatum***

2’ Flower buds generally over 10 mm long just before anthesis; style often over 10 mm long; leaves 4–14 cm long, mostly 1.5–3 times as long as wide.

15. Twigs and flower buds pubescent; lateral veins 5–22 pairs; tertiary veins usually ladder-like between laterals.

16. Lateral veins usually 9–22 pairs; young twigs quadrangular, more or less winged; hairs of lower leaf surface appressed, whitish, yellowish, or silvery; calyx usually tearing into 2 or 3 parts; anthers 0.7–1 mm long, usually with fewer than 10 glands..... 23. ***P. guajava***

16’ Lateral veins 5–10(–12) pairs; young twigs more or less terete or compressed (some vigorous shoots sometimes 4–winged); hairs of lower leaf surface more or less erect, reddish brown, or appressed, whitish or grayish; calyx usually tearing into 4 or 5 parts; anthers 1–3 mm long, often with more than 10 glands. .....26. ***P. guineense***

15’ Twigs and flower buds glabrous or minutely and obscurely puberulent/hirtellous; lateral veins 3–12 pairs; tertiary veins dendritic.

17. Leaves elliptic to lanceolate, mostly 2–3.3 times as long as wide; young twigs frequently 4-ridged or winged in cross section; flower bud usually with an acuminate tip; Jamaica….. ..... 36. ***P. montanum***

17’ Leaves obovate, oblanceolate to orbicular (less often elliptic), 0.9–2(–2.6) times as long as wide; twigs more or less terete in cross section; flower bud with a rounded to acute tip; widespread.

18. Leaves obovate, oblanceolate, less often elliptic, the petiole 2–14 mm long; lateral veins 8–13 pairs; petals 3–6 mm long; frequently cultivated, sometimes naturalized…… ..... 12. ***P. cattleyanum***

18’ Leaves suborbicular to obovate, sessile, or nearly so, the petiole up to ca. 2 mm long; lateral veins 3–8 pairs; petals up to 15 mm long; native.

19. Leaves mainly orbicular to suborbicular (sometimes obovate in Hispaniola), sessile or subsessile, the petiole 0–2 mm long; base rounded to cordate (sometimes broadly cuneate in Hispaniola); lateral veins leaving midvein at 60–90 degree angle; stamens 150–270; anthers ca. 1 mm long; style 6–12 mm long; widespread .....5. ***P. amplexicaule***

19’ Leaves mainly obovate to suborbicular, petiolate, the petiole 1–6 mm long; base acute to acuminate; lateral veins leaving midvein at 20–60(–90) degree angle; stamens probably less than 150; anthers ca. 0.5 mm long; style 5–6 mm long; Jamaica .....4. ***P. albescens***

1. *Psidium acidum* (DC.) Landrum, Brittonia 68: 411. 2016. Fig. 8

Psidium acutangulum var. ***acidum*** DC., Prodr. 3: 233. 1828. Type. Brazil. “ad Nogueira prov. Rio-Negro,” *C. F. P. Martius s.n*. (HOLOTYPE: M- 32368). Note that locality on type, “Ega”, does not match protologue, but the description of Martius does. Nogueira and Ega are both localities near Tefé.

Britoa acida (DC.) O. Berg, Linnaea 27: 436. 1856.

Psidium apiculatum Mattos, An. XIV Congr. Soc. Bot. Bras. 29. 1964. TYPE. Brazil. Bahia: Ubaitaba (HOLOTYPE: *J. R. Mattos 11620*, R, perhaps lost. PARATYPE: *A. Magalhaes s.n.* (HAS 77561, designated LECTOTYPE, by Tuler et al. [2019b]).

Tree or shrub up to 10(–18) m high, glabrous to minutely and sparsely strigose on young growth, strongly glandular on most surfaces; *hairs* whitish, up to ca. 0.2 mm long; *young twigs* quadrangular, 4-winged, the wings mostly about 1 mm wide but sometimes broadening to 2.5 mm wide in auriculate, stipule-like flanges at nodes, the young bark

reddish-brown, exfoliating as strips and flakes, the older twigs terete with the bark smooth to minutely flaky. LEAF BLADES elliptic, oblanceolate, or lanceolate, 5.4–15 cm long, 2.7–9 cm wide, 1.6–3.2(–3.4) times as long as wide, mainly subcoriaceous, drying dark reddish brown to nearly black or gray-green, somewhat darker above than below, sublustrous or dull above, the lower surface with 4–10 glands/mm².; *apex* acuminate, sometimes abruptly so; *base* rounded, obtuse or acute; *petiole* channeled, 2–10 mm long, 1–2 mm wide; *venation* brochidodromous, the midvein impressed above, prominent below, the lateral veins (5–)6–8(–9), prominent below, often impressed above, straight or curving slightly towards apex, leaving the midvein at about a 60(–75) degree angle, connecting to a generally prominent marginal vein that arches shallowly between them, the marginal vein in larger leaves mainly running 3–10 mm from the margin, a much weaker second marginal vein sometimes running near the margin, the tertiary veins dendritic, arising from adjacent larger veins, the more prominent ones alternating with the laterals. FLOWER BUDS pyriform, 10–14 mm long, the hypanthium campanulate, 3–5 mm long, the distal portion of bud subglobose, 6–10 mm long, often apiculate; *indumentum pattern of buds* with all surfaces glabrous except for the puberulent staminal ring, or the outer surface of buds, peduncle, and occasionally the calyx within strigose in part; *peduncles* 1 flowered (occasionally 3-flowered), 10–30 mm long, 1–1.5(–2) mm wide, quadrangular to 4-winged at anthesis; *bracteoles* caducous before anthesis, narrowly triangular, ca. 1 mm long, often with colleters in the axils. CALYX closed, often apiculate, tearing irregularly at anthesis in 2 or 3 parts, these up to 0.5 mm thick, usually not persisting in fruits, the tears in the calyx not cutting the staminal ring; *petals* not seen extended, probably 1.5–2 cm long, ciliate; *disk* 5–6 mm across; *stamens* 500–700, ca. 15 mm long, the anthers ca. 1.5 mm long, with 3–15 glands in the connective, of about equal size; *style* 12–16 mm long, the stigma ca. 1 mm across; *ovary* 3–5 locular, the ovules on a peltate placenta, 50–70 per locule. FRUIT globose to subglobose, up to 2–5 cm in diameter, the lateral fruit wall 4–13 mm thick; *seeds* up to 60 or more, 6–9 mm long, kidney shaped to flattened subglobose, with rounded and flat sides, more or less regular in shape.

Representative specimen examined. BOLIVIA. **Beni**: José Ballivián, Ballivián, Espiritu, zona de influencia del Río Yacuma, (14.13°S, 66.72°W), 200 m, 29 Mar1988 *Beck 15137* (ASU0080872).

BRAZIL. **Acre**: near mouth of Río Macauhan (9.33°S, 69°W), 27 Aug 1933 (fr), *Krukoff 5696* (MO, NY, US); Tarauacá, Bacia do Alto Juruá, Rio Tarauacá, margem direita, Reserva Indígena Praia do Carapanã, Colocação Vista Alegre. (8°26'57"S, 71°20'57"W), 21 Nov 1995 (fl), *Silveira 1063* (MO). **Amazonas**: Maraã, Río Japurá, Sitio Cuiu-cuiu, cultivated (ca. 2°28'S, 65°03'W), 3 Dec 1982 (fr), *Plowman et al. 12103* (CAS, MO, NY, UB); Ilha Aramaçá, almost opposite Tabatinga, cultivated (4.332°S, 69.917°W), 24 Jul 1973 (fr), *Prance et al. 16815* (CAS, MO, NY, R).

COLOMBIA. Cauca: Piamonte, corregimiento de Miraflor, centro demostrativo agroforestal Guacayaco (01°01'15.43''N, 76°26'44.98''W), 11 Jan 2019 (fr), *Orejuela 3004* (COAH, COL, HUA), seen as images only.

ECUADOR. Napo: Est. Biológica Jatum Sacha, 8 km al E de Misahualli (77°36'W, 1°4'S), 400 m, 414 Apr 1991 (fr), *Palacios 7033* (ASU0005135, MO). **Sucumbíos:** San Pablo de los Secoyas (76°21'W, 0'15'S), 300 m, 13 Aug 1980 (st), *Brandbyge & Asanza 32865* (ASU0005131, MO). **Orellana**: Parque Nacional Yasuní , Orillas del Río Yasuní , Guardiania de MAE (0.98°S, 75.43°W), 6 m, 12 Mar 2013 (fr), *Gortaire 1296* (ASU0087805); Carretera Chiruisla - Río Tiputini km 12+500, (0.71°S, 75.94°W), 280 m, 1 Feb 2006 (fr), *Jaramillo 25928* (ASU0087804, QCA); Estación INIAP - PAYAMINO, Reserva Florístico El Chuncho (0°27'S, 77°01'W), 17 Jun 1987 (fl, fr), *Palacios 1640,* (ASU0005130, MO, QCNE); San Carlos – INIAP, Colección Arboretum Frutales Amazónicos (0.42°S, 76.83°W), 250 m, 1 Feb 1994 (fr), *Palacios 12000* (MO, QCNE); Parque Nacional Yasuní - ECY, Sendero `Laguna` - 1000 m (0.68°S, 76.39°W), 200 m, 17 Nov 2009 (fr), *Perez 4418* (ASU0087806, QCA); Aguarico Cantón, Reserve, Km on the Maxus/YPP pipeline road, along the - Río Yasuní (0.93°S, 76.22°W), 250 m, 1 Dec 1998 (st), *Pitman 5080* (ASU0087807). **Pastaza**:

Villano-Pandanuque, junto al Río Villano (77°27'W, 1°30'S), 340 m, 26 Jul 1992 (fr), *Palacios 10312* (ASU0005133, MO, QCNE).

PERU. **Amazonas**: Río Santiago, 1 km atras de comunidad Caterpiza, (3.86°S, 77.72°W), 200 m, 21 Sep 1979 (fr), *Huashikat 547* (MO, NY); Yamayakat Bosque de Rivera (4°55'S, 78°19'W), 320 m, 4 Feb 1996 (fr), *Jaramillo et al. 1090* (MO, USM). **Huanuco**: Pachitea, ca. 26 km S of Puerto Inca, next to the junction of the Río Pachitea and Río Yuyapichis, biological field station Panguana (9.62°S, 74.93°W), 260 m, 16 Feb 1988 (fr), *Morawetz 13-16288* (ASU0069358). **Loreto**: Dist. Pastaza, Río Pastaza, Andoas. (5.40°S, 76.27°W), 13 Nov 1979 (fr), *Ayala 2296* (ASU0005142); Río Pastaza, una hora arriba de la boca del Lago Rimachi (76°35'W, 4°20'S), 200 m, 25 Jan 1979 (fr), *Diaz & Ruiz 932* (MO, NY); Mayas, Río Itaya, San Juan de Muniches, (3.94°S, 73.32°W), 90 m, 16 Oct 1976 (fl), *Revilla & Carrillo 1503* (MICH, MO, USM); Andoas, campamento Río Pastaza, No. de Iquitos, (2°55'S, 76°25'W), 300 m, 20 Nov 1980 (fr), *Vásquez & Jaramillo 780* (MO, USM). **Madre de Dios**: Manu, Cocha Cashu Biological Station, Manu National Park, (11.87°S, 71.37°W), 400 m, 17 Aug 1983, *Al Gentry 43654* (MO). **Pasco**: Oxapampa, Dist. Huancabamba, trail section pan Azucar-Huampal, (10.18°S, 75.57°W), 1092 m, 11 Nov 2004 (fl), *Perea 2098* (ASU0005139).

Phenology—Apparently flowering and fruiting through the year; fruiting specimens mainly collected in November and February.

Habitat and Distribution—*Psidium acidum* is found in virgin and disturbed lowland forests near rivers on "tierra firme" and in occasionally to frequently flooded areas. Elevations range from 180–500 m, but are mostly from 200–300 m.

Distinguishing Features—Leaves glabrous or nearly so, elliptic, ovate, or lanceolate, 5.4–15 cm long, 2.7–9 cm wide, 1.6–3.2(–3.4) times as long as wide; calyx closed in bud, tearing irregularly, but the tears not cutting the staminal ring; peduncles quadrangular to 4-winged at anthesis. *Psidium acidum* has long been confused with *P. acutangulum*; the species are compared in the key below.

1. Seeds angular, more or less C-shaped but often irregular in shape; anthers generally with a prominent terminal gland and a few smaller glands below; twigs terete, compressed or quadrangular, sometimes 4-winged, the wings up to ca. 1 mm wide; remnants of calyx 0.1-0.3 mm thick; peduncles terete or compressed; fruit wall 1–3 mm thick; marginal vein in larger leaves generally approaching within 1–2 mm of the margin ..... ***P. acutangulum***

1' Seeds kidney shaped to flattened subglobose, more or less regular in shape; anthers generally with a few to several prominent glands of about equal size distributed through the connective; twigs quadrangular, often strongly 4-winged, the wings 1–2.5 mm wide; remnants of calyx usually 0.4-0.7 mm thick; peduncles generally quadrangular; fruit wall 4–13 mm thick; marginal vein in larger leaves mainly running 3–10 mm from the margin ..... 1. ***P. acidum***

For more information about this species see Landrum (2016). The labels of the types of *P. acidum* and *P. acutangulum* are confusing because the localities on the types (Ega and Nogueira) do not match the protologues.

2. *Psidium acranthum* Urb., Repert. Spec. Nov. Regni Veg. 18: 367. 1922. TYPE. Dominican Republic. San Lorenzo Bay and vicinity, south coast of Samaná Bay, 5–10 April 1921(fl), *W. L. Abbott 1247* (HOLOTYPE: B, lost; LECTOTYPE: NY-1365099! designated here; ISOLECTOTYPES: F-65685, GH-71234, MO!, US-117653!). Fig. 9

Psidium trilobum Urb. & Ekman, Ark. Bot. 22A(10): 20. 1929. TYPE. Haiti. Massif du Morne, Gros-Morne, ad Morne Bonpère, 500–600 m. 23 June 1927(fl), *Ekman 8521* (SYNTYPES: S-R-9432 ["typus"], S-12-20646; ISOSYNTYPES: US-117679!, US!), same locality, 30 Sep 1925(st), *Ekman H4963* (ISOPARATYPES: K-565281, MICH!, NY!, US!).

Psidium hotteanum Urb. & Ekman, Ark. Bot. 22A(10): 21. 1929. TYPE. Haiti. Massif de la Hotte....prope Petit-Goave ad viam ad Morne Calumette, cr. 1100 m, *Ekman H7308*, (HOLOTYPE: B, lost; ISOTYPES: G-227701!, GH-71243, K-565283, S-R-8906, S-12-20581, US-117664!).

Psidium haitiense Alain, Brittonia 20: 159. 1968. TYPE. Haiti. Boucan Chat, Morne des Commissaires, 9 Nov 1944(fl), *Holdridge 1958* (HOLOTYPE: NY-1288053!; ISOTYPES: GH-71242, MO!, US-117662!, US!).

Psidium brevifolium Alain, Moscosoa 1: 33. 1976. TYPE. Dominican Republic. La Cueva, La Horma Arriba, San José de Ocoa, 1400 m, 3 Jan 1974(frc, *Liogier 20940* (HOLOTYPE: SDM; ISOTYPES: NY-1288036!)

Shrub or small tree 1.5–6 m high, essentially glabrous or minutely hispid on young growth; *hairs* mainly less than 0.1 mm long, reddish brown; *young twigs* reddish brown, glabrous to minutely hispid, usually square in cross section or with 4 weak wings, the bark of older twigs becoming gray, smooth to longitudinally cracked, with triangular to ovate bud scales sometimes persisting, these ca. 1 mm long at proximal nodes of twigs. LEAF BLADES orbicular, suborbicular, to obovate or ovate, (0.7–)1–3(–3.6) cm long, 1–2.7(–3.4) mm wide, 0.7–1.4 times as long as wide, coriaceous to subcoriaceous, strongly glandular, dull to lustrous above, dull below, the margin slightly to strongly revolute; *apex* rounded, emarginate, to abruptly acuminate; *base* rounded, acuminate, subcordate, or cordate; *petiole* essentially none to ca. 2 mm long, ca. 1 mm wide; *venation* brochidodromous, obscure or with 4–6 lateral veins visible, leaving the midvein at an angle of 45 to nearly 90 degrees, a lateral vein if visible arching between the laterals, running about 1–2 mm from the margin, with dendritic tertiary veins sometimes visible between the laterals, appearing to arise from the marginal vein. FLOWER BUDS pyriform to pyriform-cylindric, 3–6 mm long; hypanthium obconic to cylindric, 1–2.5 mm long; *indumentum pattern of buds* with all external surfaces glabrous to minutely hispid, the inner surface of calyx and staminal ring minutely hispid; *peduncles* flattened, 2–9 mm long, 0.5–1 mm wide; *bracteoles* narrowly triangular, 0.5–1.5 mm long. CALYX closed or with a terminal pore in bud, tearing irregularly, usually in 3 or 4 parts, persisting until fruit matures, the tears sometimes cutting the staminal ring; *petals* 5, 5–8 mm long; *disk* within staminal ring 2–3 mm across; *stamens* 120–170, 4–5 mm long; *anthers* ca. 0.8 mm long, with a terminal gland and 2–6 smaller glands below; *style* 4–7 mm long, glabrous or with scattered hairs; *ovary* 2–3-locular; *ovules* (15–)22–29 per locule, borne on the edge of a peltate placenta, reflexed, 1–2-seriate along the edge of the lamellae of the placenta. FRUIT subglobose, 1– 2 cm long, the fruit wall 1–4 mm thick; *seeds* up to ca. 5, 4–6 mm long, globose to subreniform, with rounded and flat sides.

Representative specimens. DOMINICAN REPUBLIC. **El Seibo**: San Lorenzo Bay, south coast of Samaná Bay, (19.01°N, 69.16°W), 5 m, 5 Apr 1921 (fl), *Abbott 1247* (MO, NY); entre La Cueva de Arena y la Boca del Infierno, orilla del sur de la Bahia de Samaná, (19.08°N, 69.45°W), 0 m, 25 Apr 1985 (fl), *Zanoni 34385* (ASU0004813, NY). **Monte Plata:** Los Haitises, Pilancón, Bayaguana, (18.89°N, 69.64°W), 200 m, 25 Apr 1973 (st), *Liogier 18963* (JBSD, NY, US). **Independencia**: Sierra de Bahoruco, 12 km al S de Duvergé, en el lugar llamado Monte Palma, (18.26°N, 71.5°W), 860 m, 24 Mar 1993 (fl), *García 4447* (ASU0069454); Jimani, (18.49°N, 71.85°W), 25 Jul 1985 (fl), *Grifo 204* (ASU0004812); Charco de la Paloma, 37.4 km al sur de Puerto Escondido, (18.2°N, 71.5°W), 1810 m, 19 Mar 1985 (fr), *Zanoni 33920* (JBSD). **Samaná**: Peninsula de Samaná, slope of Pan de Azucar, (19.260°N, 69.300°W), 4 May 1930 (st), *Ekman 14658* (MICH). **San José de Ocoa**: La Cueva, La Horma Arriba, (18.650°N, 70.540°W), 1400 m, 3 Jan 1974 (yfr), *Liogier 20940* (JBSD, NY).

HAITI. **Sud-Est**: Boucan Chat[te], M. des Comm. =[Morne des Commissaires], (18.33°N, 71.77°W), 1575 m, 9 Nov 1944 (fl), *Holdridge 1958* (NY, US). **Gran'Anse**: Massif de la Hotte, eastern group, Pt. Goâve, M. Calumette, (18.4°N, 74°W), 1100 m, 26 Nov 1926 (buds in packet at NY), *Ekman 7308* (NY, US). **Nord**: Massif du Nord, Gros-Morne, M. Bonpere, (19.5°N, 72.25°W), 600 m, 30 Sep 1925, *Ekman 4963* (MICH).

Phenology—Flowering in March to July, and November; fruiting in January and March.

Habitat and distribution—Forest to open areas, from sea level to 2000 m, often on limestone.

Distinguishing features—Leaves orbicular, suborbicular, to obovate or ovate, mainly 1–3 cm long; young twigs usually 4-angled to weakly 4-winged; Hispaniola.

As understood here, *Psidium acranthum* is a somewhat variable species from a wide range of elevations and habitats. Some populations seem to be known from single specimens, these sometimes the types of taxa here considered synonyms. As with any species of the *P. amplexicaule* complex, new collections, with more information on, for example, habitat, phenology, and fruit characteristics, may change the taxonomic views in the future.

3. *Psidium acutangulum* DC., Prodr. 3: 233. 1828. TYPE. Brazil. "prope Ega," [annotated by de Candolle] near present town of Tefé, in state of Amazonas, 3.35°S, 64.7°W] *Martius s.n.* (HOLOTYPE: M-32369, = F neg. 19748). Note that locality on type, "Nogueira", does not match protologue. Nogueira and Ega are both localities near Tefé.

Fig. 10

Psidium fluviatile DC. Prodr. 3: 235. 1828, illegitimate name because *Psidium guyanense* ["guianense"] Persoon is cited as a synonym. TYPE. French Guiana. "in Cayenna," "Rich. Ex herb Thib." Apparently from the herbarium of Thibaud de Chanvalon, but perhaps not collected by him. (HOLOTYPE: P-258451!).

Psidium acutangulum var. ***crassirame*** O. Berg, in Mart. Fl. bras. 14(1): 409. 1857. Illegitimate name to be replaced by the autonym *P. acutangulum* var. *acutangulum* because Berg cites *P. acutangulum* under this variety.

Psidium acutangulum var. ***tenuirame*** O. Berg, in Mart. Fl. bras. 14(1): 409. 1857. TYPE. Brazil. "Ega ad flumen Amazonas," presumably *Martius s.n.* (HOLOTYPE: M-32370, = F neg. 19708). Specimen at P annotated by Berg (*Spruce 3126*; P-258494!) is not a type.

Guajava acutangula (DC.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava fluviatilis (DC.) Kuntze, Rev. Gen. 240. 1891.

Psidium persoonii McVaugh, Mem. New York Bot. Gard. 18: 255. 1969. TYPE. Brazil. Amapá, Cachoeira Camarauá, about 3 km S of mouth of Riv. Camopi, 3°10'N, 52°19'W, 3 Oct 1960, *Irwin et al. 48615* (HOLOTYPE: MICH-1210426!; ISOTYPES: COL-3156, F-65712f, K-565489, NY-1288077!, S-R-9455, U-5186, US-117673).

?***Psidium acutangulum*** var. ***oblongatum*** Mattos, Loefgrenia 94: 12. 1989. TYPE. Brazil. São Paulo, Instituto Agronômico de Campinas, *Mattos 31284* (HOLOTYPE: IPRN, not found). Possibly *P. acidum*.

Shrub or small tree 2.5–6(–10) m high, glabrous, or with a few minute hairs on disk and calyx within, or sparsely pubescent on young growth, sometimes densely so on vegetative buds; *hairs,* if any, minute, whitish or reddish brown; *young twigs* terete to flattened and sulcate, or quadrangular and often 4-winged, reddish-brown, the older twigs losing any wings in about 1 year, becoming gray or remaining reddish brown, remaining smooth or becoming slightly flaky. LEAF BLADES elliptic, ovate, or lanceolate, 3.5–13 cm long, 2–5.6 cm wide, 1–3 times as long as wide, submembranous to subcoriaceous, drying dark reddish brown to gray-green, somewhat darker above than below, lustrous or dull above, the lower surface with 8–30 glands/mm², the margins entire or slightly sinuate; *apex* acute, acuminate, or obtuse, the tip often minutely mucronate; *base* cuneate, acuminate, rounded, rarely subcordate; *petiole* channeled, (0–)1–6 mm long, 0.5–2 mm wide; *venation* brochidodromous distally, eucamptodromous proximally, the midvein impressed to nearly flat above, prominent below, the lateral veins 6–13 pairs leaving the midvein at an angle of ca. 45–60 degrees, faint or prominent, impressed slightly to raised slightly above, broadly arching or nearly straight, diminishing near the margin or attaching to a well- defined marginal vein, the marginal vein

arching deeply, generally approaching within 1–2 mm of the margin, the tertiary veins dendritic, arising from adjacent larger veins. FLOWER BUDS pyriform to subfusiform, 7–13 mm long, sometimes constricted between upper and lower portions, the hypanthium obconic, ellipsoid, or campanulate, 3–5 mm long, the distal portion of bud globose to ovoid, 4–10 mm long; *indumentum pattern of buds* with all external surfaces glabrous to sparsely strigose on peduncles, bracteoles, and hypanthium, the internal surfaces glabrous to sparsely puberulent on calyx within and disk; *peduncles* 1–3-flowered, 1–5.5 cm long, 0.5–1.5 mm wide, the side branches of the dichasium ca. 1 cm long; *bracteoles* caducous before anthesis, 1–1.5 mm long, narrowly triangular to elliptic. CALYX closed, often apiculate, or nearly closed with a smooth edged terminal pore, with no lobes evident, tearing irregularly at anthesis in 2–5 persistent pieces, these 0.1–0.3 mm thick when dry, the tears usually not cutting the staminal ring; *petals* obovate to elliptic, 1–2 cm long; *disk* 4–8 mm across; *stamens* 160–580(–800), 7–15 mm long; *anthers* 0.8–1.5 mm long, usually with a large terminal gland (occasionally without) and 1–4 smaller glands below in the connective; *style* 8–15 mm long, the stigma peltate, 0.5–0.7 mm across; *ovary* (2–)3–4(–5) locular, the placenta more or less peltate; *ovules* 2–3-seriate on each placental lamella, ca. 22–65 per locule. FRUIT subglobose, 1.5–5 cm in diameter, the fruit wall 1–3 mm thick; *seeds* 18–100 or more, angular, C-shaped or irregular, 6–9(–12) mm long, the coat 0.5–2 mm thick.

Representative specimens examined. BOLIVIA. **Beni**: Prov. Gral. Ballivián, Espíritu en la zona de influencia del Río Yacuma, ribera alta del Río Yacuma, (ca. 14.13°S, 66.72°W), 200 m, 16 Aug 1985 (fl), *S.G. Beck 5672* (MO, SEL). **Pando**: Prov. Manuripi, Boca del Manu (ca. 9.87°S, 66.37°W), 97 m, 19 Jun 2006 (fl), *Altamirano et al. 3381* (MO); Río Madre de Dios, Genechiquia, (11°17'S, 66°49'W), 125 m, 5 Sep 1985 (yfr), *Nee 31784* (ASU0005160, MO); south bank of río Abuná, 7–8 km above mouth (ca. 9.92°S, 65.47°W),15 Jul 68 (fl), *Prance et al. 6063* (MICH, NY, R). **Santa Cruz**: Prov. Velasco, P. N. Kempff M., arroyo Las Londras, (14°24'18"S, 61°08'40"W), 150 m, 25 Jul 1996 (fl), *Arroyo 1363* (MO, ASU0005156); Res. Ecológica El Refúgio, puesto La Toleda, (14°45'02''S, 61°08'37''W), 220 m, 19 Oct 1996 (fr), *Carrión et al. 460* (ASU0005151, MO); Prov. Velasco, 1 km N de Lazaretos (ca. 17.789°S, 63.183°W), 210 m, 15 Sep 1995 (fr), *Foster et al. 113* (ASU0005155, MO); 3 km S del campamento La Toledo, (14°43'16''S, 61°8'58''W), 210 m, 16 Sep 1995 (fr), *Foster et al. 142* (ASU0005154, MO); Prov. Velasco, P. N. Kempff M., campamento La Torre, (13°39'S, 60°46'W), 300 m, 20 May 1994 (fl), *Quevedo et al. 2644* (ASU0005159, MO).

BRAZIL. **Acre**: Cruzeiro do Sul, Rio Moa at Rio Juruá, International Airport (7.63°S, 72.6°W), 21 Aug 1986 (fr), *Croat 62459* (ASU0005121); Senador Guiomard, Basin of Rio Purus, Rio Iquiri, downstream from intersection with Br-364 hwy, (10.067°S, 67.533°W), 5 Mar 1997 (fr), *Daly 9225* (ASU0005125); Sena Madureira, Riozinho do Andira, colocação Curitiba. (9.729°S, 68.148°W), 10 Jun 1995 (fl), *Oliveira 572* (ASU0005124, QCA). **Amapá**: Ferreira Gomes, Rio Araguarí (0.8°S, 51.13°W), 26 Oct 1979 (fr), *Austin 7248* (ASU0005099); Rio Oiapoque, ca. 0.5 km S of mouth of Rio Mutura, (2.57°N, 52.53°W), 21 Sep 1960 (fl), *Irwin et al. 48395* (MICH, NY); Rio Araguari, próximo ao campo 14, (1.433°N, 51.967°W), 8 Oct 1961, *Pires et al. 28780* (HB); Rio Araguari, Cachoeira Santa Maria, (1.433°N, 51.97°W), 21 Aug 1961 (fl), *Pires et al. 50409* (NY); Rio Araguari, between camps 3 and 4, (1.783°N, 51.97°W), 6 Sep 1961 (fl), *Pires et al. 50735* (NY); Rio Falsino, ca. 10 km upstream from confluence with Rio Araguari (0.8°S, 51.75°W), 4 Oct 1983 (fr), *Rabelo et al. 2434* (NY). **Amazonas**: Maraã, rio Japurá, (1.83°S, 65.58°W), 28 Oct 1982 (fl), *Cid 3375* (CAS, NY); Maraã, rio Japurá, (1.833°S, 65.717°W), 4 Nov 1982 (fr), *Cid & Lima 3501* (CAS, MO, NY); above Tefé, mouth of Rio Tefé, (3.317°S, 64.83°W), 50 m, 1 Dec 1947 (fr), *Fosberg 29256* (MO, NY); Arimã, Rio Purus region. (5.7°S, 62.7°W), 4 Feb 1986 (fr), *Gottsberger & Doring 12- 4286* (ASU0005117); Tonantins, Paraná de Tonantins, (2.78°S, 67.78°W), 22 Feb 1977 (fr), *Mori et al. 9025* (MICH, NY); Tefé, Rio Japurá, ca 6 km above mouth, (2.883°S, 64.867°W), 2 Dec 1982 (fr), *Plowman et al. 12095* (CAS, MO, NY, UB); Rio Ituxi, vicinity of Bôca do Curuquetê. River Banks. Rio Purus, Rio Ituxi (8.317°S, 65.68°W), 11 Jul 1971 (fl), *Prance et al. 14133* (MICH, NY, R). **Maranhão**: Macaseira, Maraçassumé river region, Macaseira, (2.03°S, 45.93°W), 8 Oct 1932 (fl), *Froes 1927* (MICH, MO, NY); Rio Alto Turiaçu, Nova Esperanza, (2.917°S, 45.75°W), 29 Nov 1978 (fl), *Jangoux & Bahia 78* (NY). **Mato Grosso**: Rio Aripuanã, below Salto das Andorinhas, (10.200°S, 59.350°W), 18 Oct 1973 (fr), *Berg et al. P- 18619* (MO, NY);

Cáceres, (16.067°S, 57.683°W), 1 Jan 1970 (fl), *Hoehne 4368* (ASU0005083); **Mato Grosso**: Santa Terezinha, (10.417°S, 50.500°W), 10 Oct 1985 (fr), *Pirani 1180* (ASU0005122); Poconé, Transpantaneira, Próximo Posto IBDF, Faz. Porto Jofre, UB Regia do Poconé, Pantanal, (16.26°S, 56.627°W), 100 m, 14 Oct 1989 (fr), *Pott 5248* (MBM). **Pará**: Oriximiná, Rio Paru do Oeste, cachoeira Pancada, (1.765°S, 55.864°W), 5 Sep 1980 (fl), *Cid et al. 2095* (NY); Rio Caraipe, ca. 60 km from Tucuruí, SW on road serving Fazendas (4.067°S, 49.917°W), 8 Nov 1981 (fr), *Daly et al. 1296* (HRB, MO, NY); Rio Tocantins 2 km S of Baião, (1.750°S, 49.167°W),3 Jul 1935 (fl), *Drouet 1987* (MICH); Mun. Oriximiná, Rio Trombetas a montante de Cach. Porteira, prox. as Ilhas Resposta (0.87°S, 57.05°W), 22 Aug 1986 (fl), *Cid Ferreira 7969* (ASU0005098); upper Cupoary river, (3.92°S, 55.42°W), 1 Jan 1970 (fr), *Krukoff 1089* (MICH, NY); Rio Guamá, acima de Ourém, perto do Posto Indigena, (1.552°S, 47.114°W), 1 Jan 1970 (fl), *Pires & Silva 4635* (MICH); Road BR 22, Capanema to Maranhão, banks of Rio Piriá, north of km 90, (1.667°S, 50.033°W), 28 Oct 1965 (fr), *Prance & Pennington 1740* (MICH, NY, UB); estrada Transamazonica entre Estreito e Marabá (ca. 6.2°S, 50.4°W), 10 Feb 1976 (fr), *Ribeiro & Pinheiro 1301* (MICH); Sub-Base Marapí, a margem do Rio Marapí (0.617°S, 55.967°W),19 Oct 1974 (fr), *Rosa 241* (MICH); Itaituba, Rio Tapajós (4.22°S, 56.02°W), 10 Nov 1978 (fr), *Silva & Rosario 3649* (MO, NY). **Rondônia**: Rio Urupá, (10.88°S, 60.72°W), 8 Aug 1975 (fr), *Cordeiro 475* (MICH); Campo Novo de Rondônia, Jiparaná and vicinity, lower Rio Urupá, (10.57°S, 63.62°W), 22 Oct 1979 (fr), *Zarucchi et al. 2775* (NY, US). **Roraima:** vicinity of Uaicá airstrip, Rio Uraricoera, (3.55°N, 63.18°W), 26 Feb 1971, (st), *Prance et al. 10708* (MICH, NY, R).

COLOMBIA. **Amazonas**: Rio Caquetá, La Pedrera and vicinity, (1.32°S, 69.57°W), 3 Oct 1952 (fl), *Schultes & Cabrera 17725* (MICH); Leticia, Rio Amazonas, Isla de Mocagua, trocha W-E paralela al Lago Guerrero, hacia el costado S, (3.85°S, 70.25°W), 110 m, 5 Dec 1991 (fr), *Prieto 225* (MO). **Meta:** La Macarena, Rio Guayabero, Del Refúgio a La Angostura, (2.290°N, 73.880°W), 239 m, 1 Jan 1970 (st), *Garcia-Barriga & Jaramillo Mejia 17015* (NY); **Vichada:** Rio Vichada ca. 6 km W San Jose' de Ocune' (4.250°N, 70.330°W), 100 m, 23 Jan 1944 (fr), *Hermann 11083* (NY). Additional specimens cited in Parra and Landrum (2022).

FRENCH GUIANA. Yao pasi, (3.317°S, 54.067), 1 Feb 1997 (fr), *Fleury 1133* (ASU0080871); Gobaya Soula, (3.583°S, 54.017), 15 Sep 2005 (fr), *Fleury 2141* (ASU0080869, MO); Saut Maripa, (3.850°S, 51.850), 19 Sep 2005 (fr), *Fleury 2142* (ASU0080870).

GUYANA. Rupununi area, Surama Village (4°8'N, 59°4'W), 25 Feb 1990 (fr), *Acevedo 3409* (ASU0005077); Iwokrama Rainforest R., Siparuni R. (04°45'N, 58°56'W), 10 Nov 1995 (fl), *Clarke 478* (ASU0005095); Maparri Creek, (3°20'N, 59°15'W), 4 Jun 1996 (fr), *Clarke 1968* (ASU0005085); 2.5 km W of Essequibo river to Turtle Mt. (4°43'N, 58°42'W), 1 Oct 1996 (fl), *Clarke 2707* (ASU0005086); Kwitaro river, 0–2 km N of landing at terminus of trail from Shea Village, (2°54'N, 58°58'W), 12 Sep 1997 (fr), *Clarke 6259* (ASU0005093); Kwitaro river, 0-5 km S of camp, (3°10'N, 58°49'W), 17 Sep 1997 (fl), *Clarke 6445* (ASU0005084); Rewa river, (3°48'N, 58°46'W), 25 Sep 1997 (fl), *Clarke 6713* (ASU0005092); a orillas y a lo largo de Rio Podwau (de aquas negras y represadas por las del Rio Kwitaro), (3.265°S, 58.777°W), 100 m, 23 Sep 2001 *Diaz 5553* (ASU0005111); Mabura Hill region, Yakuriba Falls, Demerara R. (5°20'N, 58°10'W), 12 Feb 1993 (fr), *Ek et al. 726* (ASU0005104); Cuyuni-Mazaruni, Cuyuni river, between Aurora and ca. 7 km upstream (6.792°S, 59.742°W), 60 m, 10 Oct 1989 (bud, fr), *Gillespie 2263*; Essequibo river at Karupukari crossing, Indian House island (4°40'N, 58°41'W), 18 Apr 1992 (fr), *Hoffman 1293* (ASU0005076); Kanuku Mts., Rupununi R., Puwib R., near the farm of the Captain of Sandcreek, (3°7'N, 59°26'W), 19 Feb 1985 (fr), *Jansen-Jacobs 292* (ASU0005081); Kanuku Mts., Rupununi River, Crabwood Creek, (3°10'N, 59°24'W), 28 Jun 1995 (fr), *Jansen-Jacobs 4252* (ASU0005082); very small island in Essequibo, opposite Kurapukari settlement (4.667°S, 58.667°W), 200 m, 20 Sep 1990 (fl), *McDowell 3277* (QCA); Siparuni river, Pakatau Falls and 2 km downstream (4°40'N, 59°1'W), 1 Dec 1994 (fr), *Mutchnick 464* (ASU0005091); Corentyne river, Marabunta creek (4°56'N, 57°49'W), 25 Mar 1995 (fr), *Mutchnick 1041* (ASU0005090); Berbice river (4°56'N, 58°13'W), 2 May 1995 (fr), *Mutchnick 1275* (ASU0005080); Cuyuni-Mazaruni, Marshal Falls, Mazaruni River (6.285°S, 58.721°W), 37 m, 1 Jan 1970 (fr), *Redden et al. 2128*; Conservation International concession on the Essequibo River, Coco Creek, (3.630°S, 58.292°W), 72 m, 20 Jan 2007 (fr), *Redden et al. 5117* (ASU0057252).

PERU. **Loreto**: Maynas, Caballo Cocha, (2.668°S, 73.842°W), 24 Apr 1982 (fr), *Ayala 3353* (ASU0005147); Maynas, below Pebas at mouth of Río Ampiyacu, (3°10'S, 71°40'W), 100 m, 23 Nov 1947 (fr), *Fosberg 29178* (NY); Maynas, Río Nanay, near mouth, (3.670°S, 73.200°W), 130 m, 15 Mar 1991 (fl), *Gentry 73462* (MO); Puinahua; Reserva Nacional Pacaya-Samiria (cuenca del Pacaya), Cocha Yarina, Caño Alfaro (5.250°S, 74.500°W), 80 m, 4 Jul 1987 *Grandez 1139* (MO); Maynas, Quebrada Yahuasyacu, Caserío Portugal, (3.170°S, 73.330°W), 122 m, 15 Jul 1990 *C. Grandez 1728* (MO); Nauta, Localidad 20 Enero.

(4.653°S, 73.822°W), 150 m, 27 Jun 2006, *Huamantupa 7813* (ASU0018795, MO); Requena, Sahua Cocha, Jenaro Herrera, Río Ucayali (73°40'36`W, 4°55'18`S), 21 Jan 1985 (fr), *Peters 17* (ASU0005144); Requena, Sahua Cocha, Jenaro Herrera, Río Ucayali. (4.986°S, 73.984°W), 10 Oct 1984 (fr), *Peters 84-009* (ASU0005143); Maynas, Iquitos, Río Momon 3-4 km de la boca del Río Nanay, (2.668°S, 73.842°W), 16 Mar 1976 (fr), *Juan Revilla 332* (ASU0005145); Reserva Nacional Pacaya (Cocha Yarina), (74°30'W, 5°15'S), 11 Jul 1985 (fl), *Vásquez et al. 6660* (ASU0005148, MO); Mariscal Castilla, Caballo cocha, (70°30'W, 3°55'S), 13 Jul 1987 (fl), *Vásquez & Jaramillo 9283* (ASU0005079, MO); Nauta, Reserva Nacional Pacaya-Samiria, Río Yanayacu-Cocha Llanta, (4.619°S, 73.947°W), 126 m, 5 Nov 2008 (fr), *Rodolfo Vásquez 34558* (ASU0061747). **Madre de Dios**: Tambopata, Santuario Nacional Pampas del Heath, Río Heath, (12.656°S, 68.737°W), 210 m, 18 May 1996 (fr), *M. Aguilar et al. 735* (ASU0005141, MO); **Tambopata,** 30 air km SSW of Puerto Maldonado, (12°49'S, 69°17'W), 260 m, 10 May 1980 (fr), *Barbour 5221* (MO, NY); Tambopata, Las Piedras, Lago Valencia, (12.483°S, 68.813°W), 205 m, 27 Jun 1905 (fr), *J. Farfán 788* (ASU0005097, MO); Las Piedras, Cuzco Amazónico, (12°29'S, 69°03'W), 15 Oct 1991 (fr), *Timana & Jaramillo 2596* (ASU0005146, MO).

SURINAME. along Tapanahoni River near Manlobi, near confluence with Lawa River (4.3°S, 54.5°W), 31 Oct 1962 (fl), *Wessels Boer 249* (MICH); Brokopondo, Apresina, (ca. 4°30'N, 55 30'W), 22 Sep 1967 (fl), *Donselaar 3731* (MICH); Lucie River, 2-10 km below confluence of Oost river, (ca. 3°28'N, 59°35'W), 225 m, 5 Sep 1963 (fl), *Irwin et al. 55388* (MICH, MO, NY); **Sipaliwini,** Central Suriname Nature Reserve, E bank of Zuid River, S of Kayserberg Airstrip savanna, (3.094°S, 56.483°W), 50 m, 1 Jun 2003 (fr), *Evans 3403* (ASU0057249).

VENEZUELA. **Amacuro**: Tucupita, Caño Jota-Sabuca, between Laguna del Consejo and Caño Mariusa (8°43'N, 61°58'W), 50 m, 24 Oct 1977 (fl), *Steyermark et al. 115311* (MICH, MO). **Amazonas**: banks of Caño Majagua (tributary of Caño Parucito), (ca. 5°23'N, 65°49'W), 150 m, 17 Apr 1974 (fr), *Ferny et al. 10139* (MO, VEN); orillas del Medio Casiquiare, (2°15'N, 66°30'W), 1 Jan 1970 (fr), *Stergios & Aymard 7637* (MO); Atabapo (Río Negro), Río Orinoco, entre Boca de Ocamo y Boca Mavaca, (1.392°N, 66.237°W), 15 Feb 1991 (fr), *Stergios 15434* (ASU0005107); Pueblo Viejo, margen del Río Pasimoni, (1°50'N, 66°30'W), 100 m, 8 Apr 1970 (fr), *Steyermark & Bunting 102470* (MICH). **Apure**: San Fernando, Caño Caramacate, (7.897°N, 67.467°W), 1 Jan 1970 (fr), *Aristeguieta & Zabala 7066* (ASU0078892, MO, NY, VEN); San Fernando, Isla Arapuca in Río Orinoco near the mouth of the Río Apure, (7.633°N, 66.417°W), 35 m, 25 Apr 1977 (fr), *Davidse & Gonzalez 12113*, (12113A MO); San Fernando, mouth of the Río Arauca at Río Orinoco, (7.400°N, 66.600°W), 35 m, 1 Jan 1970 (fr), *Davidse & Gonzalez 13254* (MICH, MO); San Fernando, 5 km directly SW of El Faro (7.317°N, 69.633°W), 35 m, 1 Jan 1970 (fr), *Davidse & Gonzalez 13391* (MICH, MO); San Fernando, ca. 4.5 airline miles ESE of San Carlos del Meta, bank of Río Meta, (6.283°N, 67.833°W), 60 m, 9 Feb 1978 (fr), *Davidse & Gonzalez 13795* (MICH, MO); Pedro Camejo, 35 airline km NE of Puerto Páez, just NE of Isla El Gallo, (6.083°N, 67.217°W), 40 m, 1 Jan 1970 (fr), *Davidse & Gonzalez 14420* (MO). **Bolivar**: Salto Guaiquinima, Alto Río Paragua, (6.050°N, 63.783°W), 300 m, 10 Oct 1943 (fl), *Cardona 992* (NY); Río Cuyuní, Distrito Roscio, SW de Tumeremo, (7.300°N, 61.500°W), 100 m, 1 Jan 1970 (fr), *Delascio 8648* (VEN); Sucre, Río Erebato, Sitio AC05, Raudal El Perro, (5.901°N, 64.490°W), 200 m, 27 Nov 2000 (fl), *Diaz 4679* (ASU0005108); Piar, Río Acanán at the rapids Ibana-meru, ca. 10 km S of Río Carrao, (5°55'N, 62°16'W), 2 May 1986 (fr), *Holst 2769* (ASU0005123); Río Nichare, between mouth and Caño Sarrapio (6°4'N, 65°2'W), 1 Jan 1970 (fr), *Horner et al. 39* (MO); Río Paraguá, Guaiquinima, (6.050°N, 63.783°W), 285 m, 14 Apr 1943 (fr), *Killip 37458* (NY); Caño Pablo, ca. 6-9 km E of Río Caura, (6°14'N, 64°23'W), 240 m, 10 May 1982 (fr), *Liesner & Morillo 13992* (MO, NY); Oeste del Auyantepui, Río Cucurital, río abajo desde el sector Wareipa, cuenca baja del Río Cucurital, (6°3’58”N, 62°49’49”W), 350 m, 26 Sep 2000 (fr), *Rodriguez 573* (ASU0005114); Reserva Florestal Imataca. Río Cuyuní, Isla Anacoco, sector Caño Negro, (7.5°N, 61°W), 15 Jan 1983 (fr), *Stergios 4994* (ASU0005127); Río Caura, La Angostura, cerca de la isla Guanaguanadi, (ca. 6°N, 64.5°W), 1 Jan 1970 (fr), *Stergios 13000* (ASU0005126); Río Paraguá, at junction of Río Paramichi (4°12'N, 63°5'W), 510 m, 2 Jan 1962 (fr), *Steyermark 90563* (MICH, NY); Río Paraguá, Raudal de Guaiquinima, en la base del Cerro Guaiquinima, (6°3' N, 63°47'W), 475 m, 15 Jan 1962 (fr), *Steyermark 90801* (MICH); Río Caura, abajo de la desembocadura con el Río Nichare, (6°30'N, 64°50-55'W), 150 m, 24 Apr 1966 (fr), *Steyermark 95795* (MICH, NY); Río Caura, arriba del Salto Pará, en las islas 2-3 km arriba del campamento Las Pavas (6.250°N, 64.417°W), 250 m, 14 Jan 1977 (fr), *Steyermark 112966* (MICH, MO); Piar, Bajo Caroní, Bosque Tropofilo Macrotermico, Sector III, La Elvira, (7.067°N, 62.083°W), 100 m, 1 May 1994 (fr), *Valera 485* (ASU0005112); Cedeño, Río Mato, afluente al bajo Caura, (7° 12’N, 65.2°12’W), 45 m, 20 Sep 1997 (fl), *Knab-Vispo 751* (ASU0005140).

Phenology—Flowering from July to October (dryer months); fruiting mainly from September to February.

Habitat and Distribution—Wet areas along streams and lakes or in savannas, sometimes intermittently dry. Bolivia, Brazil, Peru, Colombia, Venezuela, and the Guianas, at elevations of about 100 to 300 m.

Distinguishing Features—Leaves glabrous or nearly so, elliptic, ovate, or lanceolate, 3.5–13 cm long, 2–5.6 cm wide, 1–3 times as long as wide; calyx closed in bud, tearing irregularly, but the tears not cutting the staminal ring; young twigs sometimes slightly 4-winged; petals 10–20 mm long.

Psidium acutangulum has been confused with *P. acidum* (DC.) Landrum in the past. The two species are compared in the discussion of that species.

Psidium kennedyanum of the Paraná River basin is similar to *P. acutangulum* and there may be some geographic overlap in Bolivia and Mato Grosso, Brazil. In this area *P. acutangulum* has winged twigs and *P. kennedyanum* does not or the wings are quite weak. Differences are outlined in the key below.

1. Young twigs 4-angled, slightly winged; young growth usually sparsely strigose, the hairs appressed; leaves 3.5–13 cm long, 1.5–5.6 cm wide, 1–3 times as long as wide; petals 1.5–2 cm long; disk 5–8 mm across; style 1.1–3.5 cm long; seed 6–10 mm long..... ***P. acutangulum***

1' Young twigs usually terete or weakly 4-angled; young growth usually sparsely to moderately puberulent, the hairs spreading; leaves 2.5–7.5 cm long, 0.8–2.4 cm wide, usually over 3 times as long as wide; petals 1–1.2 cm long; disk 4–6 mm across; style 1.2–1.3 cm long; seed ca. 5 mm long ..... ***P. kennedyanum***

There is much variation in *Psidium acutangulum* of the eastern Amazon, Guianas, and Venezuela. I believe that there are two weakly distinguishable morphs as outlined in the key below.

1. Leaf blades subcoriaceous to coriaceous at maturity, lustrous above, mainly lanceolate, mostly 2–3 times as long as wide, the tertiary venation often obscure, the apex acute, gradually tapering; lateral veins flat or raised above, mostly 5-9 pairs, leaving the midvein at an angle of ca. 45 degrees; calyx often with a terminal pore; twigs commonly terete or subterete (e.g., *Mutchnick 452*, ASU0005100); this group appears to match ....“McVaugh’s ***P. persoonii***”

1' Leaf blades submembranous to membranous at maturity, not lustrous above, mainly elliptic, mostly 1.5–2 times as long as wide, the tertiary venation dendritic, visible, the apex abruptly acuminate; lateral veins flat to impressed above, mostly 8–14 pairs, leaving the midvein at an angle of ca. 60 degrees; calyx without a terminal pore; twigs usually quadrangular or 4-winged (e.g., *Mutchnick 464*, ASU0005091). This group is a more. ..... “typical ***P. acutangulum****”*

Psidium acutangulum can be confused with, and may hybridize with *P. striatulum* of northeastern South America. They are compared in the key below.

1. Leaves mostly 3.5–13 cm long, usually elliptic to lanceolate, the blades membranous to coriaceous, the margin entire; young twigs often clearly 4-winged or quadrangular; young growth glabrous or nearly so; peduncle 1.2–4(–5.3) cm long, flattened at anthesis; anthers 1–3 mm long; calyx in bud usually closed, sometimes with a small to large terminal pore; seeds 6–10 mm long. ..... ***P. acutangulum***

1' Leaves mostly 2.2–7 cm long, usually oblong-elliptic, the blades membranous, the margin sometimes minutely crenulate; young twigs subterete; young growth sparsely covered with erect hairs, these ca. 0.6 mm long; peduncle 0.9–2.3 cm long, terete at anthesis; anthers 0.7–1.1 mm long; calyx in bud often with a large terminal pore; seeds 4–6 mm long..... ***P. striatulum***

I suspect that variation *Psidium acutangulum* may be a result of hybridization with *P. striatulum* and needs to be investigated more thoroughly.

4. *Psidium albescens* Urb., Symb. Antill. (Urban). 5(3): 441. 1908. TYPE. Jamaica. "in latere australi Long Mountain" [ca. 17°59'N, 76°44'W], 300 m, 21 Jun 1907 (fl), *Harris 9583* (HOLOTYPE: B, lost; LECTOTYPE: NY-1365100!, designated here; ISOLECTOTYPES: A-71235, BM-796866 [lower part of sheet], K-565288,). Fig. 11

Shrub or small tree 2–5 m high, glabrous except for minutely strigose to puberulent inner surface of calyx and staminal ring, the trunk pale, smooth; *hairs* reddish brown to whitish, less than 0.1 mm long; *young twigs* light reddish brown, the bark becoming whitish to gray, remaining smooth, or exfoliating in thin flakes. LEAVES obovate, suborbicular, or less often ovate, 1.8–6 cm long, 1.4–4 cm wide, 1.3–1.7 times as wide as long; *apex* rounded; *base* acuminate to acute, gradually intergrading into petiole; *petiole* 1–6 mm long, 0.8–2 mm wide; *venation* prominent to obscure, more visible above than below, raised slightly above and below, brochidodromous, with 3–4 pairs of laterals, leaving the midvein at an angle of 45–30 degrees (or less), mostly departing from midvein below mid-leaf, the distal laterals nearly equaling the midvein, the midvein sometimes appearing to terminate in two lateral veins, the marginal veins arching between the lateral, mostly within 1–3 mm of the margin, the tertiary veins dendritic, appearing to arise from the marginal vein; *blades* lustrous or not above, dull below, drying yellowish or greenish brown, the margin slightly revolute. FLOWER BUDS pyriform, ca. 10 mm long when mature, densely glandular; hypanthium obconic to narrowly campanulate, ca. 3 mm long; *indumentum pattern of buds* with all surfaces glabrous except for strigose to puberulent inner surface of calyx and staminal ring; *peduncles* 4–10 mm long, 0.8–1 mm wide, terete; *bracteoles* narrowly triangular, ca. 1 mm long, deciduous before anthesis. CALYX closed or with a minute apical pore through which hairs protrude in flower bud, tearing irregularly in 2 or 3 parts; *petals* ca. 7 mm long, glabrous, strongly glandular; *disk* within staminal ring probably 1–2 mm across; *stamens* ca. 115, ca. 4 mm long; *anthers* globose, ca. 0.5 mm long, with a terminal gland and 0–4 smaller glands below; *style* 5–6 mm long; *ovary* 3-locular; *ovules* 22–28, borne on the edges of a somewhat peltate placenta, 1–2-seriate on each lamella. FRUIT unknown.

Representative specimens. JAMAICA. **Portland**: East slope of John Crow Mountains, 1.5–2.5 mi SW of Ecclesdown, (18.03°H, 76.36°W), 17 Jun 1959 (fl), *Proctor 19727* (MICH). **St. Andrews**: Long Mountain, rd. to Wareika [`Wareka`], (17.98°N, 76.75°W), 183 m, 19 Nov 1907 (fl), *Harris, W. 9998* (BM, NY).

Phenology—Flowering in June and November.

Habitat and distribution—Known from only three collections in eastern Jamaica, two from near the city of Kingston made in 1907. The third specimen is from a "mossy elfin woodland over limestone". This species is in critical need of a conservation assessment.

Distinguishing features—The venation pattern with ascending lateral veins, described above is unique in *Psidium*. The flowers of *P. albescens* with about 100 stamens are about twice as large as *P. harrisianum*, the only species with which it might be confused.

5. *Psidium amplexicaule* Persoon, Syn. 2: 27. 1806. TYPE. [St. John's], "Antillis." *Richard s.n.* (HOLOTYPE: P [Jussieu herbarium-13.846], =MICH neg. 1965; ISOTYPES: F-76377!, P-258489!, P-258490!) Other possible original material at P, P-258491! [perhaps from Tortula], [P-258492! from Guadeloupe (ca. 16.24°N, 61.5°W). Fig. 12

Psidium cordatum Sims, Bot. Mag. 43: t. 1779. 1815. TYPE. "Communicated by A. B. Lambert, Esq. from his collection at Boyton, who raised it from seeds received from late James Tobin, Esq. the produce of a tree in the Island of St. Nevis (ca. 17.35°N, 62.8°W), in the West-Indies." (HOLOTYPE: K-170084).

Guajava amplexicaulis (Persoon) Kuntze, Rev. Gen. 240. 1891.

Eugenia corozalensis **Britton**, Bull. Torrey Bot. Club 51: 11. 1924. TYPE. Puerto Rico, Crozal, 7 Mar, 1923 (st), *N. L. & E. G. Britton 7832* (HOLOTYPE: NY-452458).

Psidium dictyophyllum Urb. & Ekman, Ark. Bot. 21A(5): 19. 1927. TYPE. Haiti, "Ile la Tortue, rough limestone west of Mouillage Anglais", 22 May 1925, *Ekman H 4098* (SYNTYPES: S-R-9438, S-12-20560) [Ekman H 4112, 24 May 1925, from Ile la Tortue, Morne Barranca, 300 m, at MICH, US, is very similar to type specimens at S].

Psidium dumetorum Proctor, Bull. Inst. Jam. Sci. Ser. no. 16: 37. 1967. TYPE. Jamaica, Clarendon, Mason River Savanna, 2.75–3 mi due NW of Kellits P.O., 2300 ft, *Proctor 19650* (HOLOTYPE: IJ; ISOTYPE:TEX- ll00372190!, MO!).

Psidium sessilifolium Alain, Phytologia 25(5): 270. 1973. TYPE. Dominican Republic, "Arroyo Frances, Puerto Plata, 50–100 m," 28–29 Oct 1969, *Liogier 16557* (HOLOTYPE: NY-1288089!; ISOTYPES: MICH!, US!). PARATYPES. *Liogier 15877* (PARATYPE: NY!; ISOPARATYPES: MICH!, US!); *Liogier 16145* (PARATYPE NY!; ISOPARATYPES: BM!, MICH!, US!); *Liogier 16473* (PARATYPE: NY!; ISOPARATYPE: MICH!, US!). *Liogier 17385* (PARATYPE: NY!).

Calyptrogenia biflora Alain, Moscosoa 1(1): 28. 1976. TYPE. Domincan Republic, Sierra Prieta, Villa Mella, 150 m, *Liogier and Liogier 21467* (SYNTYPES: SDM [sic; presumably USD or JBSD], NY-84484; ISOSYNTYPE: GH-68944).

Marlierea leal-costae G. M. Barroso and Peixoto, Revista Brasil. Bot. 18(1): 105. 1995. TYPE. Brazil. Bahia, Salvador, Dunas de Itapoá, entre o aeroporto e Stella Maris, 20 Oct 1974, *A. Leal Costa et W. Santana s.n.* (HOLOTYPE: ALCB 03038, not seen online). Paratype from type locality, 30 Nov 1969, *A. Leal Costa 37* viewed as an online image (http://www.alcb.ibio.ufba.br/images/tipos/DSC00243.JPG).

Shrub 1–2 m high, glabrous except for puberulent disk and calyx within, strongly glandular on young growth; *hairs* minute (less than 0.1 mm long), reddish brown to white; *young twigs* reddish to gray, smooth or longitudinally striate. LEAF BLADES suborbicular, oblong, elliptic, ovate, or obovate, 2.4–7.5 cm long, 2–7.5 cm wide, 0.9–1.8 times as long as wide, glabrous, coriaceous, drying gray-green to dark reddish brown, slightly lighter below than above, lustrous above; *apex* rounded, or obtuse, often emarginate; *base* rounded, cordate, or broadly cuneate; *petiole* essentially none, or 1–2 mm long, glabrous; *venation* brochidodromous, the midvein flat above, prominent below, the lateral veins 5–8 pairs, leaving the midvein at an angle of 60° to nearly 90°, moderately prominent to obscure, straight or somewhat recurved, the marginal vein broadly arching between the laterals, within 1–7 mm of the margin, the tertiary veins dendritic, usually appearing to arise from the marginals, alternating with the laterals. FLOWER BUDS pyriform, 6–12 mm long, glabrous, the hypanthium obconic, cylindrical or campanulate, 3–5 mm long, the distal portion of bud subglobose to obovoid, 4–9 mm long; *indumentum pattern of buds* with all surfaces glabrous or the disk and/or calyx within minutely (usually appressed) puberulent; *peduncles* 1–3-flowered, solitary, borne in the axils of leaves, 5–25 mm long, terete, subterete, or sometimes flattened distally, 1–1.5 mm wide, glabrous; *bracteoles* linear to narrowly triangular, ca. 0.5–1.2 mm long. CALYX closed entirely, sometimes with an apiculate apex, or enclosing the corolla except for an apical pore, tearing irregularly at anthesis, puberulent within, the tears cutting deeply into the staminal ring; *petals* 5, suborbicular to elliptic, (3–)9–15 mm long, sometime unequal in size; *stamens* 150–270, 8–10 mm long; *anthers* 0.8–1 mm long, with a large terminal gland and 2–22 smaller glands below; *style* 6–12 mm long, glabrous; *ovary* 2–4-locular; *ovules* 15–44 per locule, 1–2

seriate on edge of a peltate placenta. FRUIT subglobose, 1–2 cm in diam.; *seeds* (1–) 6–16, 4–7 mm long, with some flat surfaces, sometimes lustrous; fruit wall 1.5–2 mm wide.

Representative specimens. BRAZIL. **Bahia**: Salvador, Ca. 30 km a N do centro da cidade, estrada para o aeroporto, arredores de Itapua, (12.97°S, 38.51°W), 23 May 1981 (fl), *Carvalho 707* (CEPEC, NY); Camaçari, após a Tibrás, (12.80°S, 38.20°W), 12 Sep 1992 (fl), *Guedes* (ALCB, ASU0005189, CEPEC); Salvador, 3 km de la ciudad de Salvador, al oeste del aeropuerto, (12.97°S, 38.51°W), 12 Nov 1983 (fl), *Callejas Posada 1733* (CEPEC, NY). **Sergipe**: Pirambu, (10.68°S, 36.87°W), 14 Sep 1995 (fr), *Landim 607* (ASU0005190).

DOMINICAN REPUBLIC. **Dajabon**: Partido, along Maguaca river, (19.48°N, 71.55°W), 28 Aug 1971 (fr), *Alain Liogier 17385* (NY). **Distrito Nacional**: Sierra Prieta, Villa Mella, (18.65°N, 69.97°W), 80 m, 16 Apr 1996 (yfr), *Veloz 814* (ASU0069447). **Espaillat**: Gaspar Hernández, La Hermita, road 5, 6 km from Gaspar Hernández to San Juan, (19.63°N, 70.23°W), 70 m, 1 Jun 2000 (fl), *Araujo 1800* (ASU0060535). **Puerto Plata**: Paraje la isla, en la carretera a Guzmancito el Albinal, (19.87°N, 70.81°W), 2 m, 4 Aug 2002 (fr), *Salywon 1322* (ASU0069449). **Santiago Rodríguez**: Monción, Cordillera Central, 3.6 km al sureste de Jicomé, camino a Los Ramones, (19.32°N, 71.17°W), 16 Jul 1985 (fr), *Mejía 1430* (ASU0004805).

HAITI. **Nord-Oueste**: Ile la Tortue, R Vallée, Morne Barranca, (20.06°N, 72.80°W), 300 m, 24 May 1925 (fl), *Ekman H 4112* (MICH, US); vicinity of Port-de-Paix, bluff west of rifle range, (19.93°N, 72.84°W), 25 Jan 1929 (fl), *Leonard 12354* (NY, US). **Ouest**: Valle Artibonte, Dept. Artibonte, 9.3 km al NO de La Chapelle, (18.80°N, 72.37°W), 12 Jun 1986 (st), *Zanoni 35199* (ASU0004807). **Nord-Ouest**: 5.5 km al nordeste de Mole St. Nicolas en la carretera costera Jean-Rabel, (19.83°N, 73.35°W), 3 Feb 1985 (fl, fr), *Zanoni 33501* (ASU0004815).

JAMAICA. See type of *Psidium dumetorum* above.

PUERTO RICO. Utuado, Barrio Angeles, El Cemí on summit, (18.27°N, 66.70°W), 400 m, 4 Aug 1981, *Alain Liogier 32103* (NY); Florida, Barrio Florida Adentro, km 50.75, Rte 140, (18.34°N, 66.59°W), 150 m, 10 Aug 2001 (fr), *Andrew Salywon 1210* (ASU0004804).

VIRGIN ISLANDS (UK). Tortula, Sage Mountain National Park, (18.40°N, 64.66°W), 488 m, 15 Mar 1972 (fr), *Little 26062* (NY, US); Virgin Gorda Peak, Virgin Gorda N. P, (18.49°N, 64.40°W), 305 m, 17 Mar 1972 (fl), *Little 26120* (NY, US).

VIRGIN ISLANDS (USA). Saint John, Coral Bay Quarter, Bordeaux Mountains Road, (18.35°N, 64.71°W), 8 Aug 1985 (yfr), *Acevedo 273* (ASU0004809).

Phenology—In Caribbean flowering from January to June and fruiting mainly in August. In Brazil flowering and fruiting mainly in September and October.

Habitat and Distribution—Apparently widespread in the Caribbean islands and disjunct along the coast of Bahia, Sergipe and perhaps other states of Brazil. In Brazil apparently found only in "restinga" (sandy coastal habitats) near sea level. In the Caribbean often growing well away from the coast along streams and other humid habitats and on hills, on limestone, serpentine, or laterite soils, at elevations near sea level to 450 m.

Distinguishing Features—An essentially glabrous shrub 1–2 m high; leaves 2.4–7.5 cm long, suborbicular to oblong, 0.9–1.8 times as long as wide, sessile, or subsessile, the base rounded to cordate; lateral veins leaving the midvein at an angle of 60º to nearly 90°; flower buds pyriform, 6–12 mm long; anthers with a terminal gland and smaller glands below; seeds 4–7 mm long.

6. *Psidium appendiculatum* Kiaersk., Enum. Myrt. bras. 32, pl. 3, fig. d-e. 1893. TYPE. Brazil. "Garanhuus [Garanhuns] Prov. Pernambuco," *Schenck 4221* (HOLOTYPE: C-10015949). Fig. 13

Shrub 1.5–3 high, glabrous to sparsely or densely villous to pubescent; *hairs* whitish to yellowish, up to ca. 1.5 mm long, spreading or somewhat appressed, straight to slightly curled; *young twigs* terete to slightly compressed, moderately to densely pubescent, the young bark gray to light brown, the older twigs becoming striate or flaky. LEAF BLADES

elliptic, oblanceolate, or obovate, 2–7.2 cm long, 1.6–3.2 cm wide, 1.2–3.6 times as long as wide, subcoriaceous, usually drying dark reddish brown to blackish, moderately to sparsely covered with hairs below, less densely so above; *apex* acute, acuminate or rounded, often apiculate; *base* cuneate; *petiole* 2–3 mm long, ca. 1 mm wide, densely hairy to subglabrous; *venation* brochidodromous, the midvein nearly flat above, prominent below, the lateral veins 6–8, obscure to prominent, leaving midvein at ca. 45 degree angle, impressed to nearly flat above, alternating with weaker (sometimes scarcely visible) dendritic veins that arise from adjacent larger veins, the marginal vein arching between laterals, nearly equaling them in prominence, approaching to within 1 mm of the margin. FLOWER BUDS (discounting calyx appendages) pyriform, 4–6 mm long, the hypanthium obconic to campanulate, 2–3 mm long, the distal portion of bud subglobose, 2–3 mm long; *indumentum pattern of buds* with all surfaces glabrous or all surfaces villose-pubescent to puberulent except for the glabrous style and petals and sometimes calyx base within; *peduncles* 3–5 mm long, 0.5–1 mm wide; *bracteoles* linear to linear-elliptic, 5–8 mm long, 0.2–1.2 mm wide. CALYX nearly enclosing the corolla in the closed bud, the lobes with two distinct parts, a clasping base that is connate along its edges with adjacent lobes, and a flange-like apical appendage, the connate bases, tearing between the lobes at anthesis, after anthesis the subrectangular bases, 2–3 mm long, the tears cutting into the staminal ring, the flange-like appendages, ascending, laterally compressed, 2–4 mm long, sharply acute; *petals* suborbicular, ca. 4 mm long, glandular; *disk* ca. 3 mm wide (5 mm in fruit); *stamens* 177–250, ca. 5 mm long; *anthers* ca. 0.4 mm long, eglandular or with a single terminal gland; *style* ca. 5 mm long; *ovary* 2–3-locular; *ovules* 15–29 per locule, uniseriate or biseriate on margin of peltate placenta, reflexed. FRUIT subglobose, 1–1.5 cm in diam.; *seeds* 7–17, 2.5–6 mm long, with flat and rounded sides.

Representative specimens. BRAZIL. **Bahia:** N de Morro do Chapéu, (11.62°S, 41.02°W), 915 m, 1 May 1999 (fr), *França et al. 2808* (ASU0005184); Iaçu, Lage Preta, (12.84°S, 39.97°W), 380 m, 20 Feb 2005 (fr), *França et al. 5120* (ASU0005181); Maracás, 7 km ao SO de Maracás na estrada para Contendas do Sincorá, (13.5°S, 40.5°W), 820 m, 23 Mar 1988 (fr), *Ginzbarg et al. 849* (ASU0005186, CEPEC); Rio de Contas, Estrada Real, parte no meio, (13.53°S, 41.95°W), 2 Jan 2000 (fr), *Giulietti et al. 1649* (ASU0005182); Itanagra, Faz. Quebrado, (12.26°S, 38.04°W), 28 Nov 1992 (fl), *Guedes et al. 2665* (ALCB, SP); Caetité, Serra Geral, 1.5 km S of Brejinhos das Ametistas, (14.15°S, 42.14°W), 900 m, 11 Apr 1980 (fr), *Harley 21251* (ASU0005178, CEPEC); Itatim, Morro das Tocas, (12.72°S, 39.7 W), 310– 430 m, 16 Dec 1995 (fl), *Melo et al. 1373* (HUEFS); Palmeiras, caminho para Serra Preta, (12.53°S, 41.59°W), 800 m, 28 Mar 2003 (fr), *Melo et al. 3632* (HUEFS); Poções, km 10 da estrada que liga Poções (BR-116) ao povoado de Bom Jesus da Serra, (14.47°S, 40.42W), 750 m, 5 Mar 1978 (fr), *Mori et al. 9524* (CEPEC, NY); Abaíra, Brejo do Engenho, (13.3°S, 41.8°W), 950–1000 m, 30 Dec 1991(fl), *Nic Lughadha et al. H-50564* (ASU0005177, HUEFS); Santa Brígida, Raso de Catarina, 9.58°S, 38.49°W), 611 m, 28 Jun 2002 (yfr), *Queiroz et al. 7283* (ASU0057317); Mucugê, Guiné, (12.87°S, 41.51°W), 1080 m, 15 Feb 1997 (fr), *Santos et al. 5725* (K); Santa Inês, ca. 17 km de Santa Inês, na estrada em direção a Cravolândia, na entrada para a Serra de Zé do Coito, (13.31°S, 39.81°W), 480 m, 25 Apr 1002 (fr), *Souza et al. 248* (ASU0005181); Licínio de Almeida, (14.65°S, 42.55°W), 930 m, 29 Oct 2012 (fr), *Stadnik 111* (photos-ASU0075033). **Minas Gerais**: Montezuma, Rio Pardo de Minas [ex Água Quente], (15.17°S, 42.5°W), 1200 m, 20 Nov 1963 (fl), *Amante 21251* (MBM). **Sergipe**: Canindé do São Francisco, Fazenda Xingo, 3 km da divisa com a Bahia, perto de Xingozinho (9.56°S, 38.02°W), 25 Apr 2001 (fr), *Melo et al. 54290* (HUEFS).

VENEZUELA. **Nueva Esparta**: Cerro Los Cedros, suroeste de San Francisco, vertiente norte, Peninsula de Macanao, (11.02°N, 64.29°W), 100 m, 27 May 1979, *Benitez de Rojas 2612* (F). **Sucre**: Península de Araya, Municipio Cruz Salmerón Acosta, parroquia Chacopata, Caimancito, cerro Los Marmoletes, (10.59°N, 63.96°W), 130 m, 18 Aug 2017, *Bello, J. CAIM001* (ASU-photo, IRBR).

Phenology—In Brazil flowering mainly from October to December and fruiting mainly from January to April. In Venezuela flowering in August.

Habitat and Distribution—Found from northern Minas Gerais to Pernambuco, but mainly in Bahia in Brazil. Also found on Isla Margarita off the northern coast of Venezuela. In Bahia found in caatinga and forest, on slopes of inselbergs, near rivers, and in sandy or rocky soils. Found at elevations of 280–1200 m.

Distinguishing Features—The most distinctive structure of *Psidium appendiculatum* is the calyx; each lobe has two distinct parts, a clasping base that is connate along its edges with adjacent lobes, and a flange-like apical appendage. It is most similar to *P. schenckianum* and is compared with that species in couplet 3 of the Key 1-A. I have found one hybrid between these species (*Nic Lughadha et al. 50569* at HUEFS) in Mun. Abaíra at Brejo de Engenho.

7. *Psidium araucanum* Soares-Silva & Proença, Botanical Journal of the Linnean Society 158(1): 52. TYPE. Brazil. Paraná, Itararé, Região de Almas, Sitio Soares, (24°11'S, 49°33'W), 10 Oct 1999(fl), *Soares & Silva 2535* (HOLOTYPE: UB; ISOTYPE: BHCB-000344). Fig. 14

Tree to 15 m high, young growth, flowers, lower leaf surface, and midvein above pubescent; *hairs* mostly erect, to ca. 0.5 mm long, whitish gray to yellowish; *young twigs* terete, densely pubescent, the hairs persisting until the first back falls, the older twigs smooth, light brown, minutely scaly. LEAF BLADES narrowly elliptic to elliptic-lanceolate, 4–9.1 cm long, 1.7–3.4 cm wide, 2.3–3.5 times as long as wide, submembranous, drying dark blackish brown, somewhat darker above than below, sublustrous or dull above, the margins somewhat revolute; *apex* acute, acuminate, the tip often minutely mucronate; *base* cuneate to acuminate; *petiole* scarely channeled, 4–10 mm long, ca. 1 mm wide; *venation* eucamptodromous proximally to brochidodromous distally, pubescent above, prominent below, the lateral veins 6–9 pairs, impressed above, leaving the midvein at an angle of ca. 45 degrees or less, curving apex-ward, diminishing near the margin, impressed above, the marginal vein broadly arching between the laterals, the tertiary veins dendritic, arising from adjacent larger veins. FLOWER BUDS pyriforme, 6–9 mm long, the hypanthium obconic, 2–3 mm long, the distal portion of bud subglobose, 4–6 mm long, sometimes wider than long; *indumentum pattern of buds* with peduncles, bracteoles, hypanthium, calyx pubescent, staminal ring puberulent, petals glabrous or with ciliate margins, style and disc within staminal ring glabrous; *peduncles* 1-flowered, 4–16 mm long, ca. 0.5 mm wide; *bracteoles* caducous about anthesis, linear, 2–4 mm long, ca. 0.3 mm wide. CALYX open, the lobes triangular to oblong, 3–4.8 mm long, 2.4–2.6 mm wide, appressed puberulent within, the small tears between lobes not or scarsely cutting the staminal ring; *petals* obovate, ca. 6 mm long, 6–7 mm wide, ciliate; *disk* 3–5 mm across, glabrous or minutely puberulent; *stamens* 187–216, ca. 5 mm long; *anthers* ca. 1 mm long, with 1–4 glands in the connective; *style* ca. 6.5 mm long; *ovary* 3-locular, the placenta more or less peltate; *ovules* 2-seriate on each placental lamella, 31–34 per locule. FRUIT subglobose, 1.3–2.5 cm in diameter; *seeds* 2–8, 6–8 mm long, wedge-shaped with a rounded back.

Representative specimens BRAZIL. **Paraná**: Cerro Azul, Rio S'Ana, (25°S, 49.33°W), 6 Oct 1977 (fl), *Hatschbach 40353* (ASU0005381, CTES, MBM, MO); Cerro Azul, along road to Rio Branco do Sul, (25°S, 49.33°W), 7 Jan 1982 (fr), *Landrum 4104* (MO, MICH, MBM, CAS, NY); Itararé, Região de Almas, Sitio Soares, (24.18°S, 49.55°W), 10 Oct 1999 (fl), *Soares & Silva 2535* (BHCB); Tunas do Paraná, Parque Estadual de Campinhos, (24.98°S, 49.08°W), 19 Feb 1999 (fr), *Silva et al. 2881* (ASU0005382).

Phenology—Flowering in October; fruiting in December to February.

Habitat and Distribution—Paraná and São Paulo, Brazil**;** gallery and *Araucaria* forests, may persist after forests have been cleared.

Distinguishing Features—Leaves narrowly elliptic to elliptic-lanceolate, 4–9 cm long, 2.3–3.5 times as long as wide, with submembranous blades and eucamptodromous venation proximally; calyx open, the lobes triangular to oblong, 3–4.8 mm long.

Morphologically *Psidium araucanum* is not similar to any other species; in the molecular studies of Proença et al. (2022) it is considered to be related to *P. cattleyanum*.

8. *Psidium australe* Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 283. 1833. TYPE. Brazil. "Prope vicum vulgo Capella de Sta. Maria ad fines provinciarum Rio Grande de S. Pedro do Sul et Missionum," *Saint-Hilaire s.n.* (HOLOTYPE: P-258487!). Fig. 15

Shrub or subshrub to ca. 1(–1.5) m high, arising from a fire resistant underground stem, with most surfaces appearing glabrous but usually with minute appressed hairs on lower leaf surface (var. *australe*), or with the lower leaf surfaces densely covered with appressed hairs (var. *argenteum*), and in both varieties with pubescent inner calyx lobe surface; *hairs* whitish, appressed, to ca. 0.5 mm long; *young twigs* usually square in cross section, with four wings, reddish brown to gray-green, glabrous to moderately pubescent, glandular, with older bark becoming gray to light brown, the bark flaking off to reveal smooth reddish brown to gray bark. LEAF BLADES obovate, oblanceolate, narrowly elliptic, or elliptic, 3.5–11 cm long, 1.3–6 cm wide, 1.6–4.1 times as long as wide, coriaceous to subcoriaceous, drying light to dark olive green to dark reddish brown, usually darker above than below, lustrous or dull above, glabrous to moderately pubescent, sometimes densely pubescent below; *apex* rounded, truncate, to acute, less often with a cuspidate tip; *base* cuneate, acute, acuminate, or rounded; *petiole* shallowly channeled, 0–4 mm long, 1.2–2 mm wide; *venation* usually eucamptodromous proximally to brochidodromous distally, the midvein impressed to flat above, prominent below, the lateral veins usually 4–8, leaving the midvein at an angle of 30–45°, a clear marginal vein not present, the tertiary veins obscure or forming an irregular reticulate pattern. FLOWER BUDS pyriform to obovoid, 5–10 mm long, the hypanthium campanulate to obconic, 2–4 mm long, the distal portion of bud subglobose, 3–6 mm long; *indumentum pattern of buds* with all parts essentially glabrous or with peduncles, bracteoles, hypanthium, calyx without, calyx distally within, and disk sparsely to moderately appressed pubescent, with petals, disc, and style glabrous or with scattered hairs; *peduncles* 1-flowered or 3-flowered, 0.1–3.7 cm long, 0.8–1.5 mm wide, the arms of the dichasia 2–13 mm long; *bracteoles* narrowly deltoid-lanceolate, 1–3 mm long, clasping the hypanthium, usually falling before anthesis. CALYX broadly open and bowl-like, with deltoid lobes along the edge of the tube or merely with a sinuate margin, the lobes before anthesis to ca. 1 mm long, to ca. 3 mm wide; *petals* obovate to suborbicular, elliptic, oblanceolate, 7–10 mm long, glabrous; disk 5–10 mm across; *stamens* 100–300, 6–10 mm long, reflexed in bud so that anthers reach the disk; *anthers* 0.5–0.8 mm long, with 1 apical gland in the connective; *style* 5–8 mm long, the stigma somewhat peltate; *ovary* 3–4-locular, usually with a central hollow area; *ovules* 20–95 per locule, the placenta axile but not peltate, hidden by ovules, sometimes partially parietal when locules are not completely fused. FRUIT globose to subpyriform, 1.5–3 cm long; *seeds* subreniform, 3–5 mm long, rounded, 6–50. 2*n* =22, 44.

Phenology—Mainly flowering at beginning of rainy season and fruiting soon after, for example in southern Brazil, flowering mainly in October to December and fruiting mainly from December to February.

Habitat and Distribution—Cerrado, campos, gallery forest. Found from Venezuela and the Guianas to northeastern Argentina. This is a common species of campos and cerrados of Minas Gerais, São Paulo, Paraná, and Paraguay, found at elevations of 290–1250 m. One gathering from Belize from 1931 (*Schipp 596,* the type of *Psidium chrysobalanoides*) I have tentatively assigned to *P. australe* var. *australe* but the species has never been recollected there.

Distinguishing Features—Calyx bowl-like, not closed; hypanthium glabrous, puberulent, or only sparsely covered with hairs; lower leaf surface of leaves usually covered with inconspicuous, minute appressed hairs (var. *australe*) or moderately to densely covered with a layer of appressed hairs (var. *argenteum*); young twigs often 4-winged; leaves often obovate to oblanceolate.

Psidium australe may be confused with *P. grandifolium*, with which it seems to hybridize in southern Brazil. I reproduce a key here modified from Landrum (2005) that distinguishes them.

1. Flower bud just before anthesis 6–15 mm long, densely lanate, the underlying surface of hypanthium hidden, the calyx usually nearly closed; leaves whitish lanate below, generally at least some widest near the middle ..... ***P. grandifolium***

1’ Flower bud just before anthesis 5–10 mm long, moderately covered with hairs to glabrous, the underlying surface of hypanthium visible through hairs (if present), the calyx open; leaves glabrous to densely short pubescent below, generally widest above the middle..... ***P. australe***

Costa and Forni-Martins (2006) report $n = 22$ (*Costa 496*) and $2n = 44$ (*Costa 509*) for this species using the name *Psidium cinereum* (here considered a synonym of *P. grandifolium*). C. Proença subsequently has identified both as *P. australe* according to SpeciesLink (2017).

I previously treated *Psidium australe* (Landrum 2005a) as a variable species of three varieties. More recently I have realized that one variety, based on *P. suffruticosum*, is best recognized as a separate species. The remaining varieties are distinguished in the key below. The differences between these are in indumentum pattern and geography. I think it is likely that var. *argenteum* is the result of introgression with *P. grandifolium*.

1. Leaves glabrous to sparsely pubescent beneath; widespread from Belize to Argentina……. ..... ***P. australe*** var. ***australe***

1’ Leaves densely pubescent beneath, the hairs hiding the underlying surface except for larger veins; restricted to Minas Gerais, São Paulo, and Paraná ..... ***P. australe*** var. ***argenteum***

8a. ***Psidium australe*** var. ***australe*** Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 283. 1833, as to type.

Psidium anceps O. Berg, in Mart. Fl. Bras. 14(1): 395. 1857. TYPE. Brazil. “in desertis Brasiliae,” *Pohl s.n.* (HOLOTYPE: W-16664).

Guajava australis (Cambess.) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Guajava anceps (O. Berg) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Psidium triphyllum Barb. Rodr., Myrt. Paraguay 12. 1903. TYPE. Paraguay. “Ipé-hú... Sierra de Maracayu,” *Hassler 4990* (HOLOTYPE: G-194094).

Psidium mucronatum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 798. 1907, nomen nudum. CITED COLLECTION. Paraguay. "Ipé-hu Sierra de Maracayu," *Hassler 5082* (G [4 sheets, = ASU photos], NY!, P-258433!).

?Psidium piribebuiense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "Cordillera de Piribebuy," *Hassler 6632* (G [2 sheets, = ASU photos!], MICH-1210425!, NY-1288078!, P-258395!, P-258396!, S-r-9457, W-762). [Possible hybrid *P. australe* with *P. suffruticosum*].

?***Psidium emilhasslerianum*** Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTONS. Paraguay. "pr. Tacuaral," *Hassler 1330* (G [2 sheets, = ASU photos]) and "Cordillera de Alto," *Hassler 1258* (G [2 sheets, = ASU photos]).

Psidium chrysobalanoides Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 319. 1931. TYPE. Belize. "All Pines," *Schipp 596* (HOLOTYPE: F-65681f; ISOTYPES: A-71231, GH-71236, MICH-1210414!, NY-1288039!, S-r-9447, UC-426873!).

Psidium submetrale McVaugh, Mem. New York Bot. Gard. 18: 261. 1969. TYPE. Venezuela. "Bólivar: Entre San Félix y Puerto Ordaz..., elev 20 m, 26–27 Jun 1964 (fl)," *Steyermark 94275* (HOLOTYPE: MICH-1210421!).

Leaves glabrous to sparsely pubescent beneath.

ARGENTINA. **Misiones**: Dep. Gral. Manuel Belgrano, Ruta prov. 17, Campinas de América. Cementerio Zona de campiña, (26.28°S, 53.84°W), 2 Jul 2006 *Keller 3554* (ASU0052981); Candelaria, 3 km S of Arroyo Yabebiry, 4 km S of San Ignacio on ruta 12, (27.26°S, 55.58°W), 11 Dec 1987 (fr), *Landrum 5741* (ASU0005415); Cainguás, ruta 8, 1 km S de Campo Grande, camino a Alba Posse (27.20°S, 54.98°W), 1 Aug 1987 (fr), *Vanni 973* (ASU0005199).

BELIZE. All Pines, (16.79°S, 88.30°W), 2 m, 25 Aug 1930 *Schipp 596* [Type of *Psidium chrysobalanoides*].

BRAZIL. **Bahia**: Abaíra, distrito de Catolés: Serra do Porco Gordo, Gerais do Tijuco, (13.40°S, 41.75°W), 1250 m, 24 Apr 1992 (fl), *Ganev 179* (HUEFS); 10 km N of town of Rio de Contas on road to Mato Grosso, (13.47°S, 41.83°W), 1000 m, 19 Jan 1974 (fr), *Harley 15292* (CEPEC); Serra Geral de Caitité, ca 5 km S from Caitité, along the Brejinhos das Ametistas Rd., (14.12°S, 42.48°W), 1000 m, 9 Apr 1980 (fr), *Harley et al. 21143* (CEPEC). **Distrito Federal**: Brasília, Varjem Bonita, (15.78°S, 47.92°W), 10 Dec 1961 (fr), *Heringer 8749* (HB). **Maranhão**: Bananal, 15 km S of Imperatriz along BR 010 (5.67°S, 47.43°W), 290 m, 29 Feb 1980 (fl), *Plowman et al. 9351* (NY). **Minas Gerais**: Patrocínio, Serra do Salitre, oeste da Lagoa Campestre, região dos carbonatitos, (18.95°S, 46.98°W), 24 Mar 1994 (st), *Ceccantini 259* (SPF); Uberlândia, Arredores, (18.92°S, 48.30°W), 6 Nov 1991 (fl), *Hatschbach 55798* (ASU0005167); Olimpio de Noronha, Na Fazenda do Criminosos (22.07°S, 45.27°W), 25 Nov 1967 (fl), *Mattos 15188* (SP); Poças de Caldas (21.92°S, 46.39°W), 1 Jan 1970 *Rohan 7482* (R); Santana do Riacho, (19.20°S, 43.70°W), 790 m, 6 Nov 1981 (fl), *Salgado 192* (HRB). **Pará**: Serra Tumuc Humac via Rio Cuminá (2.00°N, 55.00°W), 30 Nov 1928 (fl), *Sampaio 5744* (ASU0005399). **Paraná**: Jaguariaíva, Faz. Chapada Santo Antonio, (24.25°S, 49.70°W), 7 Dec 1988 (fr), *Hatschbach & Cordeiro 3119* (HRB); Arapoti, Fazenda do Lobo, (24.17°S, 49.67°W), 23 Mar 1968 *Hatschbach et al. 18895* (MBM); Lapa, Rio Passa 2, (25.77°S, 49.72°W), 5 Mar 1973 (st), *Hatschbach 31732* (MBM); Rio Branco do Sul, Serra do Caeté, (25.17°S, 49.30°W), 10 Jan 1978 (fr), *Hatschbach 40712* (MBM); Bocaiúva do Sul, (25.18°S, 49.13°W), 5 Dec 1978 (fl), *Hatschbach 41850* (MBM, MO); Balsa Nova, S. Luis do Puruna, (25.60°S, 49.62°W), 14 Dec 1979 (fl), *Hatschbach 42641* (NY); Vila Velha, Vila Velha, detras de la iglesia, (25.15°S, 50.67°W), 15 Jan 1987 (fr), *Krapovickas 40895* (ASU0005164); Curitiba, Parque Iguaçu, (25.42°S, 49.25°W), 7 Dec 1988 (fl), *Kummrow & Soares 3119* (MBM, HRB); Piraquara, ca. 10 km E of Curitiba, (25.43°S, 49.07°W), 1 Dec 1981 (fl), *Landrum 3909* (NY); Palmeira, Fazenda Santa Rita, ca. 65 km W of Curitiba on rd to Ponta Grossa, (25.50°S, 49.17°W), 2 Dec 1981 (fl), *Landrum 3953* (NY); Ponta Grossa, Buraco do Padre, (25.08°S, 50.15°W), 24 Nov 1989 (fl), *Silva & Nicolack 739* (ASU0005175). **Santa Catarina**:17 km W of Campo Erê, (26.37°S, 53.13°W), 900 m, 7 Dec 1964 (fl), *Smith & Klein 13818* (R). **São Paulo**: rodov. Vitoriana ao Rio Bonito, Campo e Nautica, a ca. 5 km de Vitoriana, (22.80°S, 48.28°W), 21 Jan 1986 (fr), *Bicudo et al. 336* (SP); km 296 de rodovia que liga São Manuel a Avaré, (22.57°S, 48.74°W), 23 Oct 1986 (fl), *Bicudo et al. 1606* (SP); Mogi Guaçu, 10 km NNW of Padua Sales, (22.19°S, 47.12°W), 650 m, 22 Sep 1960 (fr), *Eiten & Eiten 2394* (NY); Pirassununga, estrada Pirassununga-Emas, (21.98°S, 47.42°W), 23 Sep 1980 (fl), *Forero et al. 8292* (SP); Itapetininga, via Alambari, 2 km W da estrada Itapetininga-Sorocaba, (23.60°S, 48.05°W), 21 Nov 1962 (fl), *Mattos 10719* (SP); Itaberá, perto da ponte do

Rio Itararé, (23.85°S, 49.15°W), 1 Jan 1970 (fl), *Mattos 12920* (SP); Mogi Guaçu, Estação Experimental de Mogi Guaçu, (22.37°S, 46.94°W), 12 Feb 1980 (fr), *Melo 196* (ASU0018817); Distrito Ouro Verde, Mun. de Itararé, (21.48°S, 51.70°W), 23 May 1980 (fl), *Sohn & Leite 34* (HRB); Itararé, estrada para Itararé-Bonsucesso, Fazenda Ibiti (Ripasa), (23.79°S, 46.82°W), 13 Nov 1994 (fl), *Souza et al. 7135* (ASU0005418); Águas de Santa Barbara, ca. 11 km da cidade em direção a Lençóis, próximo a entrada da Reserva do Instituto Florestal, (22.88°S, 49.24°W), 19 Dec 1995 (ofl), *Souza 9634* (ASU0005406); estrada para Itinga, ca 29 km de Angatuba, (23.31°S, 48.53°W), 610 m, 2 Jan 1996 (yfr), *Souza 10752* (ASU0005420); Fazendas Água Limpa, São Roque, Instituto Agronômico do Estado, (22.87°S, 47.08°W), 20 Feb 1948 (st), *Viegas & Berestein 9235* (ASU0005196).

COLOMBIA. **Arauca**: Tame, vereda Sabana de La Vieja, vía Tame-La Cabuya (6.38°N, 71.88°W), 628 m, 3 Nov 2013 (fr), *Mijares 1032* (COL). **Meta**: 10 km adelante de Remolino (4.29°N, 72.60°W), 11 Feb 1969 (fr), *Pinto 803* (COL).

GUYANA. upper Demerara-Berbice region, ca. 27 km from Ituni along Ituni-Kwakwani road (5°22'N, 58°7'W), 17 Jan 1990 (fr), *Gillespie 3000* (ASU0005416); Rupununi Savanna, Marakanata Old Village, (3.42°N, 59.58°W), 107 m, 13 Oct 1963 (fl), *Goodland 989* (MICH, NY); Rupununi Savanna, Nappi Village, (3°25'N, 59°35'W), 110 m, 29 Nov 1987 (fl), *Jansen-Jacobs et al. 1319* (MO).

PARAGUAY. **Alto Paraná**: Tatí Jupí, Hernandarias, (25.42°S, 54.63°W), 11 Nov 1987 (yfr), *Buttura 1004* (ASU0059729). **Amambay**: P. N. Cerro Corá (ca. 22°35'S, 56°5'W), road to Lorito (22.58°S, 56.08°W), 20 Aug 1995 (st), *Landrum 8700* (ASU0005413). **Caaguazú**: near J. E. Estigarribia, (25.41°S, 55.82°W), 400 m, 24 Jul 1998 (fl), *Zardini 49116* (MO). **Caazapá**: Enramadita, (26°10'S, 55°17'W), 8 Dec 1989 (fl), *Basualdo 2724* (ASU0005174); Estancia Tapytá of Shell Forestry Ltd. Cerrado scrub on road to Tayá-i creek, (26.25°S, 55.77°W), 250 m, 13 Dec 1999 (fr), *Zardini 52777* (ASU0298672). **Canindeyú**: Ygatimi, Reserva Natural del Bosque Mbaracayú (ca. 24°10'S, 55°40'W), Nandurocai, (24.17°S, 55.67°W), 19 Nov 1995 (fr), *Landrum 8859* (ASU0005411). **Canindeyú**: Ygatimí, Reserva Ita Poty (ca. 24°10'S, 55°40'W), 20 Nov 1995 (st), *Landrum 8868.5 8868* (ASU0005170). **Cordillera**: W side of Río Piribebuy basin, 27 km W of Arroyos y Esteros, (25°08'S, 57°18'W), 25 Feb 1990 (fl), *Zardini & Velazquez 19270* (ASU0060486). **Itapúa**: Capt. Miranda, road to Jesús ca. 0.6 km from main highway (ca. 27°12'S, 55°45'W), 9 Nov 1995 (fl), *Landrum 8816* (ASU0005410). **Misiones**: San Juan Bautista, ca. 8.5 km along road to Pilar, (26.69°S, 57.21°W), 8 Nov 1995 (fl), *Landrum 8789* (ASU0005173); rt. 1 between San Ramón to San Patricio at KM A262, ca. 4 km E of rd to Ayolas (ca. 27°5'S, 56°40'W), 8 Nov 1995 (fl, fr), *Landrum 8795* (ASU0005169); highway between Asunción and Encarnación. Km A218, E147, (26.96°S, 56.83°W), 210 m, 10 Nov 1995 (fl), *Landrum 8825* (ASU0005379). **Paraguarí**: National Park Ybycuí, Arroyo Corrientes, (26°00'S, 56°46'W), 9 Feb 1991 (fr), *Zardini & Velazquez 26407* (ASU0005171).

VENEZUELA. **Bolivar**: Asc. Farreras, Maripa-Aripao, (7°29'N, 65°20'W), 80 m, 1 Jan 1970 (yfr), *Elcoro 759* (MO); Roscio, ca. 50 km al N de Tumeremo (7.30°N, 61.50°W), 450 m, 7 May 1986 (fl), *Huber 11627* (MO).

8b. ***Psidium australe*** var. ***argenteum*** (O. Berg) Landrum, Sida 21(3): 1342. 2005.

Psidium argenteum O. Berg, in Mart., Fl. Bras. 14(1):388. 1857. TYPE: BRAZIL: Isotype of *P. argenteum* var. *purpureum* O. Berg, designated as LECTOTYPE by Landrum (2005, p. 1342) of species, "in campis prov. Rio Grande do Sul," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258488!, F-neg. 36405, K-170087).

Psidium cuneatum Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2:283. 1833. TYPE: BRAZIL: "Prope urbem S. João del Rey in provincia Minas Geraes," *Saint-Hilaire s.n.* (HOLOTYPE: P-258473!, =F neg. 36409)

Psidium argenteum var. ***purpureum*** O. Berg, in Mart., Fl. Bras. 14(1):388. 1857, inadmissible name to be replaced by *P. argenteum* var. *argenteum*, the type serving to typify the species.

Psidium cuneatum var. ***niveum*** O. Berg, in Mart., Fl. Bras. 14(1):405. 1857, inadmissible name to be replaced by *P. cuneatum* var. *cuneatum*.

Psidium argenteum var. ***angustifolium*** O. Berg, in Mart., Fl. Bras. 14(1):388. 1857. TYPE: BRAZIL: "ad pagum Formigas in parte deserta prov. Minarum," *Pohl [287, 534]* (SYNTYPES: W-16667 =F neg. 31417!, designated here as LECTOTYPE; ISOLECTOTYPES: W-16666; M?).

?***Psidium argenteum*** var. ***grandifolium*** O. Berg, in Mart., Fl. Bras. 14(1):388. 1857. TYPE: BRAZIL: "in campis prov. S. Pauli," *Sellow s.n.* (HOLOTYPE: B, lost).

?***Psidium argenteum*** var. ***pumilum*** O. Berg, in Mart., Fl. Bras. 14(1):388. 1857. TYPE: BRAZIL: "ad S. Ignacio," *Sellow s.n.* (HOLOTYPE: B, lost).

Psidium cinereum var. ***grandifolium*** O. Berg, in Mart., Fl. Bras. 14(1):404. 1857. TYPE: BRAZIL: "in prov. S. Pauli," *Sellow s. n.* (HOLOTYPE: B, lost; ISOTYPE: P-258481! designated LECTOTYPE by Landrum (2005); ISOLECTOTYPES: K-565480, P-258479!, W-46096!).
Guajava argentea (O. Berg) Kuntze, Revis. Gen. Pl. 1:239. 1891
Guajava cuneata Kuntze, Revis. Gen. Pl. 1:239. 1891.
Psidium albidum var. ***cuneatum*** (Cambess.) Mattos, Loefgrenia 116: 2. 2001.

Leaves densely pubescent beneath, the hairs hiding the underlying surface except for larger veins.

BRAZIL. **Minas Gerais**: Serrinha, (19.42°S, 46.00°W), 1 Jan 1970 (fl), *Chiea 480* (ASU0005397); Tijucal, Pedro Less, (18.62°S, 43.53°W), 13 Mar 1982 (fr), *Hatschbach 44706* (ASU0005385); Tiradentes, Serra de São José, (21.12°S, 44.18°W), 3 Oct 1987 (fl), *Peron 320* (ASU0005398). **Paraná**: Jaguariaíva, Fazenda Chapada Santo Antonio, (24.25°S, 49.70°W), 27 Nov 1968 (fl), *Hatschbach 20410* (ASU0005386); Ponta Grossa, Buraco do Padre, (25.08°S, 50.15°W), 24 Nov 1989 (fl), *Silva & Cordeiro 736* (ASU0005198). **São Paulo**: Itirapina, (22.25°S, 47.82°W), 19 Nov 1983 (fl), *Cesar s.n.* (ASU0005390); Botucatu, 18 km north, 14 km East of São Manuel, along the São Manuel-Piracicaba, near ex-railway station 'Treze de Maio', (22.75°S, 48.42°W), 550 m, 29 Sep 1972 (fr), *Gottsberger 196R-28972* (ASU0005383); Itirapina, Cerrado do Valerio, (22.25°S, 47.83°W), 19 Oct 1994 (fl), *Kinoshita 32196* (ASU0005197); Itirapina, Cerrado do Valério, (22.25°S, 47.82°W), 19 Oct 1994 (fl), *Kinoshita 32201* (ASU0005384); Itaberaba, Rio Verde, (23.86°S, 49.14°W), 17 Feb 1982 (fr), *Kummrow 1786* (ASU0005393); Mogi Guaçu, Martinho Prado, Reserva Biológica da Fazenda Campininha, (22.37°S, 46.95°W), 15 Oct 1980 (fl), *Mantovani 1163* (ASU0005391); São José dos Campos, a 3 km leste da cidade, (23.18°S, 45.89°W), 29 Apr 1961 (fr), *Mattos 8903* (ASU0005387); Aguas de Santa Barbara, ca. 11 km da cidade em direção a Lencois, (22.88°S, 49.24°W), 19 Dec 1995 (fl), *Souza & Souza 9634* (ASU0005395); Itirapina, Cerrado do Estrela, (22.25°S, 47.82°W), 2 Feb 1994 (fr), *Tamashiro 369* (ASU0005388).

9. *Psidium bahianum* Landrum & Funch, Novon 18(1): 74. 2008. TYPE. Brazil. Bahia: Alagoinhas, Campus II/UNEB, Rod. Alagoinhas–Salvador, km 03, 12°11'S, 38°25'W, 11 Oct. 2001 (buds), *N. G. Jesus 1384* (HOLOTYPE: HUEFS, photos at ASU, MO). Fig.16

Tree up to 25 m high, essentially glabrous except for sparsely to densely puberulent inner surface of calyx and disk; *young twigs* reddish brown to gray, becoming only slightly rough with age. LEAF BLADES ovate, lanceolate, or elliptic, 3.5–14 cm long, 3.2–6.5 cm wide, 1–2.3 times as long as wide, coriaceous, drying gray-green to dark reddish brown, often lustrous above; *apex* usually acuminate, less often acute or obtuse, often turned to one side in pressing; *base* obtuse or rounded; *petiole* 2–8 mm long, 2–3 mm thick, unchanneled or slightly channeled distally; *venation* brochidodromous; *midvein* about flat to raised slightly above, prominent below, the lateral veins weak, 7–12 pairs, usually leaving the midvein at an angle greater than 45°, a weaker marginal vein arching between laterals to within 1–4 mm of the margin, the weaker tertiary veins dendritic. FLOWER BUDS pyriform, 4–8 mm long, glabrous, borne in axillary bracteate shoots of ca. 3 nodes and with a rachis 1.2–2.5 cm long, or solitary in leaf axils or at leafless nodes, the hypanthium obconic, 2–4 mm long, somewhat sulcate when dry, the distal portion of bud subglobose, 3–4 mm long, the bracteate shoots occasionally terminating in a leafy node; *indumentum pattern of buds* with peduncles, bracteoles, hypanthium, calyx without, petals, and style glabrous, and with calyx within and disk sparsely to densely puberulent; *peduncles* uniflorous, 12–34 mm long, 1–2 mm wide; *bracteoles* narrowly triangular, ca. 1.5 mm long, glabrous or ciliate. CALYX closed or with a small apical pore, tearing irregularly at anthesis, the tears not (or scarcely) penetrating the staminal ring; mature *petals* unknown;

disk ca. 5 mm across after anthesis; *stamens* ca. 140, 6–9 mm long; *anthers* ca. 1 mm long, with a terminal gland and sometimes another smaller gland below; *style* 6–8 mm long; *ovary* 3-locular; *ovules* 28–33 per locule. FRUIT subglobose, 15–30 mm long; *seeds* 15–20, 3–4 mm long, not angular.

Representative specimens examined. BRAZIL. **Bahia**: ao norte de Alagoinhas, (12.05°S, 38.31°W), 14 Feb 1980 (fr), *Araujo 209* (HRB, RB); Entre Rios, Subauma, ponto 5, (12.22°S, 37.87°W), 8 Dec 1982 (yfr), *Araujo et al. 371* (CEPEC, HRB); Entre Rios, Chegada de praia de Massarandupió, (12.32°S, 37.84°W), 25 m, 8 Apr 2012 (fr), *Faria 2585* (ASU0082713); Conde, Conde, Fazenda do Bu Mata do Fundão, (12.01°S, 37.72°W), 8 Nov 1995 (fr), *Ferreira 831* (HUEFS); Una-Ba, Km 50 da Rod. Ilhéus/Una, estação da EMBRAPA (EDJAB), (15.29°S, 39.08°W), 16 Sep 1993 (fr), *Jardim et al. 295* (SP); Maraú, ca. 7 km N do Povoado de Saquaira, peninsula de Maraú, (13.99°S, 38.95°W), 2 Feb 2000 (fr), *Jardim 2626* (ASU0005432, MO); Campus II/UNEB, Rodoviária Alagoinhas-Salvador, km 03, (12.18°S, 38.41°W), 11 Oct 2001 (fl), *Jesus PC548* (ASU0120414).

Phenology—Flowering October to December, with fruits from December to February (rarely September).

Habitat and Distribution—*Psidium bahianum* is found in restinga and forest at less than 200 m elevation and is apparently endemic to eastern Bahia, Brazil.

Distinguishing Features—This species is distinguished by being essentially glabrous and by its large leaves (to 14 cm long) that are coriaceous and lustrous, generally ovate in shape, and arching along their midvein. The leaf apices are usually acuminate and when the leaf is pressed flat, often turn to one side. The blade is enfolded longitudinally and often is pressed folded and hiding the upper surface. The calyx in the flower bud may be completely closed or have a terminal pore opening and is puberulent within. *Psidium bahianum* is contrasted in the key below with the widespread, common and weedy species *P. cattleyanum* Sabine, a native of the Atlantic Coastal Forest of Brazil.

1. Tree to 25 m tall; leaves mainly widest somewhat below the middle, the blades arching longitudinally; peduncles 12–34 mm long, often borne in bracteate shoots; tears in calyx not or scarcely penetrating the staminal ring. ..... ***P. bahianum***
1’ Tree to 10 m tall; leaves mainly widest above the middle, the blades not normally arching; peduncles 2–8 mm long, solitary; tears in calyx usually penetrating deeply into the staminal ring..... ***P. cattleyanum***

10. *Psidium brevipedunculatum* Tuler & Landrum, Phytotaxa 461(3): 214. 2020. TYPE. Brazil. Bahia, Tanhaçu, margem da estrada de terra entre Tanhaçu e o distrito de Palmeiras, 13°58’23” S, 41°11’04” W, 460 m, 22 January 2019 (fr), *J. E. Q. Faria 9112* (HOLOTYPE: HEPH seen as image; ISOTYPES: ALCB, RB, UB). Fig.17

Tree or shrub to 1.5–5 m high, the young growth sparsely to moderately pubescent, the lower leaf surfaces densely tomentose, probably deciduous in dry season; *hairs* yellowish brown, curled, tangled, up to ca. 0.5 mm long; *young twigs* light yellowish tan, with numerous darker glands, usually sparsely pubescent, the hairs persisting until the first bark falls, the older twigs smooth or with cracks, silvery gray to yellowish brown, with prominent dormant buds in the axils of the leaves, these ca. 1–1.5 mm long, dark, with imbricate scales. LEAF BLADES elliptic to obovate, 3–6.5 cm long, 2–3.5 cm wide, 1.1–2.2 times as long as wide, subcoriaceous at maturity, the margin somewhat sinuate, densely tomentose below, the upper surface glabrous to sparsely puberulent or densely so on the midvein; *apex* obtuse to acute, often with a cuspidate tip, when pressed sometimes appearing emarginated; *base* acuminate to cuneate; *petiole* 4–5 mm long, 1–1.5 mm wide,

sparsely pubescent, unchanneled, the leaf blade often narrowly decurrent along the petiole; *venation* brochidodromous distally, eucamptodromous proximally, prominent in mature leaves, the midvein prominent below, flat above, the lateral veins 4–6, arching toward apex, leaving the midvein at an angle of 30 to 60 degrees, the marginal vein connecting the laterals in wide arcs, running between 1–5 mm from the margin, a weaker lateral vein sometimes evident between the main marginal vein and the margin, the tertiary veins forming a complex reticulate pattern between the laterals, sometimes nearly as strong as the laterals. FLOWER BUD 4–6 mm long, pyriform; *indumentum pattern of buds* with all external parts densely yellowish brown tomentose, the inner calyx surface pubescent to glabrescent, the style glabrous to barely pubescent distally, densely pubescent proximally. CALYX closed in the bud, tearing irregularly at anthesis into 3–4 parts, the tears not cutting the staminal ring; petals obovate, 4–5 mm long, 3–5 mm wide; stamens ca. 120–140, 3–4 mm long; anthers ca. 0.5–1 mm long; style ca. (2–)3(–5) mm long, with prominent and sparse glands; stigma capitate, 0.3–0.5 mm wide; ovary 2-locular, the placenta peltate; ovules ca. 8–12 per locule; peduncles 1–5 mm long, ca. 1 mm wide. FRUIT subglobose, 5–10 mm long; seeds up to ca. 4 per fruit, ca. 3 mm long, the seed coat with several layers of dense cells.

Additional specimens examined. BRAZIL. **Bahia**: Tanhaçu, 1 km estrada sentido Palmeiras, (13.97°S, 41.18°W), 900 m, 22 Dec 2013 (fl), *Amorim 8407* (RB); Anagé, distrito Coquinho, Fazenda Curral Novo, (14.45°S, 40.87°W), 710 m, 2 Apr 1984 (yfr), *de Oliveira Filho & Lima 145* (ASU0008242-photos, CEPEC, HRB, RB).

Phenology—Flowering in December and probably January; fruiting January to April.

Habitat and Distribution—Apparently endemic to southeastern Bahia, Brazil; growing in caatinga, semi-arid vegetation with a marked dry season; 460–900 m.

Distinguishing Features—Leaves elliptic to obovate, 3–6.5 cm long, 1.1–2.2 times as long as wide, densely tomentose below; venation brochidodromous distally, eucamptodromous proximally, prominent in mature leaves; peduncles (1.5–5 mm long); calyx closed in the bud, tearing irregularly.

Psidium brevipedunculatum is well illustrated with photographs in the article describing it (Tuler et al. 2020).

11. *Psidium brownianum* DC., Prodr. 3: 236. 1828. TYPE. Brazil. "deserto Bahiensi [sylvis ad villam novam da Jacobina]." *Martius s.n.* (HOLOTYPE: M-146833, annotated by de Candolle). Fig. 18

Psidium moritzianum O. Berg, Linnaea 27: 359. 1856. TYPE. Venezuela. “v. in hb. Berol., Sonder. et Vindob.” "ad coloniam Tovar." *Moritz 1626* (SYNTYPE: W-48039!. ISOSYNTYPES: BM-953680, BM-953679, K-565592, K-565593, LE-6986, P-258413!, P-258414!) and *Karsten 91* (no specimens found).

Mitranthes browniana (DC.) O. Berg, in Mart., Fl. bras. 14(1): 355. 1857.

Psidium macahense O. Berg, in Mart., Fl. bras. 14(1): 605. 1859. TYPE. Brazil. "prope Macahe, prov. Rio de Janeiro.” *Riedel* [*304*]. (SYNTYPES: LE-6983, LE-6984, LE-6985. ISOSYNTYPES: F-65700, GH-71256, K-565507, NY-1288060!, P-258426!, U-5184).

Chytraculia browniana (DC.) Kuntze, Rev. Gen. 1: 238. 1891.

Guajava moritziana (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Mitropsidium brownianum (DC.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 486. 1941.

Tree or shrub 0.4–5 m high, glabrous to puberulent (sometimes minutely so) on young growth and flowers; *hairs* up to ca. 0.3 mm long, reddish brown to clear; *young twigs* light reddish brown, often puberulent, the bark smooth, the older twigs with smooth to flaky bark,

usually gray. LEAF BLADES ovate, lanceolate to lanceolate-oblong, 3–12 cm long, 2–6 cm wide, 1.5–2.3(–3.3) times as long as wide, densely glandular, subcoriaceous, drying reddish brown to gray-green, the margins revolute; *apex* acute to acuminate, the tip often obtuse; *base* rounded, cordate, rounded or acute; *petiole* 0–4(–5) mm long, 0.7–2 mm thick, channeled or not; *venation* brochidodromous, the midvein impressed to nearly flat above, prominent below, the lateral veins 7–13 pairs, moderately prominent to obscure, leaving the midvein at an angle usually greater than 45°, the marginal veins arching between laterals, less prominent than laterals, mostly running 2–3 mm from margin, the tertiary veins forming a dendritic pattern that arises from the marginal vein, usually weak. FLOWER BUDS pyriform to fusiform, often with a conical or apiculate apex, 4–13 mm long, glabrous or puberulent, borne in terminal or axillary bracteate shoots (of ca. 2 nodes and with a rachis up to ca. 3 mm long), or solitary in leaf axils or at leafless nodes, the hypanthium obconic to campanulate, 1.5–3 mm long, the distal portion of bud of bud subglobose, 2.5–7 mm long, with a rounded to conical or apiculate apex; *indumentum pattern of buds* with all surfaces glabrous except for puberulent disk and calyx within, or with all or some surfaces puberulent, or with bracteoles ciliate and/or petals ciliate; *peduncles* uniflorous, 2–30 mm long, ca. 1 mm wide, puberulent to glabrous; *bracteoles* triangular, often narrowly so, 0.5–2 mm long, often puberulent or ciliate, sometimes persisting until fruit matures. CALYX closed and apiculate or with a terminal pore-like opening (rarely open and bowl-like), tearing irregularly or somewhat regularly in ca. 4 lobes, the opening round to quadrangular. the tear not penetrating the staminal ring; *petals* 4–5 (or sometimes numerous and apparently replacing stamens in apparently diseased flowers), 3–6 mm long; *disk* quadrangular or round, puberulent, 3–5 mm wide; *stamens* 95–230, 4–6 mm long; *anthers* 0.3–0.5 mm long, with a solitary terminal gland or with a terminal and up to 17 smaller glands as well; *style* 4–7 mm long; *ovary* 2–3-locular; *ovules* 6–25 per locule, uniseriate on each edge of a slightly peltate placenta. FRUIT globose, 7–15 mm in diam.; *seeds* 2–12, 3–5 mm long, mainly rounded.

Representative specimens examined. BRAZIL. Bahia: Seabra, 4 km de Seabra, estrada Seabra-Barreira, (12.42°S, 41.8°W), 6 Aug 1966 (fl), *Araujo & Martins 1262* (SP); Santa Terezinha, Serra da Jiboia, Morro da Pioneira, na descida da represa, (12.75°S, 39.48°W), 500–600 m, 3 Nov 2001 (fl), *Calvalho-Sobrinho et al. 71* (HUEFS); ca. 2 km N de Vitória da Conquista, via BR 116, Fazenda do Morro, prop Sr. Ubaldo,16 Apr 1995 (fl), *França et al. 1230* (HUEFS); Morro da Antena, ca. 11 km S de Senhor do Bonfim, (10.55°S, 40.14°W), 520–565 m, 13 May 5 1999 (fl), *França et al. 2902* (ASU0015698); Palmeiras, Canoão de Lavrinhas, (12.57°S, 41.57°W), 1000 m, 29 Nov 2003 (fr), *França et al. 3688* (HUEFS); estrada Mucugê-Barra da Estiva, ca. 16 km de Mucugê, (13.07°S, 41.49°W), 1040–1108, 1 Feb 2003 (fl), *França et al. 4153* (ASU0015695); Bonito, estrada para Várzea do Cerco, (11.89°S, 41.29°W), 915–955m, 15 Jun 2003 (fr), *França et al. 4747* (HUEFS); ca. 10 km E de Morro na BA 052, (11.6°S, 41.06°W), 984 m, 27 Aug 2006 (fl), *França & Lima 5535* (ASU0005440); Lençóis, Mata das Toalhas, (12.51°S, 41.37°W), 450 m, 26 Mar 2000 (fr), *Funch 1120* (HUEFS); Iramaia, estrada que liga Iramaia à Barra da Estiva, km 38, (13.5°S, 41.17°W), 24 Mar 1988 (fl), *Ginzbarg et al. 867* (ASU0006087, CEPEC); Paulo Alfonso, Reserva Ecol. do Raso da Catarina, 9.35°S, 38.23°W), 24 Jun 1982 (fl), *Guedes & Paganucci 448* (ALCB); Abaíra, Perto do riacho da quebrada ao pé da Serra do Atalho, (13.23°S, 41.83°W), 1100 –1300 m, 26 Dec 1991 (fl), *Harley 50439* (ASU0015706); Santa Cruz de Cabralia, estrada que liga S. C. de Cabralia a Santo André, (16.25°S, 39.02°W), 17 Jun 1980 (fl), *Mattos Silva & da S. Brito 869* (NY); Morro da Torre, (12.72°S, 39.7°W), 330 m, 9 Nov 1996 (fl), *Melo 1827* (ASU0015696); Jacobina, Arredores Tombador, (11.06°S, 40.66°W), 875 m, 6 Sep 1999 (fr), *Melo et al. 2974* (ASU0015699); Saúde, Paulista, cachoeira do rio das Pedras, 1.5 km do povoado, (11.01°S, 40.45°W), 500 m, 12 Aug 1999 (fl, fr), *Miranda 118* (ASU0015707); Pindobaçu, estrada para o garimpo, Bairro Navo, (10.75°S, 40.38°W), 610 m, 12 Aug 1999 (fr), *Miranda 155* (ASU0015697); Barragem de Bananeiras, Cachoeiras, Vale dos Rios, Paraguaçu e Jacuípe, (12.53°S, 39.08°W), 40–120 m, Jun 1980 (fl), *Pedra do Cavalo 217* (ALCB, CEPEC, HUEFS); Campo Formoso, Serra dos Morgados, (10.24°S, 40.27°W),

819 m, 14 Apr 2006, *Santos 539* (ASU0005438); Itiruçu-Jaguaquara, entroncamento, (13.52°S, 40.08°W), Jan 1988 (fl), *Sobral & Mattos Silva 5825* (CEPEC); Itororo, Meio, (15.12°S, 40.1°W), Jan 1991 (fl), *Sobral et al. 6744* (SP); Maracás, 2 km a E da cidade, depois do cruzeiro da cidade, Fazenda Juliana, (13.41°S, 40.39°W), 1016 m, 23 Apr 2002 (fr), *Souza et al. 184* (ASU0015700); Uruçuca 7.3 km N of Serra Grande on rd to Itacaré, (14.42°S, 39.02°W), 6 May 1992 (fl), *Thomas et al. 9158* (CEPEC, RB). **Espírito Santo**: Linhares, vale da estrada da Mantegueira, próximo ao escritorio, Mussununea, (19.15°S, 40.07°W), 86 m, 30 Nov 2011 (yfr), *Faria 2498* (ASU0082968); Itapemirim, Região do Gomes, (21.02°S, 40.83°W), 23 Oct 2000 (fl), *Hatschbach 71567* (ASU0006083); Estrada Rodovia do Sol, entroncamento p/ Marataízes, próx. a Pontal, (21.03°S, 40.83°W), 10 May 1987 (fl), *de Lima 2903* (ASU0006085); São Matheus, km 6 da BR-381 ligando São Mateus a Nova Venecia, (18.733°S, 39.850°W), 4 Dec 1994 (fl), *Pirani et al. 3347* (ASU0006084); Vila Velha, Reserva Biológica de Jacaranema, (20.33°S, 40.28°W), 19 May 1989 (fr), *Pereira 2009* (RB); Conceição da Barra, Área 214 da Aracruz Celulose S.A., (18.58°S, 39.75°W), 5 Nov 1992 (fr), *Pereira et al. 4122* (RB).

VENEZUELA. Anzoategui: Freites, trail between San Durrial and Los Pajaritos (64°6'W, 10°3-4'N), 1200 m, 1 Dec 1981 (fl), *Davidse & Gonzalez 19782* (MO).

Phenology—Flowering throughout year but mainly from December to June; fruiting mainly from February to June.

Habitat and Distribution—Cerrado, caatinga, forests, mata de cipó, riparian vegetation. Found from Rio de Janeiro to Pernambuco and Alagoas; also in northern Venezuela. Found at elevations of 40 to 1333 m.

Distinguishing Features—Leaves glabrous or nearly so, mostly ovate to lanceolate, usually sessile to subsessile, the lateral veins usually prominent and leaving the midvein at an angle greater than 45°.

This is a wide ranging and rather variable species in leaf shape, flower bud size, and calyx closure. Based on material I have seen, in Espírito Santo flower buds in this species seem to be small, 4-merous, with an apical pore in the calyx; and in Bahia the flower buds are small to large with a closed calyx, and 5-merous. According to the description of *P. moritzianum* of Venezuela, the calyx has 5 small lobes and the petals are 4. It is possible that the populations of Venezuela, Espírito Santo, and Bahia are distinct enough to warrant some recognition, but I would need a larger sample size to be sure. I think that all three populations share many characteristics and as a group are distinct from other species.

Tuler et al. (2019c) have made a case for recognizing *Psidium macahense* as distinct from *P. brownianum* while I consider them synonyms. I here include a key, based on the paper of Tuler et al. that distinguishes these two entities, which I continue to consider conspecific.

1. Flower buds 8–12 mm long, closed; fruit round, yellowish; ovary locules 3-4; Bahia ..... ***P. brownianum***
1' Flower buds 2–5 mm long, open with 4 lobes; fruit elliptic, reddish; ovary locules 2-3; Espirito Santo and Rio de Janeiro..... ***P. macahense***

I have found what I believe to be two cases of hybridization involving this *P. brownianum*: one with *P. ganevii* (*Ganev 3255* at HUEFS); and a second with *P. schenckianum* (*Harley 19333* at ASU).

12. *Psidium cattleyanum* Sabine, Trans. Roy. Hort. Soc. 4: 315. pl. 11. 1821. TYPE. Grown in England by William Cattley from seed from China. Illustration: Trans. Roy. Hort. Soc. 4: 315. pl. 11. 1821. (LECTOTYPE: Illustration of Sabine, plate 11, designated by Snow & Veldcamp [2010] and again by Tuler et al. [2018]). Fig. 19

Psidium littorale Raddi, Alc. Sp. Pero: 6. Tab. 1, fig. 2. 1821. TYPE. Brazil. Rio de Janeiro. Illustration: Alc. Sp. Pero: 6. Tab. 1, fig. 2. 1821.

Psidium obovatum DC., Prodr. 3: 236. 1828. TYPE. Brazil. "campis prov. Sancti-Pauli," *Martius s.n.* (HOLOTYPE: M-32379 [annotated by de Candolle]).

?*Psidium acre* Ten., Index Seminum [Naples (Neapolitano)] 1829: 17. 1829. No type mentioned or found. Description and comparison to *P. littorale* indicates that this is likely to be a synonym of *P. cattleyanum*.

?*Psidium cuneifolium* Ten., Index Seminum [Naples (Neapolitano)] 1833. 14. 1833. No type mentioned or found. Description and comparison to *P. littorale* indicates that this is likely to be a synonym of *P. cattleyanum*.

Psidium buxifolium Nutt., N. Am. Sylva 1: 115; t. 25. 1842. TYPE. United States. "East Florida, near the river St. Johns," *Baldwyn s.n.* (possible HOLOTYPE: PHIL-22408).

Psidium sellowianum O. Berg, in Mart., Fl. bras. 14(1): 400. 1857. (Illegitimate name because *Psidium arboreum* Vell. is cited as a synonym.) TYPE. Brazil. "Rio de Janeiro," *Sellow s.n.* (SYNTYPE: B, lost). *Gaudichaud s.n.* (SYNTYPE: B, lost; possible ISOSYNTYPES: P-258362!, P-258363!).

Psidium variabile O. Berg, in Mart., Fl. bras. 14(1): 400. 1857. (Illegitimate name because *Psidium cattleyanum* Sabine and *P. littorale* Raddi are cited as synonyms). TYPE. Brazil. General statement on location of types includes B, M, MEL, W, Sprengel. Localities various—Minas Gerais: "Serra d'Itacolumi, haud longe a civitate Mariana," *St. Hilaire s.n., Widgren 1194;* São Paulo: "ad rivulum Itaque prope S. Paulo, prope Sumidor," *St. Hilaire s.n., Sellow s.n*.; Santa Catarina: "in insula S. Catharinae," *Gaudichaud 233*. Rio Grande do Sul: *Sellow s.n.;* Uruguay: *Sellow s.n.* (SYNTYPES: none found; possible ISOSYNTYPE: *Sellow s.n.* K-565483, mounted with a non-type, *Riedel 1170*).

Psidium coriaceum Mart. ex O. Berg, in Mart., Fl. bras. 14(1): 401. 1857. (Illegitimate name because *Psidium humile* Vell. is cited as a synonym.) TYPE. Brazil. "Rio de Janeiro," *Martius s.n.* (SYNTYPE B, lost; ISOSYNTYPE: M-32371), *Mikan & Schott 1048* (SYNTYPE: B, lost; ISOSYNTYPES: K-565482, W-46102!), *Sellow s.n.* (SYNTYPE: B, lost; ISOSYNTYPES: K-170080, K-170100, P-258444!), *Raben 752* (SYNTYPE: B, lost) and "São Paulo, prope Taubaté et Aldea de Escada," *Martius s.n.* (SYNTYPE: B, lost; ISOSYNTYPE: M-32372), *Sellow s.n.* (SYNTYPE: B, lost). All these specimens were cited by Berg under his *P. coriaceum* var. *obovatum*, which he considered to be the typical variety.

Psidium coriaceum var. ***obovatum*** O. Berg, in Mart., Fl. bras. 14(1): 401. 1857. Illegitimate name to be replaced by the autonym *P. coriaceum* var. *coriaceum* because Berg cites *Psidium coriaceum* under this variety.

Psidium coriaceum var. ***grandifolium*** O. Berg, in Mart., Fl. bras. 14(1): 402. 1857. TYPE. Brazil. "in prov. S. Pauli," *Sellow s.n.* (HOLOTYPE: B, lost).

Psidium coriaceum var. ***longipes*** O. Berg, in Mart., Fl. bras. 14(1): 402. 1857. TYPE. Brazil. "in prov. S. Pauli," *Sellow* [*5875*] (HOLOTYPE: B, lost; LECTOTYPE: P-258443!, designated here; ISOLECTOTYPE: K-170099).

Psidium passeanum Andre, Rev. Hort. [Paris]. Lxviii, 233, fig. 71. 1890. TYPE. Cultivated in France, "Jardin de M. le Commandant Passé, amateur distingué et vice-président de la Société d'horticulture de Cannes". TYPE. Cultivated in France, (HOLOTYPE: illustration Fig. 71).

Guajava cattleyana (Sabine) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava obovata (DC.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava buxifolia (Nutt.) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Psidium cattleyanum var. ***coriaceum*** Kiaersk., Enum. Myrt. bras. 28. 1893. TYPE. Brazil. "Ad São Christovão m. Aug. 1893 florentem," *Glaziou 6538* (LECTOTYPE: C, seen as image, designated by Landrum [2021b]); "Blumenau, Bugrebach, prov. S Catharina m. Octb. c. flor. 1866," *Schenck 895* (SYNTYPE: C, not found); "In cacumine campiformi Serra do mar ad Santos," *Lund s.n.* (SYNTYPE: C, seen as image).

Psidium cattleyanum f. ***lucidum*** Degener, New Illustr. Fl. Hawaiian Islands [Fam. 273]. 1939. TYPE. United States. Hawaii. *Degener 12275* (HOLOTYPE: BISH?).

Psidium littorale var. ***longipes*** (O. Berg) Fosberg, Proc. Biol. Soc. Wash. 54: 180. 1941.

Episyzygium oahuense Suess. & A.Ludw., Mitt. Bot. Staatssamml. München 1(1): 18. 1950. TYPE. United States. Hawaii, Oahu, Feb 1930, "Waianae, 2500[ft]", *A. Meebold 8445* (HOLOTYPE: M-164198).

Eugenia pseudovenosa H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4: 180.1953. TYPE. Madagascar. bassin inférieur du Fanantara, Nov 1911 (fl, fr), *Perrier 6516* (SYNTYPES: P-412452, P-412453).

Psidium cattleyanum var. ***littorale*** (Raddi) Fosberg, Occas. Pap. Bernice Pauahi Bishop Mus. 23: 37. 1962.

Psidium ubatubense Mattos, Cienc. and Cult. 19: 332. 1967. TYPE. Brazil. "São Paulo," *Fontella & Moura 101* (HOLOTYPE: SP-75374, n.v.; ISOTYPE: HAS-87516, image from Specieslink). TOPOTYPE: *Fontella & Moura 102* (SP-65362!, lost in mail, =photo specimen, ASU0074799; US-2427601!).

Psidium cattleyanum var. ***pyriforme*** Mattos, Loefgrenia 76: 1. 1981. Invalid name. No type cited.

Psidium cattleyanum var. ***purpureum*** Mattos, Loefgrenia 124: 4. 2007. TYPE. Brazil. Santa Catarina. Cult. em Jurerê Internacional, Florianópolis, 5 May 2007, *Mattos 32737* (HOLOTYPE: FLOR; ISOTYPE: HBR). No specimen found on SpeciesLink.

Psidium gaudichaudianum Proença & Faria in Proença, Faria Mazine, Phytotaxa 308 (2): 262. 2017. TYPE. Brazil. Rio de Janeiro: *Sellow s.n.* (HOLOTYPE ["neotype"]: BM-796903). Intended as a replacement name for *P. sellowianum* O. Berg.

Shrub or tree to 1–12 m high, glabrous or the young growth puberulent to strigose on some floral structures; *hairs* whitish, most less than 0.1 mm long; *young twigs* flattened, becoming subterete, light reddish brown to light gray, the older twigs remaining more or less smooth, usually gray. LEAF BLADES obovate, oblanceolate, elliptic, 3–10.5 cm long, 1.5–6.5 cm wide, 1.5–2.6 times as long as wide, coriaceous (rubbery when fresh), drying light or dark reddish brown to gray-green, nearly concolorous, the upper surface after drying often mottled with whitish blotches, the margin slightly revolute; *apex* acute, acuminate, to broadly rounded; *base* acuminate to cuneate, or rarely rounded; *petiole* channeled, 2–14 mm long, 1–2 mm wide; *venation* brochidodromous, the midvein prominent below, nearly flat to shallowly impressed above, the lateral veins 6–13 pairs, leaving the midvein at an angle of 45–60°, prominent to weak, flat or impressed above, the marginal vein arching between the laterals 1–5 mm from the margin, somewhat weaker than laterals, the tertiary veins dendritic, arising near the margin and extending towards the midvein. FLOWER BUD subpyriform, 5–14 mm long, the hypanthium obconic to funnel-form, 2–5 mm long, the distal portion of bud subglobose, 3–10 mm long; *indumentum pattern of buds* with all surfaces glabrous or with peduncles, bracteoles, and calyx within sometimes puberulent; *peduncles* 2–8(–13) mm long, ca. 1 mm wide, uniflorous, borne in the axils of leaves, at leafless nodes, or in the axils of leafy to reduced bracts; *bracteoles* ovate, lanceolate, or oblong, 1–2.3 mm long, caducous at anthesis. CALYX fused 3–7 mm beyond the ovary summit, terminating in a sinuate edged terminal pore or in 5 broadly rounded lobes (rarely closed and falling as a calyptra above staminal ring), tearing irregularly or between the lobes at anthesis, the tears cutting through the staminal ring; *petals* suborbicular, obovate to elliptic, 3–8 mm long; *disk* within the staminal ring ca. 4–6 mm across; *stamens* 200–400, 3–8 mm long; *anthers* 0.6–1 mm long, with 1 terminal gland; *style* 4–8 mm long, the stigma 1–1.5 mm wide; *ovary* 3–5-locular, sometimes with a few hairs on inside of locules; *ovules* 10–28 per locule, uniseriate or biseriate on each lamella, the placenta peltate, at least slightly so. FRUIT red or yellow, pyriform to subglobose, 1.5–3 cm long; *seeds* 12–64, 2–6 mm long, smooth, with rounded edges. 2*n* commonly equal to 44, 66, 88 and higher.

Representative specimens. BRAZIL. **Bahia**: Belmonte, (15.85°S, 38.9°W), 31 Jan 1967 (yfr), *Belem & Pinheiro 3230* (CEPEC, F, UB); Una, ca. 9 km a E de Una, (15.3°S, 39.07°W), 3 Dec 1981 (fl), *Carvalho & Lewis 879* (CEPEC); Caravelas, ca. 2 km a NE da cidade, na estrada para Ponta de Areia, manguezal, (17.75°S, 39.25°W), 5 Sep 1989 (fr), *Carvalho et al. 2449* (CEPEC); Jussari, Reserva Particular do Patrimonio Natural, entrada a 7,5 km na Rod. Jussari/Palmira, Faz Teimoso, 1.7 km da entrada, (15.16°S, 39.53°W), 6 May 2000 (fr), *Carvalho et al. 6859* (ASU0006121); Igrapiuna, rodovia para Itubera (BA 001), Reserva de Michelin, Cachoeira de Pancada Grande, (13.78°S, 39.17°W), 2 Aug 2008 (fr), *Myrtaceae Class 66*; Mucugê, trilha para o Rumo, (13.228°S, 41.282°W), 1 May 1996, *Ferreira 1159* (ASU0006105); Ibicoara, Capão da Volta, (13.4°S, 41.3°W), 19 Sep 1984 *Hatschbach 48362* (ASU0006092, CEPEC); Maraú, estr. que liga Ponta do Mutá (Porto de Campinhos) a Maraú, a 8 km do Porto, (14.1°S, 39°W), 6 Feb 1979 (fr), *Mori et al. 11418* (CEPEC); Mucugê, (12.970°S, 41.335°W), 1140 m, 31 Oct 1997 (fl), *Passos et al. 4748* (HUEFS); Miguel

Calmon, próximo do Parque Estadual das Sete Passagens, (11.388°S, 40.536°W), 1040 m, 4 Apr 2001 (fr), *Ribeiro et al. 105* (HUEFS); Ilhéus, Fazenda Retiro, (14.721°S, 39.159°W), 319 m, 8 Nov 2005 (fr), *Regina Sambuichi 534* (ASU0082986). **Ceará**: Fortaleza, Casa José de Alencar [Museum], (3.812°S, 38.478°W), 6 Jan 2015 (fr), *Leonardo Jales sn* (ASU0082206-photo). **Espírito Santo**: Santa Teresa, Vale dos Colibris, (19.92°S, 40.6°W), 17 Mar 1986 (fr), *Fernandes 1909* (RB); Reserva Natural da Vale do Rio Doce, Linhares, Aceiro com Pomar de Frutas km 0.05, (ca. 19.15°S, 40.07°W), 8 Sep 2004 (fl, fr), *Folli 4923* (ASU0006102); Linhares, Propiedade do Sr. Sangrilo, estrada Canto Grande (ca. 19.39°S, 40.07°W), 26 m, 11 Jul 2007 (fl), *D.A. Folli 5760* (ASU0082719). **Minas Gerais**: Viçosa, Agricultural School, (20.75°S, 42.88°W), 18 Dec 1958, *Irwin 2279* (MICH, NY, US); Lavras, (21.25°S, 45°W), 15 Jan 1914, *Dorsett, Shamel, Popinoe 236b* (US); Belo Horizonte, 658 Avenida João Pinheiro, (19.92°S, 43.93°W), 1 Jan 1970, *Dorsett, Shamel, Popinoe 339* (US); Caldas, (21.92°S, 46.39°W), 3 Nov 1861, *Regnell III 487* (US). **Paraná**: Bocaiúva do Sul, Estrada Bocaiúva do Sul–Tunas do Paraná (BR-476), ca. 20 km NE de Bocaiúva do Sul, (25.099°S, 49.096°W), 1095 m, 16 May 1998 (fl), *França et al. 2534* (ASU0006088); Morretes, Estrada da Graciosa, (25.47°S, 48.82°W), 900 m, 19 Dec 1987 (fl), *Goetzke C 209* (MBM); Campina Grande do Sul, (25.3°S, 49.08°W), 20 Nov 1965 (fl), *Hatschbach 13157* (MBM); Piraquara, (25.43°S, 49.07°W), 8 Jan 1967 (fl), *Hatschbach 15623* (MBM, NY, US); Guaratuba, Barra do Sai, (25.9°S, 48.57°W), 22 Nov 1967 (fl), *Hatschbach 17920* (MBM, MICH); Paranaguá, Ilha do Mel, (25.52°S, 48.5°W), 27 Nov 1970 (fl), *Hatschbach & Guimarães 25641* (MBM); Balsa Nova, Serra São Luis, (25.6°S, 49.62°W), 18 Jul 1971 (st), *Hatschbach 26861* (MBM); Quatro Barras, Rio Taquari, (25.37°S, 49.08°W), 7 Dec 1978 (fl), *Hatschbach 41911* (MBM, SPF); Antonina, Rio Curitibaiba, (24.17°S, 49.67°W), 23 Apr 1982 (fr), *Hatschbach 44866* (MBM); São José dos Pinhais, BR-277 para Zinco, (25.52°S, 49.22°W), 2 Dec 1995 (fl), *Kawasaki 900* (ASU0006098); Rio Branco do Sul, Serra do Caeté, (25.17°S, 49.3°W), 5 Dec 1995 (fl), *Kawasaki 923* (ASU0006097); Tijucas do Sul, Campo Alto, (25.93°S, 49.18°W), 16 Dec 1981 (fl), *Kummrow 1586* (MBM, UB); Guaraqueçaba, ca 30–40 km along rd. to Antonina, (25.25°S, 48.5°W), 14 Dec 1977 (fl), *Landrum 2904* (ASU0006120, MBM, MICH); Curitiba, Parque Bariguí, (25.43°S, 49.31°W), 900 m, 13 Dec 1981 (fl), *Landrum 4012* (MBM, MICH, MO); Pontal do Paraná, Pontal do Sul, (25.58°S, 48.37°W), 22 Dec 1997 *J. Cordeiro 1452* (NY). **Pernambuco**: Cabo de Santo Agostinho, Itapuama, Engenho Camaçari (8.28°S, 34.95°W), 9 Jun 2007 (fr), *Queiroz, E. P. 2219* (ASU0006106-photo, HRB). **Rio Grande do Sul**: São Leopoldo, Club de Pesca e Caça, (29.75°S, 51.17°W), 29 Dec 1977 (fr), *Landrum 3047* (ASU0006111); Nova Prata, Horto Florestal, (28.78°S, 51.6°W), 750 m, 15 Dec 1988 (fl), *Wasum 4965* (ASU0006101). **Rio de Janeiro**: Angra dos Reis, as margens de um pequeno rio, próx. ao manquezal de Bracuí, (23 °S, 44.32°W), 3 Jul 1980, *Araújo 3904* (NY); Parque Nacional de Itatiaia, Ponte do Maromba, proximidades das margens do rio Campo Belo, (22.358°S, 44.658°W), 1100 m, 4 Dec 1996, *Braga 3711* (NY); Macaé, Pico do Brade, (22.383°S, 41.783°W), 1250 m, 7 Feb 1985 (fl), *Ferny et al. 617* (F); Paraty, Paraty Mirim, Ilha dos Retos, (23.217°S, 44.717°W), 12 Apr 1989 (fr), *Giordano et al. 639* (RB); Maricá, Restinga de Maricá, between ocean and Lagoa de Maricá, ca. 40 km E. of Rio de Janeiro, (22.92°S, 42.82°W), 21 Jan 1982 *Landrum 4184* (MICH, MO, NY); Macaé, Pico do Frade de Macaé, (22.37°S, 41.79°W), 16 Apr 1985 (fr), *Martinelli 10686* (ASU0008116); Santa Maria Madelena, Santa Maria Madalena, Pedra Dubois, (21.97°S, 42.02°W), 900 m, 22 Feb 1983 (fl), *Plowman et al. 12875* (F); Tijuca, Restinga de Itapeba, (23°S, 43.43°W), 1 Jan 1970, *Strang 169* (MICH). **Santa Catarina**: Campo Alegre, a 2 km de Campo Alegre, Mun. de Campo Alegre, (26.19°S, 49.27°W), 7 Apr 1981 (fr), *Campos 49* (ASU0006104); Florianópolis, Rio Vermelho, Ilha do S. Catarina, (27.58°S, 48.57°W), 14 Dec 1984 (fl), *Silva Filho & Leite 286* (MBM); Pantano do Sul, Ilha de S. Catarina, (27.78°S, 48.51°W), 2 m, 25 Nov 1965 (fl), *Klein & Bresolin 6382* (MBM); Navegantes, Entre Navegantes y Gravatá, (26.9°S, 48.65°W), 31 Jan 1990 (fl), *Krapovickas 43513* (ASU0006096); Barra Velha, Itajubá, (26.65°S, 48.72°W), 1 Feb 1990 *Krapovickas 43540* (ASU0006107); Itajaí, hills at S end of Plaia Cabeçudas, (26.9°S, 48.63°W), 30 m, 5 Dec 1981 (fl), *Landrum 3972* (MBM); Taquara, 6 km de Taquara para Alfredo Wagner, (26.92°S, 51.22°W), 1 Jan 1970 (fr), *Leite & Campos 30* (HRB, MBM); Itapoá, Reserva Volta Velha, (28.95°S, 49.58°W), 17 Feb 1993 (yfl), *Negrelle & Londero A- 761* (MBM); Lapa, Gruta do Monge, (25.78°S, 49.7°W), 1 Dec 1982 (fl), *Oliveira 712* (MBM); Laguna, (28.48°S, 48.78°W), 1 Jan 1970 *Reitz & Klein 175* (MICH); Brusque, (27.1°S, 48.92°W), 6 Oct 1947 (fl), *Reitz 1940* (NY, RB). **São Paulo**: Iporanga, Iporanga, trilha da Lage Branca, (24.58°S, 48.58°W), 21 Jul 1993 (st), *Ceccantini & Guimarães 101* (SPF); Santo André, estrada velha para Paranapiacaba, (23.77°S, 46.28°W), 779 m, 21 Nov 2012 *J.E.Q. Faria 3040* (ASU0082718); Ubatuba, em frente a Praia Dura, a 1 km do Rio Escuro, (23.49°S, 45.17°W), 7 Nov 1961 (fl), *Fontanella 102* (ASU0006130); Marsilac, Parque Estadual da Serra do Mar, Núcleo Curucutu, (23.99°S, 46.74°W), 27 Mar 1996 (fr), *Garcia et al. 773* (ASU0006131); Ilha Bela, 5 km norte da cidade de Ilha Bela; 100m acima do nivel do mar, (23.92°S, 45.32°W), 6 Sep 1974 *Gottsberger 12-6274* (ASU0006112); Estação Campo Grande (linha ferrea S. Paulo-

Santos) Estação Biológica, (23.87°S, 46.46°W), 6 Dec 1960 *Handro 967* (ASU0006093); ca. 30 km north of Santos, (23.83°S, 46.25°W), 900 m, 10 Dec 1977 *Landrum 2845* (ASU0006125, MICH); Ubatuba, Praia de Itamambuca, (23.4°S, 45°W), 5 Feb 1996 (fr), *Leitão Filho et al. 34816* (ASU0006090); Cunha, Parque Estadual da Serra do Mar, Núcleo Cunha, (23.24°S, 45.02°W), 335 m, 19 Mar 1996 (fr), *Rapini et al. 88* (ASU0006128). **Sergipe**: Santa Luzia do Itanhy, RPPN Mata do Crasto, (11.38°S, 37.42°W), 16 Mar 2012 *L.A. Gomes 334* (ASU0090659).

COLOMBIA. **Antioquia**: Medellín, Valle de Aburrá (6.29°N, 75.54°W), 1500 m, 24 Oct 1970 (fr), *Soejarto et al. 2537* (NY). **Cauca**: Popayán, Vereda La Rejoya, a 3 km de la Variante, (2.45°N, 76.62°W), 1850 m, 30 Aug 2001 (fr), *Ramirez 14599* (ASU0006109); **Valle del Cauca**: Palmira, Granja Experimental de Palmira, (3.54°N, 76.3°W), 1088 m, 10 Jan 1947 (fl, fr), *Duque-Jaramillo 4370* (ASU0006110).

ECUADOR. **Galápagos**: Isla Santa Cruz, El Carmen, Finca Manuel Gómez (0.662°S, 90.328°W), 570 m, 1 Apr 2002 *Escandón 680* (CDS).

GUADELOUPE. **Basse Terre**: La Soufriere, above St. Claude Dacryodes-Sloanea, forest at Bains Jaunes., (16.025°S, 61.701°W), 600 m, 19 Jul 1959 (fl), *Webster et al. 9106* (MICH).

GUATEMALA. **Alta Verapaz**: near La Presa, ca. 6-8 km SE of Coban (ca. 15°28'N, 90°17'W), 1400 m, 29 Jan 1969, *Williams et al. 40324* (EAP, F, MICH, MO).

JAMAICA. **St. Ann**: road to Holly Mount, (18.207°S, 77.118°W), 21 Sep 1962 (fr), *Adams 11677* (MO); **Clarendon**: Mason River district, 3-4miles NW of Kellits, (18.191°S, 77.269°W), 11 Jun 1959 (fl), *Proctor 26442* (MICH); **Manchester**: Marshalls Pen, 2.25 mi due NW of Mandeville, (18.060°S, 77.535°W), 701 m, 4 Oct 1964 (fr), *Proctor 25580* (IJ).

PANAMA. **Chiriquí**: Dolega, Provincia de Chiriquí, Distrito de Renacimiento, Jurutungo - Piedra Candela (8.88°S, 82.73°W), 1200 m, 28 Sep 1996, *Galdames 3460* (PMA).

UNITED STATES. **Florida**: Charlotte Co., Prairie/Shell Creek (Southwest Florida Water Management District property), 1.4 km W of US 17, 1.7 km N of Riverside Drive, (26.987°S, 81.974°W), 11 Nov 2010 (fr), *Franck 2487* (USF); Seminole Co., ca. 0.2 mi W of FL 419, just above Horseshoe Lake, on SW side of Chuluotta, W of Avenue A between 7th Street and 8th Street, Llewellyn Property, (28.64°S, 81.13°W), 14 m, 30 Jun 1992 (fr), *Orzell & Bridges 19842* (USF). **Hawaii**: Hilo, (19.7 N, 155.1 W), CPS 3047 (ASU); Kauai, Haena, Limahuli Garden, (22.17° N, 159.75° W), 8 Aug 1990 (yfr), *Beck 1205* (ASU).

Phenology—Probably flowering in seasons with longer day length.

Habitat and Distribution—Known to grow in disturbed areas; native to the Atlantic Forest region of Brazil and naturalized in many areas of the tropics worldwide.

Distinguishing Features—Plants nearly glabrous, the leaves rubbery coriaceous, usually obovate to oblanceolate; calyx usually with a terminal pore, tearing irregularly on opening (rarely closed and calyptrate above the staminal ring), the tears cutting into the staminal ring.

Psidium cattleyanum is a variable species with respect to leaf and fruit size, fruit color, and ploidy level. Chromosome numbers of 2*n*=44 and 88 have previously been reported. Machado (2016) reports polyploidy levels as low as 2n=3x=33 and as high as 2n=12x=132 with little correlation to geography or fruit color, except that higher ploidy levels may be associated with more adverse habitats. Machado also reports that individuals with red fruits tend to grow at higher elevations than those with yellow fruits. The species can be an aggressive invader in some areas such as Hawaii and Madagascar but is also valued for its edible fruits and its use in landscaping.

13. *Psidium cauliflorum* Landrum & Sobral, Sida 22(2): 927. 2006. TYPE. Brazil. Bahia. Mun. Cachoeira, Morro Belo,Vale dos Rios Paraguaçu e Jacuípe, 39º05'W, 12 º32'S, 40–100 m, Dec 1980 (fl), *Grupo Pedra do Cavalo 955* (HOLOTYPE: HRB!. ISOTYPES: ALCB!, RB-542173, RB-557180). Figs. 20, 76A

Tree 3–5.5 m high, sparsely to densely pubescent on young growth; *hairs* rusty brown to whitish, mostly erect or spreading, up to ca. 1 mm long; *young twigs* terete to slightly compressed, densely to moderately pubescent, the bark reddish brown to gray, the older twigs gray, glabrous, the bark somewhat flaky. LEAF BLADES elliptic to oval, 2.7–6.8 cm long, 1–3 cm wide, 1.8–2.6 times as long as wide, moderately to sparsely puberulent (or more densely so along midvein), glabrescent with age, subcoriaceous, drying reddish brown to grayish, densely glandular beneath; *apex* acute; base rounded to cuneate; *petiole* channeled, densely to sparsely pubescent to glabrescent, 2–3 mm long, 0.5–1 mm wide; *venation* brochidodromous, the midvein impressed proximally to nearly flat distally above, prominent below, the lateral veins slightly raised and visible above or obscure, 6–9 pairs leaving midvein at an angle of ca. 45 degrees, the marginal vein arching between laterals, equaling them in prominence, running ca. 1–1.5(–3) mm from margin, the tertiary veins forming a dendritic pattern that arises from the marginal vein, scarcely to clearly visible. FLOWER BUDS pyriform, often appearing apiculate, 4–6 mm long, densely pubescent on hypanthium, sometimes more sparsely so on calyx, borne on older stems in clusters of as many as 20, apparently appearing at the same point season after season, the hypanthium 1.5–3 mm long, obconic, the distal portion of bud subglobose, 2–3 mm long; *indumentum pattern of buds* with hypanthium densely pubescent, the calyx densely to moderately pubescent without, subglabrous to puberulent within, the petals glabrous or with cilate margins, the disk pubescent, the style glabrous; *peduncles* uniflorous to triflorous, 1–9 mm long, ca. 0.6 mm wide, sometimes borne on short bracteate shoots, the branches of dichasia ca. 3 mm long; *bracteoles* linear to narrowly lanceolate, ca. 1–1.5 mm long, caducous before anthesis. CALYX closed except for an apical pore, with hairs sometimes protruding from pore, tearing irregularly at anthesis; *petals* obovate to suborbicular, ca. 7 mm long; *disk* ca. 3.5 mm across at anthesis (5 mm in fruit); *stamens* ca. 6 mm long, 150–190, the anthers ca. 0.3 mm long, with a terminal gland and usually 2 other glands in the connective; *style* ca. 8 mm long, glabrous; *ovary* 3-locular; *ovules* 7–20 per locule, uniseriate on each lamella of a slightly peltate placenta. FRUIT 1–2 cm in diam.; *seeds* few, ca. 6 mm long.

Representative specimens. BRAZIL. **Bahia**: Anguera, Fazenda Retiro, ca. 18 km de Feira de Santana na Estrada do Feijão sentido Ipirá, (12.16°S, 39.18°W), 300 m, 22 May 2007, *Cardoso 1968* (ASU0057573); Estação de mata, Vale dos Rios, Paraguaçu e Jacuipe, (12.53°S, 39.08°W), 40 m, Jun 1980 (fl,fr), *Grupo Pedra do Cavalo et al. 326* (ALCB, ASU0006133-image); Feira de Santana. 151 km NW de Jaguara, Fazenda Monte Verde, (12.08°S, 39.18°W), 320 m, 21 Jul 1987 (fl), *Quieroz 1742* (ASU0019703). **Espírito Santo**: Linhares, Cachoeiro de Itapemirim, (19.39°S, 40.06°W), 170 m, 19 Jan 2009 (fl), *Folli 6287* (ASU0053030). **Rio de Janeiro**: São Francisco de Itabapoana, Estação Ecológica Estadual de Guaxindibam Modulo PPBio, parcela 4, (21.39°S, 41.08°W), 8 Jul 2018 (fr), *Lima 8668* (RBR-image on SpeciesLink).

Phenology—Flowering in June, July, October, and December and probably fruiting shortly afterward.

Habitat and Distribution—Reported to grow in "floresta estacional" (seasonally deciduous forest). Found at elevations from 40 to 320 m. Endemic to eastern Brazil from Bahia to Rio de Janeiro.

Distinguishing Features—Cauliflorous, with flowers in clusters; flower buds 4–6 mm long; a closed calyx; densely pubescent hypanthium.

A second cauliflorous species, *Psidium grazielae* Tuler and M. C. Souza, has recently been discovered from Rio de Janeiro and Espirito Santo (Tuler et al. 2017). It differs from *P. cauliforum* in having longer inflorescences and glabrous flower buds. These two taxa should be evaluated again when more specimens become available.

14. *Psidium decussatum* DC., Prodr. 3:235. 1828. TYPE: BRAZIL. "prov. Minarum" in "campis ad Contendas" on label (ca. 20.12°S, 43.12°W?), *Martius s.n.* (HOLOTYPE: M-0032373, = F-19710!, = ASU photo!). Fig. 21

Guajava decussatum (DC.) Kuntze, Rev. Gen. 239. 1891.
Psidium salutare var. ***decussatum*** (DC.) Landrum, Sida 20: 1463. 2003.

Shrub or small tree ca. 2 m high, densely branched, sparsely to densely pubescent on young growth; *hairs* yellowish brown to whitish, up to ca. 0.3 mm long, somewhat curled to straight and erect; *young twigs* densely pubescent, with hairs persisting in part until first bark falls, the bark light reddish brown, becoming gray and somewhat scaly with age. LEAF BLADES elliptic to oblanceolate or obovate (3–)5–15(–20) mm long, 2–5 mm wide, 1.5–2.8 times as long as wide, subcoriaceous, densely glandular abaxially, the margin ciliate, slightly revolute; *apex* obtuse to rounded; *base* acute; *petiole* 0.5–1 mm long, 0.2–0.5 mm wide; *venation* brochidodromous (in a cleared leaf), obscure, with up to ca. 5 lateral veins each side, leaving the midvein at angles of ca. 45 degrees. FLOWER BUDS pyriform, ca. 4 mm long; hypanthium plus calyx tube ca. 3 mm long, widening at summit of ovary, attenuate at base; *indumentum pattern of buds* with petals moderately to densely pubescent without, glabrous within, with hypanthium sparsely pubescent, with calyx tube sparsely pubescent without and densely pubescent within, with peduncles moderately pubescent; *peduncles* 1-flowered, 5–10 mm long, ca. 0.5 mm wide borne in the axils of leaves, at leafless nodes, or in the axils of small bracts ca. 0.3 mm long; *bracteoles* usually falling before anthesis, linear, up to 1 mm long. CALYX bowl-like, surrounding lower half of closed corolla in bud, with margin sinuate to shallowly lobed, tearing irregularly at anthesis, the tears mainly not penetrating the staminal ring; *petals* 2–3 mm long; *disk* within staminal ring ca. 1–1.5 mm across, glabrous, the staminal ring pubescent, ca. 1–1.5 mm wide after anthesis; *stamens* 75–100 based on scars, 2-3 mm long, *anthers* globose, 0.25–0.5 mm long, with a terminal gland and often with 2 glands below; *style* ca. 3 mm long, glabrous, the stigma punctiform; *ovary* 2-locular; *ovules* ca. 8–14 per locule. FRUIT (1 seen in photo) globose, ca. 6 mm wide; seeds ca. 3 mm wide.

BRAZIL. **Minas Gerais**: Montes Claros, P. E. de Lapa Grande, without date (fr), *Duraes 51* (UB); Montes Claros, P. E. de Lapa Grande, Mata Ciliar do Córrego dos Bois, próximo a gruta Boqueirão da Nascente, (–16.71°, –43.94°), 760 m, 31 Jan 2009 (st), *Duraes & Miranda-Melo s.n.* (PELG, UFMG, seen as images on SpeciesLink); Bocaiúva, Engenheiro Dolabela, BR 135, a 51 km N do trevo para Buenópolis, afloramento calcário a leste da Rodovia, 600 m na estrada para Eng. Dolabela, (–17.50°, –44.00°), 10 Jan 1998 (fl), *Pirani et al. 3851* (ASU0006713, ASU0030918); without locality, 1816–1821 (fl), *Saint-Hilaire 26* (P-00258331).

Phenology—Flowering in January and probably fruiting soon after.

Habitat and Distribution—Mata Ciliar (riparian forest), calcareous substrates.

Distinguishing Features—Leaves elliptic to oblanceolate or obovate (3–)5–13 mm long, 1.5–2.8 times as long as wide; flower buds pyriform, ca. 4 mm long; calyx cup-like, surrounding lower half of closed corolla in bud, with margin sinuate to shallowly lobed.

Psidium decussatum was mistakenly used as the basionym for a variety of *P. salutare* (Landrum 2003). I have subsequently decided that the species is not closely related to *P. salutare* and molecular studies have supported that conclusion (Conceição et al. 2025). The authors of that paper distinguished *P. decussatum* from *P. salutare* by its small leaves rarely over 15 mm long (versus 20–90 mm long in *P. salutare*) with obscure venation (versus

usually clearly visible); small flower buds ca. 4 mm long (versus up to 7 mm long); petals 2–3 mm long (versus 5 or more mm long). In addition, as far as is known, *Psidium decussatum* is a small tree or shrub of riparian habitats (not a subshrub adapted to fire and other disturbance). The entity formerly called *P. salutare* var. *decussatum* is given a new name in this paper as a variety of *P. salutare*.

15. *Psidium densicomum* DC., Prodr. 3: 235. 1828. TYPE. Brazil. "ad ripas flum. Solunois et ad lacum Egensem," [near present town of Tefé, in state of Amazonas, 3.35°S, 64.7°W] *Martius s.n.* (SYNTYPES: M-0146751 [= F neg. 19711] designated here as LECTOTYPE, M-0146750, M-146752, M-146753, M-146754, M-146755). Specimens incorrectly assumed to be types of *P. densicomum* on JSTOR Global Plants are M-0171037, M-0171036, M-0171038, K-000565301, MEL2396531. They seem to be a species of *Eugenia*. Fig. 22

Psidium ovatifolium O. Berg, in Mart. Fl. bras. 14(1): 385. 1857. TYPE. Brazil. "in vicinia urbis Santarem prov. Paraensis," *Spruce 826* (HOLOTYPE: M-146865!; probable ISOTYPES: G-227727!, K-565303, K-565304, W-18890013473).

Guajava densicoma (DC.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava ovatifolia (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Psidium ovatifolium var. ***glabrum*** Amshoff, Bull. Torr. Bot. Club 75(5): 538. 1948. TYPE. Guyana. "basin of Rupununi river, Karenambo, lat. about 3°45'N," *A. C. Smith 2253* (HOLOTYPE: NY! [annotated as "typus" by Amshoff]. ISOTYPES: F-76390f!, U-104059 [annotated as "isotypus" by Amshoff], WIS-827. Additional cited specimen, "F. D. (Anderson) 686 (K)" probably not intended as type.

Shrub or small tree 2–8 m high, glabrous to abundantly hirtellous on flowers and young growth, the trunk smooth barked; *hairs* yellowish or grayish, up to ca. 0.5 mm long; *young twigs* light gray or light brown, darkening with age, smooth or longitudinally striate, remaining relatively smooth in age. LEAF BLADES narrowly lanceolate, lanceolate, or ovate, 5–15(–19) cm long, 1.3–8 cm wide, 1.5–4 times as long as wide, submembranous to subcoriaceous, drying dark reddish-brown to gray-green, somewhat darker above than below, the margin entire, slightly revolute; *apex* acute to acuminate; *base* acute, broadly cuneate, rounded, or subtruncate; *petiole* narrowly channeled, 4–14 mm long, 1–2 mm wide, the epidermis minutely wrinkled; *venation* eucamptodromous to brochidodromous, the midvein shallowly concave above, prominent below, the lateral veins 6–10(–12), leaving midvein at an angle of ca. 45 degrees, broadly arching towards the apex, diminishing near the margin, or sometimes connecting to form a partial marginal vein for part of the leaf, this running 1–5 mm from the margin, the tertiary veins dendritic, weak to obscure. FLOWER BUDS pyriform, 8–14 mm long, the hypanthium obconic to campanulate, 4–5 mm long, the distal portion of bud subglobose to ovoid, 5–9 mm long, sometimes wider than long; *indumentum pattern of buds* with all surfaces glabrous or peduncles, dichasium branches, bracteoles, hypanthium, calyx within and without hirtellous, and with petals, disk and style glabrous; *peduncles* uniflorous or bearing a 3-flowered dichasium, more or less fattened, moderately glandular, (0.8–)1.5–5 cm long, 0.8–1 mm wide near middle, wider at the apex, the dichasium branches 1–2.5 cm long; *bracteoles* mostly deciduous by anthesis, sometimes persisting until fruit matures, foliaceous, 10–30 mm long, 1–5 mm wide. CALYX open in bud, cup-like, tearing between the lobes at anthesis, persisting until the fruit matures, the lobes broadly rounded on the rim of the calyx cup, 0.5–1.5 mm long; *petals* obovate, glandular, 13–22 mm long; *disk* 3–4 mm across; *stamens* 150–280, 7–10 mm long; *anthers*

ca. 1 mm long; *style* 9–12 mm long; *ovary* 2–3-locular; *ovules* 5–32, uniseriate on each lamella, the placenta slightly peltate. FRUIT globose, 0.8–1.5 cm in diam.; *seeds* 9–18 in fruits seen, C-shaped, angular, 4–7 mm long, the surface dull, gray-yellow.

Representative specimens examined. BOLIVIA. **Pando**: Abuna, Rapids on Río Abuná above Fortaleza (Rondônia), (9.783°S, 65.567°W), 100 m, 8 Jul 1992 (fl.), *Gentry et al. 78002* (ASU0006142).

BRAZIL. **Amazonas**: Coari, Projeto Radam, ponto 17 (4.109°S, 63.139°W), 23 Sep 1976 (fl), *Bahia 144* (NY); Tefé, Rio Solimões, Lago Tefé, (3.37°S, 64.7°W), 11 Oct 1982 (fl), *Cid & Lima 3153* (NY); Ilha do Marapatá, próximo de Manaus, (3.11°S, 60.03°W), 25 Oct 1969 (yfr), *Coelho 18* (NY); Novo Airão, Arquipélago de Anavilhanas (Rio Negro), (2°S, 60.45°W), 1 Jan 1970 (fr), *Ferreira 23* (ASU0006141); Maués, Rio Parauari, margem dereita, entre os lugares Água Mineral e Clacario (4.75°S, 57.92°W), 14 Jul 1983 (fl), *Ferreira 4144* (ASU0006143); Tapauá, próx. localidade de Parintins (5.79°S, 64°W), 5 Jul 1987 (fl), *Freire, E. et al. 3* (ASU0006135-photo, HRB); Rio Negro, Padauiry, Castanha. (0.97°N, 67.48°W), 7 Oct 1947 *Froes 22560* (ASU0006138); São Paulo de Olivenca, (3.45°S, 68.8°W), 1 Jan 1970 (fl), *Hanke 72* (U); Maués, **n**ear mouth of Rio Maués-Mirim, (3.32°S, 57.68°W), 29 Jul 1983 (fl), *Hill 13189* (MO, NY, UB); Humaitá, Rio Madeira, banks of Rio Ipixuna (7.5°S, 63°W), 26 Nov 1966 (fr), *Prance et al. 3364* (MICH, NY). **Pará**: Alto Tapajós, 10–15 km down stream from Missão Cururu (7.6°S, 57.59°W), 130 m, 16 Feb 1974 (fl), *Andersen 10968* (NY); Oriximiná, Rio Paru do Oeste, (1.75°S, 55.86°W), 6 Sep 1980 (fl), *Cid et al. 2195* (NY); Conceição, perto da foz do Rio Juruena (4.033°S, 56.600°W), 13 Jan 1952 (st), *Pires 3908* (MICH). **Roraima**: perimetral Norte Highway, 45 km W of Caracaraí, Fazenda Repartimento, (2.02°N, 61.47°W), 31 Jan 1984 (fr), *Prance 28716* (NY, UB).

GUYANA. Basin of Rupununi River, Karenambo, (3.75°N, 59°W), 1 Jan 1970 (fl), *Smith 2253* (NY); **Cuyuni-Mazaruni,** Essequibo River between Omai and Dennison Mine Camp, near Kumaka Falls, (5.35°N, 58.75°W), 10 m, 28 May 1989 (fl, fr), *Gillespie et al. 1456* (ASU0006145); **Essequibo,** along Rupununi River, (3.92°N, 59.17°W), 76 m, 26 Sep 1990 (fl), *McDowell 3397* (MO).

PERU. **Loreto**: Maynas, Santa Maria de Nanay, Caño Cachorro, a la orilla del Río Nany, ca. 5 km al W del Caserío Mishana, dentro de la Reserva Igapo, (3.917°S, 73.58°W), 130 m, 12 Mar 1991 (fr), *Pipoly 14846* (ASU0006149, MO); Maynas, Caserío cerca Nina Rumi, ribera del Río Nanay, (3.84°S, 73.39°W), 23 Feb 1976 (fr), *Juan Revilla 198* (ASU0006148); Maynas, Morona cocha, (3.73°S, 73.27°W), 106 m, 13 Jun 1985 (fr), *Vásquez 6609* (ASU0006139); Maynas, Ramon Castilla, Pevas, Río Ampiyacu, (3.33°S, 71.83°W), 106 m, 15 Oct 1987 (fr), *Vásquez et al. 9845* (ASU0006146).

VENEZUELA. **Amazonas**: San Carlos de Río Negro, ca. 20 km S of confluence of Río Negro and Brazo Casiquiare, (1°56'N, 67°3'W), 119 m, 22 Apr 1981 (fr), *Clark & Maquirino 7968* (MO). **Anzoátegui**: River Mapire, ca. 200 km W from Ciudad Bolivar, close village of Mapire (7.74°N, 64.71°W), 50 m, 13 Jun 1997 (fr), *Kalliola et al. P6-13 13* (USM). **Apure**: Distrito Pedro Camejo, 27 km WSW of Paso de Cinaruco (6.52°N, 67.75°W), 65 m, 2 May 1977 (fr), *Davidse 12556* (MICH, MO); Pedro Camejo, Parque Nacional Santos Luzardo, Boca de Mina (6.967°N, 67.200°W), 40 m, 5 Nov 1989 *Duno, R. et al. 200* (MO). **Atures**: Caño Ucata, ca. 3 km de su confluencia con Río Orinoco (4.38°N, 67.8°W), 78 m, 20 Apr 1989 (fr), *Romero et al. 1921* (MO). **Bolivar**: En borde de Río Azá, afluente del Río Paragua, SE del pueblo La Paragua (6.83°N, 63.33°W), 150 m, 11 Nov 1980 (fl.), *Rutkis 272* (MO); Hato La Vergareña, along Río Aro, 6–14 km below mouth of Caño Azul (7.67°N, 63.36°W), 28 Mar 1955 (fr), *Wurdack 229* (MICH, NY).

Phenology—Flowering mainly in July and August; fruiting mainly in November and December.

Habitat and Distribution—Riparian habitats, sometimes seasonally inundated (várzea). Sometimes growing with *Myrciaria dubia* (Kunth) McVaugh, the commercially important "camu-camu." Known from Bolivia, Brazil, Colombia, Guyana, Peru, and Venezuela.

Distinguishing Features—Leaves lanceolate or ovate, tapering from near the base to an acute apex, often over 10 cm long, glabrous in our area; calyx open, bowl-like in the flower bud; petiole 4–14 mm long; bracteoles 10–30 mm long, narrowly elliptic; 3-flowered dichasia common; petals 13–22 mm long; seeds angular.

16. ***Psidium firmum*** O. Berg, in Mart., Fl. bras. 14(1): 390. 1857. TYPE. Brazil. "ad Barreiros in prov. Goyazensi." *Pohl 3195* (HOLOTYPE: W-16675). Fig. 23

Myrtus grandifolia O. Berg, in Mart., Fl. bras. 14(1): 419. 1857. TYPE. Brazil. "ad Rio Jequitinhonha prov. Minarum." *Pohl 5752* (HOLOTYPE: W-16682!)

Psidium firmum var. ***subcordatum*** O. Berg, in Mart., Fl. bras. 14(1): 601. 1859. TYPE. Brazil. "prope Paracatu prov. S. Pauli." *Riedel s.n.* (SYNTYPES: LE-6976, LE-6977).

Guajava firma (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Psidium grandifolium (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941. A later homonym of ***P. grandifolium*** DC.

Psidium minense Mattos, Loefgrenia 42: [2]. 1970. New name for *Myrtus grandifolia* O. Berg.

Psidium lourteigii D. Legrand, Bradea 1(17): 157. 1972. TYPE. Brazil. "Goiás, Munic. Niquelândia. " *Macedo 3663* (HOLOTYPE: MVM; ISOTYPE: S-r-9453).

Psidium macedoi Kausel, Lilloa 33: 108. 1972. TYPE. Brazil. "Goiás, Niquelândia." *Macedo 3663* (HOLOTYPE: S-r-9453).

Shrub to ca. 1 m high, appearing glabrous but sometimes minutely puberulent on young growth, glabrescent with age; *hairs* less than 0.1 mm long, whitish; *young twigs* gray-green, minutely puberulent to glabrous, the older twigs with scaly or flaky reddish brown to gray bark. LEAF BLADES elliptic, elliptic-oblong, ovate-oblong, ovate, or suborbicular, 3.7–13 cm long, 3–8 cm wide, 1.2–2.3 times as long as wide, *blades* concolorous, drying yellow-green, gray-green, or reddish brown, thickly coriaceous; *apex* acute, acuminate, or cuspidate; *base* rounded, obtuse, or cordate; *petiole* 2–5 mm long, 2–4 mm thick, channeled or flat; *venation* brochidodromous, the midvein nearly flat, somewhat impressed or raised above, prominent below, the lateral veins prominent, straight to slightly curved, flat or raised above, raised below, (4–)7–12 pairs, leaving the midvein at an angle of 45–60°, the marginal vein about equaling the laterals in prominence, arching slightly between laterals but paralleling the margin 1–3 mm from it, the tertiary veins reticulate, appearing to arise from the marginal vein. FLOWER BUD pyriform, 8–10 mm long, the hypanthium campanulate, 3–5 mm long, the distal portion of bud subglobose (sometimes wider than long), 4–5 mm long; *indumentum pattern of buds* with all surfaces glabrous, or bracteoles, calyx lobes, and petals ciliate, or some surfaces minutely puberulent, especially densely so on calyx within; *peduncles* 0.6–2.2 cm long, 1–2.5 mm wide, usually solitary in the axils of leaves, less often subtended by bracteole-like bracts, occasionally borne on leafless shoots; *bracteoles* narrowly triangular to lanceolate-triangular, clasping the hypanthium, 2–3.2 mm long, 0.6–1.2 mm wide, persisting after anthesis or not. CALYX open in bud, bowl-like, tearing ca. 1 mm between the lobes at anthesis, the tears not cutting the staminal ring, the lobes about triangular, 2–7 mm long, 4–5 mm wide; *petals* obovate, 7–10 mm long; *disk* 6–7 mm across, minutely puberulent; *stamens* 150–310, 5–10 mm long; *anthers* ca. 1 mm long, with 1 terminal gland; *style* 5–7 mm long, glabrous; *ovary* 3–5-locular, the inner surfaces puberulent, the ovules 35–75 per locule, the placenta protruding as 2 lamellae, with 2–3 rows of ovules on each lamella. FRUIT globose, up to ca. 2.5 cm in diameter; *seeds* probably up to ca. 50, reniform, rounded, ca. 3 mm in length.

Representative specimens examined. BRAZIL. **Bahia**: Lençóis, (12.57°S, 41.38°W), 5 Jan 1998 (fr), *Funch 1094* (HUEFS); Rio de Contas, 9 km ao N da cidade na estr. para o pov. de Mato Grosso, (13.50°S, 41.83°W), 26 Oct 1988 (fr), *Harley et al. 25668* (CEPEC, F, SPF); Ibiquara, Capão da Volta, (13.40°S, 41.30°W), 19 Jul 1984 (fr), *Hatschbach 48356* (MBM). **Distrito Federal**: Ermida Dom Bosco perto do lago Paranoa. Centro Oeste, (15.80°S, 47.80°W), 1025 m, 2 Sep 1995 (fr), *Proença & Landrum 1294* (ASU0006704); Planaltina, entre Sobradinho/Planaltina, km 20, atras Pamoharia Rodomania. Centro Oeste, (15.64°S, 47.73°W), 3 Sep 1995 (fr), *Proença & Landrum 1475* (ASU0006696); ao lado da Reserva Biológica

das Aguas Emendadas, (15.57°S, 47.69°W), 3 Sep 1995 (fr), *Proença & Landrum 1499* (ASU0006695). **Goiás**: Luziania, (16.72°S, 48.01°W), 772 m, 23 Oct 2007 (fr), *Cezare 284* (ASU0018546); localidade de Macedo, ca. 18 km ao N de Niquelândia, (14.30°S, 48.38°W), 3 Aug 1992 (fl, fr), *Filgueiras et al. 2406* (ASU0006699); Alto Paraíso, Chapada dos Veadeiros, Faz. Bona Espero, (14.16°S, 47.81°W), 17 Aug 1995 (fl), *Marquete 2325* (ASU0006700); Alto Paraíso de Goiás, entre Alto Paraíso de Goiás e o Vale da Lua, (14.13°S, 47.52°W), 12 Aug 2007, *Proença 3416* (ASU0018549); Pirenópolis, Serra dos Pirineus, (15.13°S, 49.00°W), 18 Nov 1987 (fl), *Araujo Skorupa 64* (ASU0006701). **Minas Gerais**: Carmo do Rio Claro, Fazenda Corrego Bonito, (20.97°S, 46.12°W), 9 Sep 1961 (fl), *Andrade & Emmerich 1199* (R); Joaquim Felício, Serra do Cabral, (17.77°S, 44.15°W), 900 m, 2 Sep 1985 (fl), *Kawasaki et al. CFCR 8253* (SPF); Patos de Minas, (18.58°S, 46.53°W), 800 m, 23 Aug 1950 (fl), *Duarte 2877* (RB); Santana do Riacho, Serra do Cipo, Mun. Santana do Riacho, km 114 ao longo da rodovia Belo Horizonte - Conceição do M.D, (19.20°S, 43.70°W), 17 Oct 1982 (fr), *Kawasaki & Esteves CFSC 9057* (SP); Santana do Riacho, Santana do Riacho, Serra do Cipó, km 107 caminho para Usina Dr. Pacifico Mascarenhas, (19.20°S, 43.70°W), 7 Sep 1980 (fl), *Forero et al. 8078* (SP); Fazenda Bela Tanda and neighboring fazendas, 6 km NE of Indianópolis, (19.22°S, 47.95°W), 850 m, 26 Sep 1983 (fr), *Gottsberger 11726983* (ASU0006694). **Minas Gerais**: Jaboticatuba, Serra do Cipó, (19.50°S, 43.75°W), 5 Aug 1972 (fl), *Hatschbach 29869* (MBM); Ouro Preto, Campo on summit of Pico de Itacolomi, ca 3 km S of Ouro Preto, (20.38°S, 43.50°W), 1850 m, 30 Jan 1971 *Irwin 29437* (NY); estrada Caeté-Sabará, km 28, (19.90°S, 43.80°W), 13 Oct 1995 (fl), *Kawasaki 890* (ASU0006693); Diamantina, Campos rupestres na estrada para gruta do Salitre e Distrito de Extração, (18.25°S, 43.60°W), 9 Dec 1992 (fr), *Leitão Filho et al. 27566* (MBM); Lavras, (21.23°S, 45.00°W), 21 Aug 1944 (fl), *Maia & Black 217* (RB); Ouro Preto, estr. O. Preto a Ouro Branco, campo da Caveira, (20.38°S, 43.50°W), 1500 m, 13 Oct 1987 (fr), *Peron 370* (RB); Botumirim, Vale do Rib. Gigante, (16.87°S, 43.02°W), 500 m, 19 Sep 1991, *Barroso et Proença 669* (RB); Sete Lagoas, IPEACO, (19.45°S, 44.23°W), 28 Aug 1968 (yfr), *Silva 260* (RB). **São Paulo**: Caieiras, (23.37°S, 46.73°W), 5 Nov 1945 (fr), *Hoehne 1928* (SPF).

Phenology—Flowering mainly from July to October; fruiting from July to January, but mainly in October.

Habitat and Distribution—Found in Cerrado, campo, semideciduous forest in rocky and sandy soils. Found at elevations of 450–1850 m. Endemic to Brazil from São Paulo, Minas Gerais, Goiás (including Distrito Federal), and Bahia.

Distinguishing Features—Shrub to ca. 1 m high, appearing glabrous but sometimes minutely puberulent on young growth, glabrescent with age; leaves usually ovate to elliptic 3.7–13 cm long; calyx open in bud, bowl-like, tearing ca. 1 mm between the lobes at anthesis, the tears not cutting the staminal ring, the lobes about triangular, 2–7 mm long, 4–5 mm wide.

Psidium firmum and *P. salutare* var. *pohlianum* grow in similar habitats and can look rather similar. They are compared directly in couplet 6 of the Key 1-G.

17. ***Psidium friedrichsthalianum*** (Berg) Niedenzu in Engl. & Prantl, Nat. Pflanzenfam. 3(7): 69. 1893. Fig. 24

Calyptropsidium friedrichsthalianum O. Berg, Linnaea 27: 350. 1856. TYPE. Guatemala, "ad Grenada," *E. von Friedrichsthal 932* (HOLOTYPE: W-48024, =F neg. 31421!).

Psidium grandiflorum Ruiz & Pav., Anales Inst. Bot. Cavanilles 15: 194. 1957. TYPE Perú. 'ad Chicoplaya' ilustración (MA-ajb04-d-0751, available on JSTOR Global Plants) en Anales Inst. Bot. Cavanilles 15: 237. 1957. (MA-813703 designated here as LECTOTYPE). A later homonym of *Psidium grandiflorum* Aubl., Hist. Pl. Guiane 1: 483. 1775, =*Campomanesia grandiflora* (Aubl.) Sagot.

Shrub or tree to 10 m high, minutely puberulent on young growth and flowers, glabrescent with age; *hairs* whitish to reddish brown, to ca. 0.2 mm long, mainly appressed; *young twigs* quadrangular to subquadrangular with four wings, reddish brown, losing wings in about a year, the older bark remaining smooth or becoming stringy or flaky. LEAF BLADES elliptic,

elliptic-oblong, 3–15 cm long, 1.7–6 cm wide, 1.7–2.9 times as long as wide, subcoriaceous to coriaceous, drying dark reddish brown to dark gray-green, nearly concolorous, the upper surface after drying often mottled with whitish blotches, often slightly lustrous, the lower surface with 3–6 glands/mm²; *apex* acute or acuminate; base acuminate, cuneate, or rounded; *petiole* 4–6 mm long, ca. 1–1.5 mm thick, channeled; *venation* brochidodromous, the midvein impressed above, prominent below, the lateral veins 5–10 weak pairs, leaving the midvein at angle of ca. 60 degrees, slightly raised above in mature leaves, alternating with weaker (sometimes scarcely visible) dendritic tertiary veins that arise from adjacent larger veins, the marginal veins often not clearly defined, mainly running 1–4 mm from the margin when visible, arching between laterals, about equaling them in prominence. FLOWER BUD fusiform or subglobose (with the hypanthium and distal portion of bud seamlessly blending together) or subpyriform (constricted at ovary apex), 10–18 mm long, the hypanthium obconic to fusiform-campanulate, 4–6 mm long, the distal portion of bud subglobose to ovoid, 6–12 mm long, with an apiculate apex; *indumentum pattern of buds* with external surfaces subglabrous to moderately strigulose (especially on peduncle and adjacent hypanthium), the disk and calyx within strigulose or to glabrous, the petals glabrous or ciliate, the other surfaces glabrous or with scattered appressed hairs, all surfaces glabrescent with age; *peduncles* uniflorous, 0.7–1.6(–3.3) cm long, 1–1.5 wide (–3 mm in fruit), compressed at first, subterete upon fruiting; *bracteoles* deciduous before anthesis, narrowly triangular, ca. 1 mm long. CALYX closed in bud, tearing irregularly into 2 or 3 parts at anthesis, persisting or not, glabrous within, the calyx remnants (0.2–)0.3–0.7 mm thick when dry, up to 12 mm long, the tears not cutting the staminal ring; *petals* ca. 12 mm long; *disk* 6–9 mm across, puberulent at first; stamens 320–800, 10–15 mm long; *anthers* 1–2 mm long, with 4–20 glands in the connective; *style* 10–15 mm long, the stigma 1–1.5(–2.2) mm across dry (fresh: ca. 2 mm across, green, in contrast to white style); *ovary* 4–5–locular; *ovules* about 70–80 per locule, multiseriate on each lamella, the placenta peltae, centrally attached. FRUIT globose to pyriform, 2.4–10 cm in diameter, the wall 4–10 mm thick; *seeds* 13–110, 4–8 mm long, reniform, rounded (or rarely wedge shaped).

Representative specimens examined. BOLIVIA. **Pando**: W bank of Río Madeira, 12 km above Abunã, (9.79°S, 65.33°W), 20 Jul 1968 (fl), *Prance et al. 6204* (ASU0313828, INPA, MICH, NY, R, US).

BRAZIL. **Acre**: Plácido de Castro, Rio Xipamano, Colocação Vai-Quem-Quer, (10.27°S, 67.19°W), 14 Jan 1995 (fr), *Figueiredo 559* (ASU0069357);

COLOMBIA. **Antioquia**: Frontino, Vereda San Andres, via Dabeiba-Fuemia, 18–33 Kms, (6.67°N, 76.38°W), 23 Nov 1987 (fl), *Callejas 5848* (HUA); Mpio. de Andes, 12.5 km de Andes hacia el Corregimiento de Tapartó, Vereda California, Apiario California, (5.65°N, 75.90°W), 24 Aug 1988 (fl, fr), *Ramiro Fonnegra 2473* (ASU0006710); Antioquia, Departamento de Antioquia, Medellín, Barrio Estadio, Carrera 77B 48-107, (6.38°N, 75.73°W), 18 Nov 2005 (fr), *J.G.Velez 6747* (HUA). **Cundinamarca**: Entre Nocaima y Sasaima, Hacienda Tobia, (5.13°N, 74.45°W), 850 m, 15 Feb 1942, *Garcia-Barriga 10595* (US). **Santander**: Bucaramanga and vicinity, (7.13°N, 73.13°W), 305 m, 18 Dec 1926 (fl), *Killip & Smith 15457* (NY, US). **Valle del Cauca**: Palmira, Hacienda El Guachal, vereda de Cauca seco, ca. media hora de la via Cali-Palmira, ca 2 km adelante del puente del Paso del Comercio, (3.54°N, 76.30°W), 950 m, 11 May 1988 (fl), *Ramos 943* (MO).

COSTA RICA. **Heredia**: Santo Domingo, Los Angeles, 600 m E of Escuela Cristóbal Colon, front yard of Alicia Barquero Rodriguez, (9.98°N, 84.08°W), 8 Sep 1989 (fr, fl), *Landrum 6555* (ASU0007293). **Limón**: Bajo Telire, Río Telire, (9.58°N, 83.02°W), Jul 1980 (fr), *Gomez 24140* (ASU0007286). **Puntarenas**: Parque Nacional Corcovado Sirena, (8.45°N, 83.55°W), 4 Feb 1988, *Kernan 71* (MO). **San José**: Moravia, 100 m al S del Club La Guaria, (9.96°N, 84.06°W), 23 Jul 1988 (fl), *Dobbler, P. 600* (ASU0007291).

ECUADOR. **Esmeraldas**: cerca a estero Capuli, en huerto Chachi, (0.72°N, 79.07°W), 17 Feb 2015 (fr), *Cornejo, X. 8670* (ASU0084382); Eloy Alfaro Cantón, Comuna de Loma Linda, cerca al río Cayapas, entre vegetación de bosque secundario maduro, (0.75°N, 78.92°W), 110 m, 15 Sep 1993 (fr), *Yanez et al. 1581*

(MO). **Manabí**: Pedernales cantón, Reserva Ecológica Mache-Chindul, Cerro Pata de Pajaro, Cabaceras de Río Vite, estero Nuquepe, bosque al norte de La Loma de Pajaro y caratera vía al Carmen, (0.02°N, 79.75°W), 300 m, 7 Apr 1997 (fr), *Clark 4284* (MO).

EL SALVADOR. **San Salvador**: Finca Leticia, Los Planes de Renderos, (13.64°N, 89.19°W), 20 Jul 2000 (fr), *Monro et al. 3458* (ASU0007290, BM). **Santa Ana**: San José Ingenio, P. N. Montecristo, cuesta de los mira, (14.42°N, 89.35°W), 1900 m, 9 Oct 2001 (fl), *Martínez 25* (ASU0007288).

HONDURAS. **Comayagua**: Chichipates, orilla del Río Yure, 30 km E Lago Yojoa, (14.92°N, 87.78°W), 200 m, Nov–Dec 1980 (fr), *Nelson et al. 6673* (MO); **Yoro**: 27 miles W of Olanchito at the intersection of the Río San Juan, (15.42°N, 86.83°W), 250 m, 2 Jul 1994 (fl), *Davidsen et al. 35526* (ASU0007283).

MEXICO. **Chiapas**: Rancho Tirso Acacoyagua, (15.35°N, 92.65°W), 3 Nov 1949 (fl), *Matuda 18733* (ASU0007287). **Oaxaca**: San Felipe Usila, Poblado de Santiago Tlatepusco, (17.90°N, 96.53°W), 400 m, 1 May 1991 (fl, fr), *Ismael Calzada 16867* (ASU0052897); Camelia Roja, 13 km al SW de Tuxtepec hacia Masinchico, (18.03°N, 96.20°W), 15 Feb 1982 (fl, fr), *Torres 22* (ASU0007285). **Veracruz**: Playa Vicente, Ejido Zapotal, (17.75°N, 95.81°W), 8 May 1973, *Chavelas P. et al. ES-4942* (MEXU); Hidalgotitlan camino a Paso de Moral, 6 km de Cedillo (17.77°N, 94.65°W), 152 m, 16 Mar 1974 (fr), *Ponce 206* (MEXU).

NICARAGUA. **Atlántico Norte**: Quipó, (13°37'40`N, 85°02'39`W), 320 m, 1 Apr 1983 (fr), *Ortiz 1318* (MO). **Atlántico Sur**: Río Barberena, a 5 km de Nueva Guinea (11°47'N, 84°29'30`W), 160 m, 27 Aug 1982 (yfr), *Araquistain 3153* (MO). **Estelí**: Res. Natural Miraflor, Comarca Puertas Azules, (13.27°N, 86.27°W), 1200 m, 15 May 1999 (fl), *Rueda, R. & Velasquez, W. 11208* (ASU0007289). **León**: San Antonio, ca. 6 km SE de Nagarote, (12°10'25`N, 86°30'40`W), 100 m, 15 Nov 1982 (fl), *Grijalva & de Grijalva 1777* (MO). **Managua**: Managua, colonia Centroamerica, (ca. 12°06'30`N, 86°14'40`W), 220 m, 23 Jun 1983 (fr), *Grijalva 2666* (MO). **Rivas**: Isla Ometepe, Volcán Maderas, cafetal de la hacienda `La Palmera,` (11°28–29'N, 85°31'W), 300 m, 13 Jun 1984 (fl), *Robleto 758* (MO).

PANAMÁ. **Canal Zone**: Barro Colorado Island, Wheeler 13, (9.16°N, 79.84°W), 5 Aug 1971 (fr), *Foster 2360* (MICH).

PERU. **Cajamarca**: San Ignacio, Namballe, La Vega del Toro, margen derecha del Río Canchis. limite fronterizo con El Ecuador, (4.98°S, 79.10°W), 750 m, 20 Dec 1996 (fl, fr), *J. Campos et al. 3210* (ASU0005137, MO); San Ignacio, Namballe, Las Juntas de Namballe (nasciente del Chimchipe por Union de Los Rios Mayo y Canthis), (5.12°S, 79.02°W), 750 m, 13 Jan 1997 (fl, fr), *Campos et al. 3333* (ASU0005138, MO). **Madre de Dios**: Tambopata, Puerto Maldonado, Cusco Amazónico, (13.13°S, 69.60°W), 285 m, 25 Nov 2002 (fr), *Valenzuela 1047* (ASU0005149, MO). **Pasco**: Oxapampa, Pozuzo, Sector Palmira, Parcela del Sr. Agustin Egg, (10.20°S, 75.57°W), 850 m, 1 Nov 2006 (fl), *Blasido 221* (ASU0018680, MO); Oxapampa, Palcazú, comunidad nativa Nueva Aldea - Sector Santa María, (10.37°S, 75.07°W), 355 m, 20 Mar 2009 (fr), *R. Rojas 6562* (ASU0077594, MO).

VENEZUELA. **Barinas**: 20 Km N de Barrancas, Mun. Cruz Paredes, distrito Obispos, (8.76°N, 70.11°W), 300 m, 30 Mar 1972 (fr), *Marcano Berti & Torres Lezama 3030* (VEN).

Phenology—Specimens indicate that flowering and fruiting can occur throughout the year. Cultivated plants in Arizona mainly bloom in the spring and to a lesser extent in the fall. I suspect that flowering is correlated with day length somewhat longer than an equinox and with periods of rapid vegetative growth.

Habitat & Distribution—Forests, especially along streambeds; (30–)100–1000 m elev.; from southern Mexico to Peru.

Distinguishing Features—Fast growing young twigs usually 4-winged to subquadrangular; flower buds 10–18 mm long; fruit globose to pyriform, 2.4–10 cm in diameter, the wall 4–10 mm thick; seeds often numerous, 4–8 mm long, reniform, rounded, not angular; marginal veins often not clearly defined, mainly running 1–4 mm from the margin when visible.

Psidium friedrichsthalianum is most likely to be confused with *P. acidum*. The species are compared in lead 13 of the Key 1-I.

Common names and uses—El Salvador–arrayán (*Calderon 1105*, NY); Costa Rica–cas (*Skutch 3914*, MO), kas-kra (*Pittier 12072*, CR); Honduras–guayaba de mico (*Nelson et al. 6673*, MO); yunguilla–Esmeraldas, Ecuador, in Chachi language (*Cornejo 8670*, ASU

0084382). The name guayaba is also used with such modifiers as: ágria, de agua, cimarrona, de danto, de fresco, de monte, del río. The species has a wide range and is found near sea level to about 1900 m. I suspect that it has been distributed widely by indigenous people because of it edible fruits.

18. ***Psidium fulvum*** McVaugh, Fieldiana, Bot. 29: 226. 1956. TYPE. Peru. Amazonas: "Chachapoyas," without date, *Mathews s.n*. (HOLOTYPE BM-796851; ISOTYPES: F-76383f!, G-227691!, G-227692, K-47872, OXF seen as photo; two additional Matthews specimens at K of this species exist (K-47870, K-47871), from 1835 and 1836, but do not match the holotype well). Fig. 25

Tree to 12 m, golden-yellow or silvery hirtellous on lower leaf surface, young twigs and most floral surfaces; *hairs* simple, erect, shiny, 0.2–0.5 mm long; *young twigs* densely hirtellous, the hairs persisting until the first bark falls, the older twigs glabrescent, gray to reddish brown, with the surface minutely flaky. LEAF BLADES ovate to elliptic, 2–11 cm long, 1.7–5.5 cm wide. 1–2(–2.3) times as long as wide, submembranous, drying dark reddish brown or black, dull above, covered with hairs below; *apex* obtuse to rounded , less often acute; *base* broadly rounded to truncate; *petiole* 2–11 mm long, ca. 1.5 mm wide, densely hirtellous; *venation* brochidodromous, the midvein impressed, hairy above, prominent below, the lateral veins 6–10, flat or impressed above, prominent below, the angle of divergence ca. 60–80 degrees, the much weaker tertiary veins dendritically branched between laterals, the marginal vein somewhat weaker than laterals, 1–3.5 mm from the margin. FLOWER BUDS obovoid, 2.5–4 mm long, the hypanthium obconic, 1–1.5 mm long, the distal portion of bud suborbicular, 1.5–2.5 mm long; *indumentum pattern of buds* with all external surfaces hirtellous, the petals less densely covered than calyx and hypanthium, the disk and style glabrous; *peduncles* 1–3(–7)-flowered, 3–10 mm long, ca. 0.5 mm wide, the lateral flowers of the dichasium sessile or on branches up to 4 mm long; *bracteoles* linear, 1–3 mm long, densely hirtellous, caducous at or before anthesis. CALYX bowl-like, with a sinuate margin, the lobes scarcely evident; *petals* ca. 4–6 mm long, suborbicular to obovate, hirtellous without, glabrous within; *stamens* 175–200, ca. 5 mm long; *anthers* ca. 0.5 mm long, suborbicular, with a solitary terminal gland; *style* ca. 6 mm long; *ovary* 3-locular; *ovules* 12–20 per locule, reflexed on a peltate placenta. Fruit unknown. (Description based in part on original description of McVaugh,1956.)

Additional specimen examined. PERU. **Amazonas**: Luya, Tingo, Cuelap, dentro de la fortaleza de Cuelap (6.42°S, 77.92°W), 4 Sep 1998 (fl), *Vásquez 25480* (ASU0007296, MO).

Phenology—Flowering in September.

Habitat and Distribution—Known from type collection at "Chachapoyas" and nearby the Cuelap (Kuelap) archaeological site, Amazonas, Peru; possibly a single locality.

Distinguishing Features—Indumentum golden-yellow or silvery hirtellous on lower leaf surface, young twigs and most floral surfaces, the hairs simple, erect, shiny, 0.2–0.5 mm long; flower buds obovoid, 2.5–4 mm long, often borne in 3-flowered dichasia, the calyx bowl-like, with a sinuate margin, the lobes scarcely evident.

The Mathews specimens appear to be a mixture of two collections, or perhaps from different parts of the same plant. The holotype and presumed isotypes have shorter, suborbicular leaves and other specimens have longer, elliptic leaves.

19. *Psidium ganevii* Landrum & Funch, Novon 18(1): 75. 2008. TYPE: Brazil. Bahia: Mun. de Abaíra: Engenho de Baixo-Catolés, próximo ao Rio do Ribeirão, 13º18'S, 41º 49'W, 950 m, carrasco com solo arenoso, 20 Nov. 1992 (fl), *Wilson Ganev 1518* (HOLOTYPE: HUEFS!; ISOTYPE: SPF-86814) and *Irwin, Harley & Smith 30790* (PARATYPE: NY-1104781!). Fig. 26

Shrub to ca. 3 m high, minutely puberulent on young twigs, leaf bases, and some floral surfaces, otherwise glabrous; *hairs* whitish to reddish brown, to ca. 0.1 mm long, erect; *young twigs* moderately puberulent, the hairs persisting until juvenile bark falls, the young bark reddish brown to gray, falling in strip-like scales, the older twigs gray, somewhat rough with longitudinal ridges and cracks. LEAF BLADES obovate, oblanceolate, or elliptic, 1.5–4(–5.3) cm long, 0.8–3 cm wide, 1.1–2.5 times as long as wide, *blades* coriaceous, densely glandular, with raised glands on both surfaces, drying reddish brown to yellowish tan, lighter below, the upper surface often tinged with gray, often somewhat lustrous, the margins revolute; *apex* rounded to obtuse, often emarginate; *base* acute, cuneate, acuminate, or rounded; *petiole* channeled, puberulent, 1–3 mm long, 1–1.5 mm thick; *venation* brochidodromous, the midvein flat to slightly impressed above, moderately prominent below, the lateral veins usually obscure, to ca. 9 pairs, scarcely visible, leaving midvein at ca. 45°, the marginal vein indistinct, apparently closely following the margin. FLOWER BUDS pyriform to campanulate, 7–9 mm long, the hypanthium obconic to funnel-form, 4–5 mm long, the distal portion of bud truncate to compressed orbicular, 3–4 mm long; *indumentum pattern of buds* with all surfaces glabrous or with only scattered minute hairs, or the disk and calyx within densely appressed puberulent; *peduncles* 10–22 mm long, 1–1.2 mm wide, somewhat flattened, glabrous to sparsely puberulent, borne in the axils of leaves or bracts; bracteoles linear, 1.5–2 mm long, sparsely puberulent. CALYX bowl-like, fused beyond ovary summit for 3–4 mm, open distally as a large apical pore, the pore margin merely sinuate, without notable lobes, the tubular portion of the calyx tearing irregularly 3–4 mm to staminal ring at anthesis in 4–5 lobes; mature *petals* unknown; *disk* ca. 5 mm across after anthesis; *stamens* over 100, 8–10 mm long; *anthers* 0.5–0.7 mm long, with 1 terminal gland in the connective; *style* 8–10 mm, glabrous, the stigma ca. 0.3 mm wide or less ; *ovary* 3-locular; *ovules* 12 –14 per locule, the placenta subpeltate. FRUIT glabrous, globose, 1.5–2.5 cm long; seeds probably fewer than 10, ca. 7 mm long.

Representative specimens examined. BRAZIL. **Bahia**: Chapada Diamantina, BR- 142, 4 km de Seabra (estrada Seabra-Barreira), (12.42°S, 41.80°W), 935 m, 6 Aug 1996 (fr), *Araujo 1266* (ASU0074798); 11 km W de Morro do Chapéu, (11.52°S, 41.26°W), 1085 m, 2 May 1999, *França 2834* (ASU0057322); Morro do Chapéu, Cachoeira do Rio Ferro Doldo, trilha que liga estrada do feijão ao vale, (11.63°S, 40.99°W), 840 m, 2 May 1999 (fr), *França 2767* (ASU0007302); Abaíra, Brejo do Engenho, (13.30°S, 41.80°W), 950 m, 27 Dec 1992 (fl), *Hind H-50463* (ASU0007304); ca. 26 km N of Seabra, road to Água de Rega, near Rio Riachão, Serra da Água de Rega, (12.17°S, 41.80°W), 1000 m, 23 Feb 1971 (fr), *Irwin et al. 30790* (NY); Abaíra, Catolés, encosta da Serra da Tromba, (13.29°S, 41.80°W), 830 m, 7 Feb 1999 (fr), *Miranda 447* (ASU0007300); Campo Formoso, Serra dos morgados, (10.24°S, 40.27°W), 819 m, 14 Apr 2006 (fl), *Santos 561* (ASU0014351); Abaíra, Mendonça de Daniel Abréu, (13.27°S, 41.82°W), 940 m, 25 Feb 1992 (fr), *Stannard H-51603* (ASU0007305). **Minas Gerais**: Santo Antônio do Retiro, Sítio 16, Ponto 1, (15.35°S, 42.50°W), 21 Mar 2017 (yfr), *Sevilhas et al. 6747* (CEN-seen as image only).

Phenology—Collected in flower in November, probably continuing to January based on specimen with young fruits; collected in fruit in February, April, May, and August.

Habitat and Distribution—*Psidium ganevii* is found in caatinga and savanna vegetation, in sandy soils, at elevations of 800–1200 m. Endemic to central Bahia.

Distinguishing Features—Glabrous except for by being minutely puberulent on young twigs, leaf bases, and some floral surfaces; leaves rarely over 4 cm long, densely glandular on both surfaces and commonly with emarginate apices; calyx bowl-like with a large apical pore, densely puberulent within.

Psidium ganevii was compared with *P. cattleyanum* when described (Landrum & Funch 2008). It is also similar to *P. brownianum*. I have found one specimen that I believe to be a hybrid between these species (*Ganev 3255* at HUEFS). The key below distinguishes these two taxa.

1. Flower bud 7–8 mm long, the calyx bowl-like with a large terminal pore, tearing regularly in 4–5 lobes; leaves obovate, oblanceolate, or elliptic, 1.5–4(–5.3) cm long, the blade coriaceous, the venation obscure; petiole 1–3 mm long; base never cordate; apex rounded, often emarginated; peduncle 10–22 mm long; fruit 1.5–2.5 cm long; seed 7–10 mm long ..... ***P. ganevii***

1' Flower bud 4–13 mm long, the calyx usually closed and apiculate, less often with a terminal pore, falling as a calyptra or tearing irregularly, or regularly in 4 or 5 lobes; leaves ovate, lanceolate, lanceolate-oblong (rarely elliptic), the blade subcoriaceous, the venation usually prominent, the veins often impressed or raised above; petiole 0–4(–5) mm long; base often cordate; apex usually acute; peduncle 2–30 mm long; fruit 0.5–1(–1.7) cm long; seed 3–4 mm long ..... ***P. brownianum***

20. *Psidium glaziovianum* Kiaersk., Enum. Myrt. bras. 33, tab. 3, fig. a-c. 1893. TYPE. Brazil. *Glaziou 13861* (SYNTYPE: C-10015955 [with illustration], designated here as LECTOTYPE. ISOLECTOTYPES: P-258461!, K-170077) and *Glaziou 13870* (SYNTYPE: C-10015954. ISOSYNTYPES: BR-526986, F-65696!, G-227698!, P-258459!, P-258460!). Fig. 27

Tree ca. 5 m high, moderately to sparsely puberulent on young growth and leaves; *hairs* whitish or yellowish, up to ca. 0.5 mm long, antrorse, somewhat appressed; *young twigs* moderately puberulent, light brown to greenish, becoming gray with age, remaining smooth, the bark of older twigs becoming scaly. LEAF BLADES elliptic to lanceolate, 3.8–7 cm long, 1.2–2.4 cm wide, 2.5–3.2 times as long as wide, membranous to submembranous, drying gray-green to dark reddish brown, sometimes whitish below (apparently with wax), very sparsely pubescent, or moderately so along midvein above, with 20–30 glands per mm², with subacicular, stipule-like colleters often present at the base of the petiole, the margin sinuate; *apex* acute, acuminate, or less often rounded; *base* cuneate to acuminate; *petiole* 1–2 mm long, 0.7–1 mm wide, more or less flat, puberulent, sometimes scarcely distinguishable from blade; *venation* brochidodromous, the midvein about flat above, moderately prominent below, the lateral veins weak, 5–9 pairs, scarcely visible, leaving midvein at ca. 45°, the marginal vein broadly arching between the laterals, faint. FLOWER BUDS pyriform, 4–5 mm long, glabrous to puberulent, the hypanthium campanulate, 2–2.5 mm long, the distal portion of bud subglobose to ovoid, 2–3 mm long; *indumentum pattern of buds* with outer surfaces and calyx apically within puberulent (perhaps sometimes glabrous), with calyx proximally within, style and disk glabrous; *peduncles* uniflorous, 6–15 mm long, ca. 0.3 mm wide, borne in axils of leaves or at leafless nodes (possibly where bracts have fallen), remaining puberulent; *bracteoles* linear to filiform, 1–3 mm long, mostly caducous at anthesis. CALYX nearly closed in bud, with 4 or 5 wart-like apical lobes, at anthesis tearing into 2–4 irregular lobes 2–3 mm long, these mostly persisting until fruit matures; *petals* obovate to suborbicular, ca. 2 mm long; *disk* in fruit ca. 1.5 mm across, glabrous; *stamens* 120–147; *anthers* ca. 0.3 mm long, with a single terminal gland; *style* ca.

3 mm long; *ovary* 2–3-locular; *ovules* 18–23. FRUIT globose, ca. 6 mm long (excluding calyx), glabrescent; *seeds* 7–8 per fruit, ca. 2.5–3 mm long.

Representative specimens examined. BRAZIL. Bahia: ca. 11–17 km a W de Jequié, estrada a Lafayete Coutinho, (13.87°S, 40.17°W), 19 Nov 1978 (fl), *Mori et al. 11212* (CEPEC, NY); Manoel Vitorino, Rod. M. Vitorino/Caatingal, km 8, (14.20°S, 40.20°W), 16 Feb 1979 *Mattos Silva et al. 281* (ASU0075447, CEPEC, NY). **Minas Gerais**: Berizal, (15.73°S, 41.79°W), 6 Dec 2016 (bud), *Sevilhas et al. 6234* (CEN-seen as image only); 7 km E of Monte Azul towards and beyond Vila Angical on rd., then 1 hr 45 min on foot ascending the Serra Geral above Vila Angical, (15.15°S, 43.00°W), 840 m, 28 Jan 1991 (fr), *Taylor et al. 1466* (ASU0030919); São Gonçalo do Rio Abaixo, Est. Ambiental de Peti, (19.89°S, 43.37°W), 750 m, 2 Nov 2014 (fl), *Vasconcelos 473* (ASU0301447).

Phenology—Flowering in November; fruiting in January and February.

Habitat and Distribution—Caatinga; growing at about 840 m in Minas Gerais; known only from Minas Gerais and Bahia.

Distinguishing Features—Calyx closed or nearly closed in bud, with (4–)5 wart-like abaxial protrusions to ca. 0.5 mm long; leaves membranous to submembranous at anthesis; petals ca. 2 mm long; fruit ca. 6 mm long.

21. *Psidium grandifolium* DC., Prodr. 3: 234. 1828. TYPE. Brazil. "ad Ypanema prov. S. Pauli," *Martius s.n.* (HOLOTYPE: M-32375). Figs. 28, 77A

Psidium cinereum DC., Prodr. 3: 234. 1828. TYPE. Brazil. "prov. Sancti Pauli," *Martius s.n.* (HOLOTYPE: M-146757).

Psidium incanescens DC., Prodr. 3: 234. 1828. TYPE. Brazil. "prope Taubate prov. S. Pauli," *Martius s.n*. (HOLOTYPE: M-32378; ISOTYPE: BR-528845!).

Psidium ternatifolium Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 278. 1833. TYPE. Brazil. "Fazenda das Lages in provincia S. Pauli," *Saint-Hilaire s.n.* (HOLOTYPE: P-258455!).

Psidium microcarpum Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2. 284. TYPE. Minas Gerais. "S. João del Rey". *Saint-Hilaire s.n.* (HOLOTYPE: P-258421!; ISOTYPE: F-65705, fragment).

Psidium grandifolium *var.* ***genuinum*** O. Berg, in Mart., Fl. bras. 14(1): 406. 1857. Illegitimate name to be replaced by the autonym *P. grandifolium* var. *grandifolium* because Berg cites *P. grandifolium* under this variety.

Psidium grandifolium var. ***intermedium*** O. Berg, in Mart., Fl. bras. 14(1): 407. 1857. TYPE. Brazil. "prov. Rio Grande do Sul," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258453! [isotype designated as lectotype by Landrum, 2005]; ISOLECTOTYPE: P-258454!).

Psidium grandifolium var. ***ternatifolium*** (Cambess.) O. Berg, in Mart., Fl. bras. 14(1): 407. 1857.

Psidium grandifolium var. ***heterophyllum*** O. Berg, in Mart., Fl. bras. 14(1): 407. 1857. TYPE. Brazil. "prov. Minarum," *Claussen 1527* (HOLOTYPE: W-16677; ISOTYPE: LE-6980).

Psidium grandifolium var. ***tenuinerve*** O. Berg, in Mart., Fl. bras. 14(1): 407. 1857. TYPE. Brazil. "prov. Minarum prope urbem S. João," *Pohl 3630* (HOLOTYPE: W-16681).

Psidium grandifolium var. ***parvifolium*** O. Berg, in Mart., Fl. Bras. 14(1):407. 1857. TYPE: BRAZIL: "prov. Minarum," *Regnell I-129* (HOLOTYPE: MEL-2101230; ISOTYPE: P-258457!).

Psidium cinereum var. ***angustifolium*** O. Berg, in Mart., Fl. bras. 14(1): 404. 1857. Illegitimate name to be replaced by the autonym *P. cinereum var. cinereum* because Berg cites *P. cinereum* under this variety.

Psidium cinereum var. ***brevipes*** O. Berg, in Mart., Fl. bras. 14(1): 404. 1857. TYPE. Brazil. "in prov. Minarum," *Claussen 527* (HOLOTYPE: BR-843772; ISOTYPES: G [= F-neg. 23492], K-565481).

Psidium cinereum var. ***intermedium*** O. Berg, in Mart., Fl. bras. 14(1): 404. 1857. TYPE. Brazil. "prope urbem Barbacena prov. Minarum," *St. Hilaire s.n.* (SYNTYPE: B, lost) and "ad Urbem Ypanema prov. S. Pauli," *Sellow s.n.*, (SYNTYPE: B, lost; LECTOTYPE: P-258482! [isosyntype designated lectotype

by Landrum, 2005]; remaining ISOSYNTYPES, P-258480! in part, mixed sheet, K-565480 in part, mixed sheet).

Psidium incanescens var. ***parvifolium*** O. Berg, in Mart., Fl. bras. 14(1): 403. 1857. TYPE. Brazil. "v. in. herb. Sond. et Mart," "prov. Minarum prope urbem S. João del Rey," *St. Hilaire s.n.* (no specimens found), *Widgren 529* (SYNTYPE; MEL-1007480; ISOSYNTYPES: LE-6982, R-162761!), and "Chapeo d'Uvas," *White 4163* (SYNTYPE: BR-843775).

Psidium incanescens var. ***rotundifolium*** O. Berg, in Mart., Fl. bras. 14(1): 403. 1857. TYPE. Brazil. "prov. Rio Grande do Sul," *Sellow s.n.* (SYNTYPE: B, lost) and "S. Rita et S. João Baptista," *Pohl 500* (SYNTYPE: B, lost; LECTOTYPE: W-46100!, [isosyntype designated as lectotype by Landrum, 2005]) and "ad Paracatu," *Pohl 729* (SYNTYPE: B, lost; ISOSYNTYPE: W-48297!).

Psidium incanescens var. ***cuneatum*** O. Berg, in Mart., Fl. bras. 14(1): 403. 1857. Illegitimate name to be replaced by the autonym *P. incanescens* var. *incanescens* because Berg cites *P. incanescens* under this variety.

Psidium cuneatum var. ***incanescens*** O. Berg, in Mart., Fl. bras. 14(1): 405. 1857. TYPE. Brazil. "in eadem prov," [i.e., Minas Gerais], *Regnell I-129* (HOLOTYPE: MEL-2101229; ISOTYPE: U-5181).

Psidium grandifolium var. ***albidum*** O. Berg, in Mart., Fl. bras. 14(1): 603. 1859. TYPE. Brazil. "Prope Pindamonhangaba et Taubate," *Riedel* [*1379*]. (HOLOTYPE: LE-6979).

Psidium grandifolium var. ***incanescens*** O. Berg, in Mart., Fl. bras. 14(1): 603. 1859. TYPE. Brazil. "Prope Pindamonhangaba et Taubate," *Riedel* [*1379*]. (HOLOTYPE: LE-6981).

Psidium riedelianum O. Berg, in Mart., Fl. bras. 14(1): 603. 1859. TYPE. Brazil. "prope villam Jaguara prov. Minarum," *Riedel s.n.* (apparent HOLOTYPE, LE-7001).

Guajava incanescens (DC.) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Guajava grandifolia (DC.) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Guajava cinerea (DC.) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Guajava riedeliana (O. Berg) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Guajava microcarpa (Cambess.) Kuntze, Rev. Gen. Pl. 1: 239. 1891.

Psidium eriophyllum Barb. Rodr., Myrt. Paraguay 12. 1903. TYPE. Paraguay. "vicine Rio Igatemy, prope Yerbales Serra Maracayu," *Hassler 5659* (HOLOTYPE: G-194090 [2 sheets]).

Psidium lanatum Barb. Rodr., Myrt. Paraguay 13. 1903. TYPE. Paraguay. "Ipe hu.....Serra Maracayu," *Hassler 5263* (HOLOTYPE: G-194092).

Psidium spodophyllum Barb. Rodr., Myrt. Paraguay 14. 1903. TYPE. Paraguay. "prope Rio Corrientes," *Hassler 4521* (HOLOTYPE: G-194093).

Psidium apaense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 798. 1907, nomen nudum. CITED COLLECTION. Paraguay. "in regione cursus superioris fluminis Apa," *Hassler 8529* (G [= ASU photo]).

Psidium paraguayense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 798. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Igatimi," *Hassler 4831* (G [3 sheets, = ASU photos], BM-511330).

Psidium psychrophyllum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "in alta-planitie Loma guazu in valle fluminis Y-aca," *Hassler 6805* (G [2 sheets, = ASU photos]).

Psidium yacaense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Valenzuela," *Hassler 7099* (G [= ASU photo]).

Psidium cinereum var. ***paraguariae*** D. Legrand, Fl. Illustr. Catarin., Mirtáceas 694. 1977. TYPE. Paraguay. *Rosengurtt 5407* (HOLOTYPE: MVM) and *Pedersen 4366* (PARATYPE: MVM?; ISOPARATYPES: MO!, NY! [= ASU photo], SI-3060).

Psidium cinereum DC. var. ***incanescens*** (DC.) D. Legrand, Fl. Illustr. Catarin., Mirtáceas, 692. 1977.

Shrub to ca. 1.5 m high, densely white tomentose or pubescent on young growth; *hairs* white (sometimes with a reddish brown tinge), up to ca. 1.5 mm long; *young twigs* often square in cross section, especially in vigorous growth, densely white tomentose. LEAF BLADES elliptic, obovate, oblanceolate, lanceolate, (rarely suborbicular), 3.6–12 cm long, 2–5.8 cm wide, 1.7–3 times as long as wide, subcoriaceous to stiffly coriaceous, dull to lustrous above, drying dark reddish brown to gray-green, densely white tomentose below,

sparsely hairy to glabrescent above when mature, often with somewhat longer, persistent hairs along the midvein above; *apex* acute, rounded, acuminate, often with a cuspidate tip; *base* acute, obtuse, rounded, or cuneate; *petiole* 1–6 mm long, 1–2 mm thick, channeled or not; *venation* usually eucamptodromous proximally to brochidodromous distally, the midvein impressed to flat above, prominent below, the lateral veins usually 4–7, ascending, a clear marginal vein not present, the smaller tertiary veins obscure or forming an irregular reticulate pattern, sometimes impressed above. FLOWER BUDS pyriform, campanulate, or subobconic, densely white tomentose, 7–15 mm long, the hypanthium obconic, 2.5–7 mm long, the distal portion of bud subglobose, 4–9 mm long; *indumentum pattern of buds* with all external surfaces except petals tomentose to pubescent, the bracteoles glabrous to tomentose within, the petals glabrous to pubescent without, glabrous within, the calyx densely covered with hairs within at least distally, the disk subglabrous to pubescent, the style glabrous; *peduncles* 0.2–5 cm long, 1–2 mm thick; *bracteoles* linear to narrowly elliptic, 2–8 mm long. CALYX nearly closed except for a terminal pore, with small lobes around the margin of the pore that are wider than long, to bowl-like with clearly distinguishable deltoid lobes that are up to 3 mm long and wide, the fused tubular portion of the calyx 1–4 mm long, tearing between the lobes or irregularly at anthesis, the tears sometimes cutting the staminal ring; *petals* elliptic to obovate, 9–10 mm long; *disk* 5–9 mm across; stamens (80–)260–560, 4–11 mm long; *anthers* oblong, 0.8–1 mm long, with 1–3 glands in the connective; *style* 5–10 mm long; *ovary* 2–5-locular, or sometimes the locules not completely fused; *ovules* 25–80 per locule, ca. 6-seriate, the placenta axile but not peltate, hidden by an obconic mass of ovules, sometimes partially parietal when locules are not completely fused. FRUIT subglobose, 1–2.5 cm in diameter; *seeds* (2–)3–4(–6) mm long, smooth, rounded, 19–85 per fruit, frequently attacked by insects and larger than normal.

Representative specimens examined. ARGENTINA. **Corrientes**: Dep. Ituzaingó, 7 km S of Rio Aguapey on Ruta 39, (27.58°S, 56.25°W), 9 Dec 1987 (fl), *Landrum 5704* (ASU0007321). **Misiones**: San Ignacio, ca. 3 km along road to Peña Victoria, Teyú Cuaré, (27.25°S, 55.58°W), 10 Dec 1987 (fl), *Landrum 5717* (ASU0007323); San Ignacio, new road to Loreto, ca. 1 km from Ruta 12, (27.26°S, 55.54°W), 11 Dec 1987 (fl), *Landrum 5733* (ASU0007371).

BOLIVIA. **Chuquisaca**: Pcia. L. Calvo, Entrada al Valle Itangua, (20.45°S, 63.67°W), 1310 m, 11 Apr 1993, *Saravia et al. 11705* (CTES). **Santa Cruz**: Prov. Chiquitos, 3–5 km a NE de Santiago de Chiquitos, (18°20'S, 59°35'W), 22 Oct 1994 (fl), *Vargas 3496* (ASU0007387); Santiago de Chiquitos, medio km de la Plaza en el camino a Soledad, (18.34°S, 59.60°W), 610 m, 3 Nov 2007 (fl), *Wood 23727* (ASU0313736).

BRAZIL. **Bahia**: 6 km S de Caetité camino a Brejinho das Ametistas, (14.03°S, 42.53°W), 20 Nov 1992 (fl), *Arbo 5627* (ASU0007390); Rio de Contas, Serra do Mato Grosso., (13.39°S, 41.89°W), 1340 m, 3 Feb 1997 (fr), *Harley 4993* (HUEFS); Ibiquara, 25 km ao N de Barra da Estiva na estrada novo para Mucugê, (13.42°S, 41.30°W), 20 Nov 1988 (fl), *Harley 26964* (ASU0007317); 15 km de Riacho de Cima na estrada para Mucugê, (13.24°S, 41.53°W), 1140 m, 5 Feb 1999 (fr), *Miranda 55* (ASU0007326); Licínio de Almeida, (14.70°S, 42.56°W), 1020 m, 29 Oct 2012, *Stadnik 114* (ASU0075037-photo); Piatã, Próximo a serra do Gentio (Gerais, entre Piatã e Serra da Tromba), (13.15°S, 41.80°W), 21 Dec 1984 (fl), *Stannard et al. 7418* (ASU0006714). **Distrito Federal**: Brasilia, Rodovia da RECOR no trecho entre a RECOR e DNER, (15.78°S, 47.93°W), 20 Nov 1978 (fl), *Heringer 17180* (ASU0007360); Chapada da Contagem, road NE edge Parque Nacional de Brasilia. 2 km N on Rua 4, (15.78°S, 47.92°W), 1160 m, 10 Sep 1995 (st), *Proença 1469* (ASU0007369, UB). **Goias**: Minaçu, a 8.9 km do norte do canteiro de obras, (13.48°S, 48.40°W), 11 Mar 1992 (fr), *Cavalcanti et al. 1155* (ASU0006715); Niquelândia, ca. de 6 km da Vila Macêdo em direção à mina de níquel, (14.36°S, 48.41°W), 30 May 1996 (fl), *Fonseca et al. 976* (ASU0006716); São Gabriel, arredores, (15.20°S, 47.57°W), 7 Nov 1991 (fl), *Hatschbach 55874* (ASU0007363); Serra do Caiapó, ca. 37 km S of Caiapônia on rd. to Jataí, (17.20°S, 51.78°W), 800 m, 22 Oct 1964 (fl), *Irwin & Soderstom 7173* (MICH, MO, NY); Setor Sul, Anápolis, (16.33°S, 48.95°W), 20 Dec 2005 (yfr), *Faria 195* (ASU0018566). **Mato Grosso do Sul**: Rod. MT-624, 5 km W de Tacuru, (23.62°S, 55.02°W), 16 Dec 1983 (fl, yfr), *Hatschbach 47309*

(ASU0007340); Rod. BR-267, 20 km O de Maracaju, (22.00°S, 55.00°W), 25 Oct 1988, *Hatschbach 52614* (ASU0007364); Ponta Porã, Rod. MS-164, Fazenda Itamarati, (22.19°S, 55.58°W), 700 m, 11 Mar 2004, *Hatschbach 76918* (ASU0059730). **Minas Gerais**: Itatiauçu, (20.23°S, 44.38°W), 1 Jan 1970, *Castro* s.n. (ASU0069328-photos); Ressaquinha, (21.07°S, 43.77°W), 2 Dec 1946 *Duarte 737* (RB); Joaquin Felício, Serra do Cabral, Bocaina, (17.77°S, 44.15°W), 23 Nov 1984 (fl), *Giulietti et al. CFCR 6399* (ASU0007388); Indianópolis, Fazenda Bela Tanda, (19.05°S, 47.95°W), 850 m, 27 Sep 1990 (fl), *Gottsberger 11-27990* (ASU0007315); Alto Paranaiba, 14 km NW de Araxá camino a Uberlândia, (19.58°S, 46.92°W), 30 Jan 1978 *Krapovickas et al. 33344* (CTES); Córrego Fundo, BR-365, 25 km E de Ituiutaba, (19.32°S, 49.38°W), 4 Jan 1989 (fr), *Krapovickas 42785* (ASU0007320, CTES); Serra do Cipó, between Veu da Noiva and Alto do Palacio, (19.25°S, 43.67°W), 1000 m, 31 Jan 1984 (yfr), *Landrum 4245* (NY); Diamantina, Area de Proteção Ambiental Pau de Fruta, (18.26°S, 43.65°W), 14 Feb 2001 (fl), *Lombardi 4259* (ASU0007381); Ituiutaba, (18.97°S, 49.47°W), 16 Oct 1949 (fl), *Macedo 1970* (MO, NY); Montes Claros, Serra do Cattani, (16.72°S, 43.87°W), 1000 m, 9 Nov 1938 (fl), *Markgraf et al. 3219* (RB); Pocas de Caldas, (21.92°S, 46.39°W), 1 Jan 1970 *Rohan s.n.* (R). **Paraná**: Curitiba, Parque Iguaçu, (25.49°S, 49.19°W), 1 Jan 1970 (yfr), *Cordeiro 217* (ASU0007366); Arapoti, (24.17°S, 49.67°W), 25 Oct 1961, *Hatschbach 8513* (MBM); Ponta Grossa, Parque Vila Velha, (25.08°S, 50.15°W), 25 Feb 1967, *Hatschbach et al. 13293* (MBM); Bocaiúva do Sul, arredores, (25.18°S, 49.13°W), 5 Dec 1978 (fl), *Hatschbach 41927* (CTES, MBM); Jaguariaíva, Rio das Mortes, (24.25°S, 49.70°W), 25 Nov 1980 (fl), *Hatschbach 43388* (ASU0007328); Alm. Tamandaré, Rod. dos Mineiros, Rio Barigui, (25.30°S, 49.32°W), 9 Feb 1982 (fl), *Hatschbach 44566* (MBM); Jaquariaíva, road to Arapoti near boundary, (24.13°S, 49.33°W), 850 m, 17 Jan 1965, *Smith 14702* (R). **São Paulo**: Mogi Guaçu, 3.7 km NNW of Padua Sales, (22.19°S, 47.12°W), 575 m, 13 Dec 1962 (fr), *Eiten & Eiten 5069* (MO, SP); Itapetininga, (23.60°S, 48.05°W), 13 Nov 1946 (fl), *de Lima 58118* (RB); Mogi Guaçu, Fazenda Campininha, (22.37°S, 46.95°W), 28 Oct 1961 (fr), *Mattos 9655* (SP); Itararé, perto da ponte do Rio Itararé, (22.25°S, 47.82°W), 1 Jan 1970 (fl), *Mattos & Moura 12920* (SPF); Aguai, km 32 da rodovia Mogi Guaçu - Casa Branca, (22.07°S, 46.97°W), 8 Nov 1966 (fr), *Mattos & Mattos 14153* (SP); Itaberá, quase na divisa Itaberá-Itapeva, (23.85°S, 49.15°W), 7 Dec 1966 (fr), *Mattos & Mattos 14296* (SP); Cidade Universitaria, (22.82°S, 47.08°W), 24 Jul 1984, *Pirani 830* (ASU0008014); Itararé, Faz. Espinho, (24.24°S, 49.24°W), 21 Apr 1993, *Souza et al. 3225* (SP); Avaré, ca. 5 km da cidade em direção a Itai, (23.20°S, 48.98°W), 24 Jan 1996 (fr), *Souza et al. 10407* (ASU0007377); Angatuba, estrada para Itatinga, ca. 29 km de Angatuba, (23.30°S, 48.52°W), 610 m, 2 Jan 1996 (yfr), *Souza et al. 10745* (ASU0007330); Rancheria, Rod. Raposo Tavares, Km 516,5, (22.41°S, 51.04°W), 430 m, 14 Feb 1996 (fr), *Souza 10896* (ASU0007346). **Tocantins**: Gurupi, 1 km S of Gurupi, (11.72°S, 49.01°W), 26 Dec 1969 (fr), *Eiten 10030* (SP, US).

MEXICO. **Oaxaca**: Santiago Niltepec, 22 km NW of Zanatepec, along hwy 190 (Pan-Americana), (16.55°S, 94.64°W), 100 m, 10 Jul 1958 (fl), *King 476* (ASU0294042-photos, MICH, US).

PARAGUAY. Amambay: 25 km S de Bella Vista, (22.33°S, 56.33°W), 26 Oct 1994 (fl), *Krapovickas 46065* (ASU0006709); Colonia Pai Tavytera, camino a Lorito Picada, (22.7°S, 56°W), 23 Feb 1997, *Soria 7867* (ASU0052790). **Caaguazú**: Arroyo Yuquyry-Arroyo Tarumá, 4 km N of Arroyo Yuquyry, (25°13'S, 55°55'W), 12 Jan 1991 (fr), *Zardini & Velazquez 25882* (ASU0007314); Tavaí, Destacamento militar, (26.17°S, 55.33°W), 30 Oct 1988 (fl), *Basualdo 1732* (ASU0007325); Ygatimí, Res. Natural del Bosque Mbaracayú, Nandurocai (ca. 24°10'S, 55°40'W), 220 m, 19 Nov 1995 (fl), *Landrum 8855* (ASU0006717). **Canindeyú**: Nandurocai., (23.99°S, 55.48°W), 31 Oct 1998 (fl), *Zardini & Chaparro 49442* (ASU0007351). **Concepción**: Estancia Lapuri, between Estancia Arrecife and road to Valle Mi, (22.36°S, 57.48°W), 300 m, 15 Jan 2000 (fr), *Zardini 53812* (ASU0298674); around Sargento José E. Lopez ('Puentecinho'), (22.38°S, 56.90°W), 16 Jan 2000 (fr), *Zardini & Guerrero 53956* (ASU0007350). **Cordillera**: road Eusebio Ayala - Parque Nacional Vapor Cué, Arroyo Yakarey, (25.50°S, 56.83°W), 7 Jul 1990 (st), *Zardini 21971* (ASU0052791). **Itapua**: Capitán Miranda, 4.2 km N del Hotel Tirol, detras del Barrio CONAVI., (27.22°S, 55.80°W), 7 Oct 1993 (fl), *Krapovickas 44444* (ASU0007373, CTES); road to Jesús, 0.6 km from main highway (ca. 27°12'S, 55°45'W), 185 m, 9 Nov 1995 (fl), *Landrum 8810* (ASU0007327). **Misiones**: San Juan Bautista, 8.5 km along road to Pilar, (26.69°S, 57.21°W), 8 Nov 1995 (st), *Landrum 8792* (ASU0007334); rt. 1 ca. 4 km E of road to Ayolas at km A262 (ca. 27°5'S, 56°40'W), 8 Nov 1995 (fl), *Landrum 8794* (ASU0007337). **Paraguarí**: ca. 2.6–2.7 km W of Rt. 1 on road to Lago Ypoá, (26°S, 57°15'W), 7 Nov 1995 (fl), *Landrum 8784* (ASU0006712); Parque Nacional Ybycuí, Campo cerrado en NE corner of park on Arroyo Corrientes near Salto Mbocaruzú, (26.05°S, 56.83°W), 21 Dec 1988 (fl), *Zardini 9020-A* (ASU0007379). **San Pedro**: 36 km N de Tacuara, Ea. La Manina, (24°22'S, 56°24'W), 21 Oct 1994 (fl), *Krapovickas 45798* (ASU0007386, CTES); 70 km N de Tacuara, (24°1'S, 56°5'W), 15 Dec 1986 (fr), *Perez et al. 1465* (ASU0007341, CTES).

Phenology—Flowering throughout year but mainly from October to December; fruiting throughout year but mainly from November to March.

Habitat and Distribution—Northeast Argentina, Paraguay, Bolivia, and Brazil (Santa Catarina to Bahia); campo and cerrado at 800 to 1200 m. One disjunct population in Oaxaca, Mexico needs further investigation.

Distinguishing Features—Hypanthium and lower surface of at least young leaves densely covered with whitish hairs, the hypanthium surface at anthesis usually obscured by hairs; *venation* usually eucamptodromous proximally to brochidodromous distally, the lateral veins usually 4–7 pairs, ascending; calyx open and bowl-like, to nearly closed.

Common names—Katuava in Paraguay.

Hybridization with *Psidium guineense* appears to be common and confusion with that species is possible. Below is a key that distinguishes *P. grandifolium* from *P. guineense*.

1. Anthers elongate, 1–3 mm long, usually 3–6 times as long as wide; placenta laminar, sometimes peltate; tertiary veins often producing a ladder-like pattern; hairs of lower leaf surface usually more or less erect, mostly nearly straight, usually reddish brown, less often silvery to grayish.....***P. guineense***

1' Anthers not elongate, 0.5–1 mm long, about 2 times as long as wide; placenta mound-like, not laminar or peltate; tertiary veins reticulate; hairs of lower leaf surface generally appressed and straight to densely tangled, usually whitish.....***P. grandifolium***

***Psidium grandifolium* complex**—The *Psidium grandifolium* complex (Landrum 2005a), which originally included *P. grandifolium*, *P. australe*, *P. missionum*, and *P. suffruticosum*, is taxonomically difficult because of the frequency of intermediate specimens. It is most problematic in the southern part of its range from São Paulo to Paraguay and southward to Argentina. I have discussed the group in an earlier paper (Landrum 2022) with several images and will not repeat that analysis here. I include here an expanded table (Table 3) from the 2022 paper comparing the original entities plus one additional species, *Psidium ratterianum* Proença & Soares-Silva of central Brazil (Proença et al. 2011) described since my 2005 paper.

I previously recognized *Psidium suffruticosum* as a variety of *P. australe* (Landrum 2005a). I find that it is nearly always distinguishable from typical *P. australe*, and problems in distinguishing them may be principally caused by the condition of the specimens. I therefore now accept this taxon at the species level.

Table 3. Comparison of the common morphology of each species of the *Psidium grandifolium* complex

Name	Calyx in bud	Leaf surface	Hypanthium surface	Inflorescence	Common leaf shape	Special characteristics
P. grandifolium	Nearly closed, tearing irregularly at anthesis; more open in one morph of S Paraguay and Argentina	Densely covered with tangled white indumentum below; not lustrous above	Densely covered with tangled white indumentum	Dichasia not common	Elliptic, obovate, oblanceolate; 1.7–3 times as long as wide	None
P. australe	Open, the lobes broadly triangular, much wider than long; tears longer than the lobes forming between lobes at anthesis	var. *australe* Moderately covered with appressed hairs to glabrous below. var. *argenteum* of Brazil densely appressed pubescent. Neither var. lustrous above	Moderately covered with appressed hairs to glabrous	Dichasia not common	Obovate, oblanceolate; 1.5–3.5 times as long as wide	None
P. suffruticosum	Nearly closed at first, tearing into ca. 5 lobes at anthesis	Glabrous below; lustrous above	Glabrous	Dichasia common	Oblanceolate, narrowly oblanceolate, narrowly elliptic, obovate; 1.7–5.6 times as long as wide	None
P. missionum	Open, the lobes triangular, slightly wider than long; short tears forming between lobes at anthesis	Glabrous to subglabrous below; not lustrous above	Glabrous to densely covered with appressed hairs	Dichasia not common	Oblanceolate, obovate; 1.8–3.5 times as long as wide	None
P. ratterianum	Open, the lobes broadly triangular, much wider than long	Subglabrous to sparsely appressed pubescent on lower surface	Essentially glabrous, sparsely to moderately appressed pubescent, or with scattered hairs	Dichasia not common	Elliptic to oblanceolate or obovate	Venation prominent, raised below, impressed above; bracteoles persistent; leaves amphistomatic

22. *Psidium grazielae* Tuler & M. C. Souza, Phytotaxa 297 (1): 78. 2017. TYPE: BRAZIL. Espírito Santo. Conceição da Barra, Reserva Biológica de Córrego Grande, Floresta alta sobre tabuleiro, km 3, borda da trilha, elev. 40m, 14 Jan 2014 (fl, fr), *Tuler et al. 496* (HOLOTYPE: RB; ISOTYPES: VIES, K). Fig. 76B

The following description is from Tuler et al. (2017) but is slightly modified for comparison with other species. “Tree 3–12 m tall. Branches glabrous, irregularly exfoliating, gray colored, cylindrical, 1–3 mm in diameter. LEAF BLADES 4.5–11.5 cm long, 2–4.7 cm wide, elliptical, membranaceous to chartaceous, discolorous when dry, with glandular dots visible on both faces, glabrous, rarely glabrescent, the margins revolute; *apex* acuminate or acute; *base* cuneate; *petioles* 3–7 mm long, 0.5–1 mm wide, adaxially

canaliculate; *venation* brochidodromous; midvein sulcate on the upper surface, prominent abaxially, the lateral veins 12–14 per side, inconspicuous to slightly visible on both faces, the marginal vein 1–2 mm from the margin. *Inflorescences* borne in clusters on older branches or trunk, 1–8-flowered, with rachis 2.5–7 cm in length; basal bracts ovate or deltoid, free, 1–1.5 mm long, 0.5–0.8 mm wide, persisting after anthesis; *pedicels* 7–14 mm long, 0.5–1 mm wide; bracteoles ovate or lineate, free, 0.5–1 mm long, 0.2–0.5 mm wide, persisting after anthesis. FLOWER BUDS pyriform, 4–7 mm long, 3–4.5 mm wide, glabrous; *calyx* closed, apiculate, upon opening tearing into 4–5-parts, these broadly rounded or deltoid, up to ca. 3–5 mm long, 2–4 mm wide; *petals* 5, 4–5 mm long, 4–5.5 mm wide, white, glabrous; stamens 5–7 mm; anthers subglobose 0.3–0.5 mm long, 0.2–0.4 mm wide; ovary 3–locular, with 7–12 ovules per locule. FRUITS globose or slightly pyriform, glabrous, vinaceous when mature, 11–25 mm long, 10–20 mm wide; *seeds* 6–8 seen in fruits, 4–5 mm long."

Map and representative specimens based on original publication only. No specimens seen. **BRAZIL**. **Espírito Santo**: Rio Bananal, entre Rio Bananal e Governador Lindenberg, próximo a São Jorge do Tiradentes, mata de porte baixo, (19.19°S, 40.39°W), 1 Apr 2012 (fl), *Faria & Staggemeier 2535* (UB, R, CVRD); Sooretama, Reserva Biológica de Sooretama, (19.00°S, 40.00°W), 18 Jan 2010 (fr), *Gusson 4* (SAMES); Conceição da Barra, Reserva Biológica do Córrego Grande, (18.59°S, 39.73°W), 2 Dec 2011, *Ribeiro 698* (R, SAMES, VIES). **Rio de Janeiro**: Cardoso Moreira, Vinhático, Mata do "Benjamim", Sítio do Sr. João, (21.50°S, 41.60°W), 4 Feb 2014 (fr), *Costa 359* (RB). Map and representative specimens based on original publication only. No specimens seen.

This species is known to me only from the article (Tuler et al. 2017) in which it was published. That article includes excellent field images. As the authors indicate, it is similar to and probably closely related to *P. cauliflorum* (Landrum & Sobral 2006). According to Tuler et al. *Psidium grazielae* differs from *P. cauliflorum* by having membranaceous to chartaceous leaves (vs. coriaceous leaves in *P. cauliflorum*), with glandular dots visible on both faces (vs. densely glandular beneath in *P. cauliflorum*), and secondary veins inconspicuous to slightly visible (vs. visible on both faces in *P. cauliflorum*). In addition, leaves, branches, inflorescences, floral buds, and fruits are glabrous (vs. rachis of inflorescences and pedicels sparsely to densely pubescent, hairs rusty brown (ferrugineous to gray in *P. cauliflorum*). The two species have similar distributions and future collections will support or not their separation as two species.

23. *Psidium guajava* L., Sp. Pl. 1: 470. 1753. TYPE. "Habitat in India," cultivated plant from Hort. Cliff. 184. (LECTOTYPE: BM-628598 [designated by McVaugh, 1989]).

Fig. 29

Psidium cujavus L., Herb. Amboin.: 7. 1754. Based on a manuscript of Rumphius (1741). TYPE. Tab. XLVIII in Rumphius. Specimen in LINN (LINN-hl635-6] apparently not *Psidium*.

Psidium pyriferum L., Sp. Pl. ed. 2. 672. 1762. A new superfluous name for *P. guajava*; lectotype of *P. guajava* is cited under this species.

Psidium pomiferum L., Sp. Pl. ed. 2. 672. 1762. TYPE. "in indiis," "Pluk. Alm. 181," (possible type material LINN-hl635-1, LINN-hl635-2).

Psidium cujavillus Burm. f., Fl. Ind. 114. 1768. TYPE. "Rumph. Amb. I. p. 145. T. 49," "Habitat in India," (HOLOTYPE. Illustration [Tab. XLIX] of Rumphius [1741], Herbarium Amboinense).

Psidium angustifolium Lamarck, Encyc. 3: 17. 1789. Lamarck cites same description and illustration of Rumphius that Burmann used ("Rumph. Amb. I. p. 145. T. 49,"), so this is a superfluous name.

Psidium pumilum Vahl, Symb. Bot. 2. 56. 1791. A new superfluous name for *P. cujavillas* Burm.f.

Psidium sapidissimum Jacq. Pl. Hort. Schoenbr. 3: p. 62. t. 366. 1798. TYPE. Illustration of Jacquin.

Psidium guajava var. ***pyriferum*** (L.) Blume Mus. Bot. Lugd. Bat. 1: 71. 1821.

Psidium guajava var. ***minor*** Blume, Mus. Bot. Lugd. Bat. 1: 71. 1821. A new name for *P. cujavillas* Burm.

Psidium pumilum var. ***rufescens*** Blume, Mus. Bot. Lugd. Bat. 1: 71. 1821. TYPE. "In maritimus Archipelagi Indici et Moluccarum," (No specimen found).

Psidium pumilum var. ***intermedium*** Blume, Mus. Bot. Lugd. Bat. 1: 72. 1821. TYPE. "*Ps. intermedium* Herb. Zipp.–In maritimus Javae, Amboinae etc," (No specimen found).

?Psidium longifolium Schumach., Beskr. Guin. Pl. 229. 1827. TYPE. Ghana. *Thonnig* or *Schumacher*. (HOLOTYPE: C?, not found).

Psidium pumilum var. ***guadalupense*** DC., Prodr. 3: 233. 1828. TYPE. "in Guadalupa. *Bertero*," (No specimen found.)

Psidium pomiferum var. ***sapidissimum*** (Jacq.) DC., Prodr. 3: 234. 1828.

Psidium aromaticum Blanco, Fl. Filip. ed. I. 417. 1837, nom. illeg. Philippines. Description and vernacular names indicate that this is *P. guajava*. A later homonym of *P. aromaticum* Aublet [=*Campomanesia aromatica* (Aublet) Griseb.]

Psidium pyriferum var. ***glabrum*** Benth., J. Bot. (Hooker) 2: 318. 1840. Nomen nudum.

Psidium fragrans Macfad., Fl. Jamaica 2: 108. 1850. TYPE. Jamaica. "Salt Hill, Port Royal Mountains," *Macfadyen s.n.* (no specimen found.)

Psidium prostratum O. Berg, Linnaea 27:364. 1857. TYPE. Brazil. "Rio Grande do Sul", *Sellow.* Nomen nudum, apparently meant to be a synonym of *P. guajava*.

Guajava pumilia (O. Berg) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Guajava pyrifera (L.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Psidium guajava var. ***cujavillum*** (Burm.f.) Krug & Urb., Bot. Jahrb. Syst. 19: 566. 1894.

Myrtus guajava (L.) Kuntze, Revis. Gen. Pl. 3: 91. 1898.

Myrtus guajava var. ***pyrifera*** (L.) Kuntze, Revis. Gen. Pl. 3: 91. 1898.

?*Syzygium ellipticum* K. Schum. and Lauterb., Fl. Schutzgeb. Südsee: 476. 1900. TYPE. Papua New Guinea. "Bei Finschhafen, in der Nähe von Ibekippo bei Bonga," "fruchtend am 26. August 1890," *Lauterbach 785* (HOLOTYPE: BM?). A later homonym of *S. ellipticum* Wall. 1831.

Psidium igatemyense Barb. Rodr., Myrt. Paraguay 10. 1903. TYPE. Paraguay. "vicine Rio Igatemy," *Hassler 4753* (HOLOTYPE: G-194284).

Psidium chodatianum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Igatimi," *Hassler 4792* (G [2 sheets, = ASU photos]).

Psidium crispum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 798. 1907, nomen nudum. CITED COLLECTION. Paraguay. "Cordillera de Altos," *Hassler 1442* (G [2 sheets, = ASU photos]).

Psidium ellipticum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Igatimi," *Hassler 4745* (G [3 sheets, = ASU photos], MICH-1210413!, MPU-10984, NY-1288045!, NY-1288046!, S-r-9450, UC!, W-3585!).

Psidium subcrenatum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Bellavista, Apa," *Hassler 7793* (G, = ASU photo).

Psidium globosum Larrañaga, Escritos D. A. Larrañaga 2: 168. 1923. TYPE. Uruguay. (HOLOTYPE: presumably Larrañaga collection, "Abril 30 de 1814," "proprios para jardines." No specimen found.)

Psidium guajava forma ***cujavillum*** (Burm. f.) O. Deg. & I. Deg., New Illustr. Fl. Hawaiian Islands [Fam. 273]. 1959.

Psidium guajava var. ***minor*** Mattos, Loefgrenia 70: 5. 1976. TYPE. Brazil. São Paulo, Instituto Agronômico de Campinas. *Mattos 16234. (*HOLOTYPE: HAS 87515 according to SpeciesLink, not seen). A later homonym of *Psidium guajava* var. *minor* Blume.

Shrub or tree up to ca. 12 m high, subglabrous to densely appressed pubescent on young growth and lower leaf surfaces, the trunk smooth, light brown to light gray-green, with large flaky scales; *hairs* whitish, yellowish, or silvery, up to ca. 0.7 mm long, erect or appressed; *young twigs* quadrangular, slightly to strongly winged, often sulcate (at least when dry), densely to moderately appressed-pubescent, the older twigs at first scaly with longitudinal striations or fibers, eventually smooth with irregular scales falling as patches. LEAF BLADES elliptic, oblong, elliptic-oblanceolate, elliptic-obovate, or lanceolate, 4.5–14 cm long, 2.4–7.5 cm wide, 1.6–4 times as long as wide, coriaceous to submembranous, drying yellow-green, gray-green, to dark reddish brown, densely to sparsely appressed pubescent

below, subglabrous except for puberulent midvein above, the immature leaves covering the twig apex in 2 decussate pairs; *apex* acute, acuminate, to rounded; *base* rounded to slightly cordate; *petiole* 2–5 mm long, 1–2 mm thick, channeled, densely pubescent to subglabrous; *venation* brochidodromous distally to eucamptodromous proximally, the midvein impressed above, prominent below, the lateral veins 9–22 prominent pairs, ascending at angle of ca. 45°, nearly straight, curving toward apex near the margin and connecting with the next lateral, the marginal vein not clearly present or arching between the laterals, the tertiary veins connecting the laterals in a ladder-like to reticulate pattern. FLOWER BUDS subfusiform to pyriform, 9–14 mm long, sometimes strongly constricted near the midpoint, the hypanthium narrowly campanulate, barrel shaped or fusiform 4–6 mm long, the distal portion of bud more or less ovoid, sometimes strongly so with a conical apex, 4.5–9.5 mm long; *indumentum pattern of buds* with peduncles, hypanthium, and bracteoles sparsely to moderately appressed pubescent, the calyx without glabrous to sparsely pubescent (usually less densely covered than that hypanthium), the calyx glabrous or densely pubescent within, the petals, disk, and style glabrous; *peduncles* 1–3-flowered, 1–3.5 cm long, 1–1.5 mm thick, terete; *bracteoles* linear to narrowly triangular, 2–5 mm long. CALYX closed, tearing irregularly as the bud opens, persisting or falling in ca. 3 parts; *petals* obovate to elliptic, 13–22 mm long; *disk* 4–6 mm across; *stamens* 280–720, 7–15 mm long; *anthers* 0.7–1 mm long, with 1–7(–10) glands; *style* 10–15 mm long; *ovary* 3–6-locular; *ovules* 90–180 per locule, multiseriate. FRUIT globose to pyriform, 2–6(–8) cm long, green to yellow without, with pink, yellow, or white flesh, aromatic; *seeds* 100–400, perhaps more in large fruits, subreniform to subtriangular, 2–4 mm long, more or less smooth, the seed coat 0.2–0.25 mm thick at narrowest point. $2n = 22, 44$.

Representative specimens examined. ARGENTINA. **Chaco**: San Fernando, Río Paraná, Isla Soto, (27.80°S, 58.83°W), 28 Nov 1978 (fr), *Renvoize 3655* (ASU0007439). **Corrientes**: Dep. General Paz, Lomas de Vallejos, Estancia La Flecha, ca. 3 km from entrance, (27.75°S, 57.50°W), 12 Dec 1987 (fl), *Landrum 5747* (ASU0004980); Itaí, Ramada Paso, (27.31°S, 58.07°W), 24 Sep 2013 (fr), *Solis Neffa et al. 2348* (ASU0107558); Empedrado, Estancia La Yela, (27.95°S, 58.80°W), 2 Dec 1994 (fl), *Pedersen 16180* (ASU0007428); 12 km NE de San Miguel, Ea. Toro-y, (28.00°S, 57.60°W), 1 Mar 1990 (fr), *Vanni 1571* (ASU0007474). **Formosa**: Pilcomayo, Sol de Mayo, 14 km SW de Laguna Blanca, (25.12°S, 58.42°W), 25 Oct 1995 (fl), *Schinini 30328* (ASU0007427). **Jujuy**: Ladesma, 4 km pasando Río Água Negra, camino a Valle Grande, (23.83°S, 64.79°W), 23 Oct 1971 (fl), *Legname & Cuezzo 8752* (LIL); Parque Nacional Calilegua, Mesada de Las Colmenas, Ruta 83 km 21, (23.76°S, 64.85°W), 1200m, 27 Nov 2004 (fl), *Novara 12125* (ASU0052982). **Misiones**: Puerto Iguazú, (25.60°S, 54.58°W), 13 Apr 1957 (fl), *Cuezzo & de la Sota 1594* (MO); Peña Victoria, on Paraná River ca. 8 km SW of San Ignacio. Ca. 1l, before Peña Victoria, (27.25°S, 55.58°W), 10 Dec 1987 (yfr), *Landrum 5726* (ASU0005003); El Dorado, antiguo puerto, Barranca del Río Paraná, (26.40°S, 54.60°W), 12 Nov 1996 (fl), *Vanni 3815* (ASU0007426). **Salta**: Dep. Santa Victoria, serranía Finca Arazayal, sobre arroyo Arazayal, afluente del Bermejo, 19 km al NW de Aguas Blancas, (22.67°S, 64.43°W), 650m, 4 Dec 2005 (fl), *Arbo 9009* (ASU0057302).

BAHAMAS. **San Salvador**: Along road to Little Lake, east of Cockburntown, (24.05°S, 74.52°W), 22 May 2001 (fl), *Vincent 9292* (ASU0294212).

BELIZE. **Cayo**: Vaca Plateau, (18.00°S, 89.07°W), 18 May 1989 (fl), *Arvigo 239* (ASU0004880).

BOLIVIA. **Beni**: Vaca Diez, Chacobo village Alto Ivon, (11°45'S, 66°02'W), 200 m, 1 Dec 1983 (fl), *Boom 4068* (CAS). **Cochabamba**: Carrasco, Sajta propiedad de la Universidad, (17.10°S, 64.73°W), 239 m, 22 Oct 2009 (fl), *J. Terán 4206* (ASU0080861). **Pando**: Cocamita, (11.18°S, 68.68°W), 260 m, 27 Oct 1987 (fl), *Buchanan-Smith 78* (ASU0007441). **Santa Cruz**: Ñuflo de Chávez, Lomerio campamento Las Trancas, parcelas permanentes de BOLFOR, (16.60°S, 61.87°W), 450 m, 19 Nov 1994 (fr), *Guillén & Medina 2605* (ASU0007464); Velasco, Reserva ecológica El Refúgio, a 300 m al SO del campamento, en la pampa de las islas, (14.79°S, 61.05°W), 150 m, 21 Jan 1995 (fr), *Guillén & Choré 2945* (ASU0007463); Andrés Ibáñez, along road from Santa Cruz to Samaipata, 1 km SW of Angostura, (18.15°S, 63.52°W), 650 m, 13 Jan 1987 (fr), *Nee 33462* (ASU0007408); Andrés Ibáñez, 6 km NW of Terevinto, (17°41'S, 63°25'W°), 450 m, 29 Aug

1987 (fr), *Nee & Coibra 35829* (MO); Ichilo, 7 km N of Buena Vista, N end of Laguna madrejón (Laguna Candelaria on topographic map), (17.38°S, 63.67°W), 295 m, 31 Oct 1990 (fl), *Nee 39638* (ASU0007410).

BRAZIL. **Amazonas**: Manaus, aeroporto velho, (3.11°S, 60.03°W), 2 Dec 1976 (fl), *Cordeiro 1298* (MICH). **Bahia**: próximo a Candeias, (12.62°S, 38.41°W), 5 Feb 1980 (fr), *Araujo 179* (HRB); Ilhéus, Area do CEPEC Km 22 da Rod. Ilhéus-Itabuna BR 415 Região Mata Higrofila S. Baiana, (14.82°S, 39.03°W), 5 May 1980 (fr), *Hage & Brito 638* (CEPEC); Feira de Santana, Bairro Pampalona, Rua Joana Pereira da Silva, (12.25°S, 38.97°W), 411 m, 2 Jul 2002 (fr), *Santos 20* (HUEFS). **Ceará**: Fortaleza, low thickets, Barra do Ceará, (3.72°S, 38.50°W), 25 Sep 1935 (fr), *Drouet 2501* (R). **Distrito Federal**: Brasília, Universidade de Brasília, (15.78°S, 47.92°W), 1000 m, 26 Nov 1986 (yfr), *Santana* (UB). **Goiás**: Campus U. E. G.- Anápolis, (16.38°S, 48.97°W), 28 Jan 2006 (fr), *Faria 211* (ASU0018567). **Maranhão**: Monção, basin of the Rio Turiaçu; Ka'por Indian Reserva, within 7 km of the settlement of Urutawy, (3.50°S, 45.25°W), 21 Apr 1985 (fr), *Balee 903* (NY); Loreto, Ilha de Balsas, Santa Barbara on the Parnaiba river, (7.50°S, 45.05°W), 19 Feb 1970 (fr), *Eiten & Eiten 10714* (US). **Mato Grosso**: ca. 5 km N of Barra do Garças, (15.88°S, 52.25°W), 500 m, 7 May 1973 (fr), *Anderson et al. 9870* (MO, UB). **Mato Grosso do Sul**: Anastácio, Rod. BR-060, (20.50°S, 55.82°W), 20 Oct 1988 (fl), *Hatschbach 52449* (ASU0007396). **Minas Gerais**: Serra do Cipó, Km 104, Morro do Calcareo, Rod. Belo Horizonte-Conceição do Mato Dentro, (19.92°S, 43.94°W), 13 Nov 1984 (fl), *Longhi Wagner CFCR 5894* (ASU0007429). **Paraná**: Nova Cantu, PCH Cantu 2, area futura de reservatório, (24°44’50”S, 52°27’15”W), 2014 (fr), *Felitto et al. 888* (MBM [seen as image only]). **Piaui**: Rodovia Bom Jesus-Gilbues 23 km oeste da cidade de Bom Jesus, (8.90°S, 44.25°W), 360 m, 20 Jun 1983 (fr), *Coradin et al. 5895* (ASU0007413); Luis Correia, Estrada Luis Correia, (2.94°S, 41.54°W), 1 Aug 2004 (fr), *França 5055* (ASU0007435). **Rio de Janeiro**: Paraty, Praia de Jabaquara, (23.20°S, 44.72°W), 4 Nov 2000 (fl), *Giordano et al. 539* (ASU0007472); Parque Nacional Tijuca, Mesa do Imperador, (22.83°S, 43.33°W), 400 m, 12 Oct 1977 (fl), *Landrum 2018* (MICH); Serra da Estrella, ca. 2 km above meio da Serra near Petrópolis, (20.67°S, 43.17°W), 500 m, 16 Oct 1977 (fl), *Landrum 2078* (MICH); Campos, (21.75°S, 41.30°W), 1 Jan 1970 (fl), *Sampaio 8624* (R). **Santa Catarina**: 45°–75° hill slope 5 km W of Itajaí, (26.90°S, 48.72°W), 100 m, 6 Jan 1974 (fr), *Conrad & Dietrich 2109* (HB). **São Paulo**: cerca de 12 km de Paulo de Faria em direção a Riolândia, Fazenda Figueira, (20.03°S, 49.40°W), 13 Oct 1994 (fl), *Moncaio 208* (ASU0007412); Santo Antonio, Bairro do Bau, trilha do Morro, (21.14°S, 47.25°W), 10 Nov 1994 (fl), *Tozzi et al. 94-51* (ASU0007402).

COLOMBIA. **Antioquia**: Medellín, Universidad de Antioquia, (6.25°N, 75.57°W), 1470 m, 21 Jun 1994 (fl), *Fonnegra et al. 4938* (ASU0007400). **Cauca**: Isla de Gorgona, Playas y zonas cercanas a las instalaciones del Inderena, (2.97°N, 78.19°W), 0 m, 7 Sep 1987 (fr), *Fernández Alonso 7398* (ASU0061599). **Chocó**: Bahía Solano, El Valle, (6.10°N, 77.43°W), 3 m, 5 Aug 1976, *Gentry & Fallen 17236* (MO). **Valle de Cauca**: Isla Guayabal, desembocadura del Río Cajambre, (3.54°N, 77.31°W), 12 Feb 1944, *Cuatrecasas 16233* (US); ca. 15 km NW of Buenaventura, (3°53'N, 77°10'W), 16 Jun 1987 (fr), *Faber-Langendoen & Renteria 931* (ASU0007419); Buga, El Placer, Vereda Nogales, a 47 km por carretera al este del Hotel Guadalajara de Buga, Cordillera Central, vertiente occidental, potrero delante de inspección de policía, (3.88°N, 76.10°W), 2040 m, 14 Sep 1991 (fr), *Silverstone-Sopkin et al. 6386* (ASU0007457).

COSTA RICA. **Guanacaste**: Bagaces, Lomas Barbudal, (10.53°N, 85.25°W), 11 Jul 1984 (fr), *Herrera 22881* (ASU0004895). **Heredia**: Santo Domingo, Los Ángeles, E of Escuela Cristóbal Colon, land of Alicia Barquero Rodríguez, (9.98°N, 84.08°W), 8 Sep 1989 (yfr), *Landrum 6556* (ASU0004878). **Limón**: Parque Tortuguero, Estación Cuatro Esquinas, (10°31'N, 83°30'W), 22 Nov 1987 (fr), *Robles 1285* (MO). **Puntarenas**: San Luis Ecolodge, beside cabin 1, (10.28°N, 84.80°W), 23 May 2002 (fl, fr), *Landrum 10474* (ASU0004872).

CUBA. **Camagüey**: La Gloria, (21.73°N, 77.64°W), 28 Jan 1909 (fr), *Shafer 91* (NY). **Isla de la Juventud**: (21.69°N, 82.86°W), 25 Jun 1901 (fl), *Taylor 148* (NY). **La Habana**: in Campo Florido inter urbem et Loma Coca, (23.09°N, 82.12°W), 27 May 1923 (yfr), *Ekman 16419* (NY). **Santiago de Cuba**: Segundo Frente, Mayarí Arriba, Sierra de Nipe, cerca de Seboruco, (20.32°N, 75.59°W), 1 Nov 1977 (fl), *Alvarez et al. 35937* (JE). **Villa Clara**: Cieneguita, District of Cienfuegos, (22.27°N, 80.61°W), 3 May 1895 (fl, fr), *Combs 1* (NY).

DOMINICAN REPUBLIC. **Barahona**: Sierra de Bahoruco, 10 km de La Cienaga en camino a Aguita Blanca y El Platón, (18.05°N, 71.16°W), 22 May 1984 (fr), *Zanoni 30134* (ASU0004820). **La Vega**: 5 km S of Constanza, (18°52'N, 70°43'W), 1400 m, 24 Jul 1980 (fl), *Mexia & Zanoni 7668* (MO). **San Cristóbal**: Arroyo Juan Gomito, 3 km NW of La Estancia on road to Hato Viejo, a feeder stream and woodland of Río Guanuma, (18.68°N, 70.05°W), 13 Aug 1980 (fr), *Mejia 7917* (ASU0004876). **San Pedro**: S of Boca de Soco, at SW bank of Río Soco, small village along river and sea coast, (18°28'N, 69°17'W), 5 m, 15 Oct 1980 (fr),

Mejia & Zanoni 8574 (MO). **Santiago Rodríguez**: about 4 km SW of Cañada Grande (of Monción) on road to La Meseta and La Leonor, (19.40°N, 71.19°W), 18 Aug 1989 (fr), *Jones 132* (ASU0004816). **Valverde**: Cordillera Septentrional, Valverde-Santiago limits, sobre loma (pico) El Murazo, (19.68°N, 70.97°W), 18 Dec 1984 (fr), *Zanoni 32897* (ASU0004829).

ECUADOR. **Esmeraldas**: 2–4 km SE of San Lorenzo along railroad track, (1°15'N, 78°50'W), 10 m, 1 Jan 1970 (fr), *Boom 2552* (MO). **Galápagos**: Charles [Floreana] Island, E of Florence Peak, (1.29°S°, 90.43°W°), 25 Apr 1932 (fl), *Howell 8898* (CAS); San Cristóbal, (0.89°S°, 89.51°W°), 8 Feb 1967 (fl), *Wiggins & Porter 410* (CAS); Santa Cruz, (0.64°S°, 90.36°W°), 225 m, 9 Feb 1964 (fr), *Wiggins 18659* (DS). **Imbabura**: Ambuquí, callejón interandino con vegetación espinosa, (0°26'N, 78°0'W), 1825 m, 16 Mar 1995 (fr), *Macia Barco 7* (QCA); railroad between Ibarra and San Lorenzo near La Carolina, (0°45'N, 78°17'W), 900 m, 7 May 1985 (fr), *Eriksen 59238* (QCA). **Manabí**: cantón Jipijapa, Parroquia Machalilla, entre Bola de Oro y la Mocora, (1°41'S, 80°47'W), 600 m, 6 May 1992 (fr), *Hernández et al. 189* (QCA). **Napo**: Cotococha, about 1 km west of Venecia and 25 km east of Tena, on the south side of the Napo River, (1.04°S, 77.71°W), 450 m, 24 Jun 2003 (fr), *Landrum* et al. *10864* (ASU0007462). **Orellana**: Comunidad Indillama, a 0:30 horas en deslizador del Puerto Pompeya aguas abajo por el Río Napo, (0.43°S, 76.52°W), 280 m, 6 May 2004 (fr), *Reyes Diego 501* (ASU0007443). **Oro**: above Pinas and Zaruma, (3.15°S, 79.13°W), 1067 m, 8 Dec 1965, *Knight 674* (WIS). **Sucumbíos**: Canton Gonzalo Pizarro, Parroquia el Reventador, sendero a Reserva Cayambe Coca, (0°2'S, 77°35'W), 1800 m, 30 Jul 1991 (fr), *Yanez & Bonilla 329* (QCA). **Zamora Chinchipe**: Trail N across bridge from Zamora, (3.97°S, 79.12°W), 1030 m, 17 Aug 1982, *Clemants 2370* (ASU0007405).

EL SALVADOR. **Ahuachapán**: El Imposible, San Benito, al E de la casa de D. Paco, (13°49'N, 89°56'W), 30 Mar 1992 (yfr), *Sandoval 338* (MO). **La Libertad**: Finca Colombia, Canton Primavera, Quezaltepeque, (13.81°N, 89.30°W), 2 Feb 1998 (fl, fr), *Monro 2902* (ASU0004874); Jicalapa, Ctón. La Perla, Crío. Hermosa provincia, A.N.P. Complejo Taquillo, Sendero del Centro de Operaciones hacia Gradas y Quebrada El Tacuazín, (13.50°N, 89.50°W), 26 m, 9 Jun 2014 (fr), *Galán 2991* (ASU0106842). **Santa Ana**: MChalchuapa, Cten. El Jute, La Magdalena, Cerro Malacara, El Mirador, (14.08°N, 89.69°W), 824 m, 10 Jul 2012 (ofl), *Ga1án 1670* (ASU0106050).

FRENCH GUIANA. Koumakapan, 13 Apr 1986 (fr), *Fleury 139* (ASU0007418).

Cayenne: Cayenne, Centre ORSTOM de Cayenne, (4.95°N, 52.32°W), 0 m, 6 Sep 1999 (fr), *Prevost 3683* (ASU0007442).

GUATEMALA. **Alta Verapaz**: Cobán, (15.47°S, 90.37°W), 1350 m, without date, *von Türckheim II 987* (MO). **Izabal**: vicinity of Puerto Barrios, (15.72°S, 88.58°W), without date (fl), *Standley 25056* (US). **Petén**: Santa Elena camino para La Libertad, km 20, (16.83°S, 90.00°W), 24 Apr 1970 (fl), *Tún Ortíz 1011* (US). **Sacatepéquez**: 1 mile W of Alotenango along road to Escuintla, (14.48°S, 90.80°W), 975 m, 3 Aug 1965 (fr), *Breedlove 11412* (DS, MICH).

GUYANA. Demerara-Mahaica Region, mouth of Mahaica River (6°38'N, 57°55'W), 2 Dec 1986 (fl), *Pipoly 9058* (ASU0007394). **Barima-Waini**: Waini Peninsula, 'Shell Dam' chenier, 1/2 km behind Almond Beach School, (8.39°N, 59.74°W), 3 m, 21 Oct 2001 *T.H. Hollowell 588* (ASU0019046).

HAITI. **Du Nord**: Ducroix, near Cap Hatien, (19.78°N, 72.22°W), 3 May 1988 (fl), *Chandler 30* (USF).

HONDURAS. **Colón**: 4.5 mi NE of Trujillo on old rd to Castilla, (15°57'30`N, 85°54'30`W), 22 May 1980 (fr), *Saunders 292* (MO). **Francisco Morazán**: Road to Comayagua to Tegucigalpa, 6.7 km SW of Parque Aurora. near km post 27 and where power lines cross hwy, (14.29°S, 87.40°W), 27 Aug 1989 (fr), *Landrum 6511* (TEFH, ASU0004933). **Gracias a Dios**: Brus Laguna, (15°46N, 84°34'°W), 1 Jan 1970 (fl), *Nelson & Hernández 923* (MO). **Lempira**: Mt. Celaque Nat. Park, 8 km SW of Gracias, (14°34'N, 88°38'W), 1380 m, 1 Apr 1989 (st), *Renfrow & Renfrow 59* (MO).

JAMAICA. **Portland Parish**: Saint Margarets Bay, (18.19°N, 76.53°W), 26 Feb 1906 (fl), W*ight 140* (NY). **St. Andrew Parish**: In thicket, near Richards reservoir, Mona, (18.00°N, 76.76°W), 168 m, 13 Dec 1957 (fl), *Yuncker 17751* (NY).

MEXICO. **Baja California**: Vicinity of Todos Santos, just north of town, (23.45°N, 110.23°W), 17 May 1992 (fl), *Rebman 1384* (ASU0004828). **Chiapas**: Palenque, 16.3 km S on hwy 199 beyond turnoff to Chancala, (17.51°N, 91.98°W), 29 Jul 1989 (fr), *Landrum 6358* (ASU0004871); Ocosingo to San Cristóbal, 3.6 km E of Corralito, 64.6 km E of turn off to Comitán, (16.25°N, 92.13°W), 31 Jul 1989 (fr), *Landrum 6376* (ASU0004879); 3.1 km E of junction with hwy 195 on hwy 190, ca. 47 km W of San Cristóbal, (16.74°N, 92.64°W), 1 Aug 1989 (fr), *Landrum 6394* (ASU0004884); road to Apic Pac, ca. 11.5 km N of beginning of road at Ocozocoautla, (16.92°N, 93.45°W), 3 Aug 1989 (fr), *Landrum 6426* (ASU0004870); Mpio. de Cintalapa de Figueroa, Col. Cárdenas, (15.33°N, 92.62°W), 16 Mar 1981 (fl), *Ramamoorthy 1986* (ASU0018655); Reserva de la Biosfera La Sepultura, Mpio. de Arriaga, 1.84 km al S de Adolfo López Mateos,

(16.33°N, 93.97°W), 12 Jul 2004 (fr), *Calónico 25562* (ASU0018654). **Colima**: Comata, Rancho El Jabalí, 22 km NNW of the city of Colima at the Jalisco state line near Hac. San Antonio, (19.45°N, 103.72°W), 31 Aug 1988 (fr), *Sanders 8615* (ASU0004830). **Distrito Federal**: Mexico City, Xochimilco, Canal San Lorenzo, Puente San Lorenzo, (19.27°N, 99.10°W), 20 Jul 1992 (yfr), *Landrum* (ASU0004875). **Guerrero**: Pungarabato, Coyuca, (18.33°N, 100.65°W), 16 Feb 1934 (fl), *Hinton 5637* (ASU0004864); road to Acapulco ca. 37 km S of Chilpancingo, 12 km N of Ocotito, (17.23°N, 99.57°W), 22 Jul 1989 (yfr), *Landrum 6333* (ASU0004866); Yoloxóchitl Village, (16.81°N, 98.66°W), 691 m, 27 Apr 2017 (fr), *Velasco 40390* (ASU0306779). **Jalisco**: 13.5 km SW of Autlán de Navarro on Hwy. 80, (19.77°N, 104.37°W), 8 Oct 1985 (fl, yfr), *Bartholomew et al. 2762* (ASU0004825). **Nayarit**: Parador en km 114, carretera de cuota Tepic-Guadalajara, entre Tepic e Ixtlán del Río, (21.15°N, 104.49°W), 1050 m, 15 Jun 2000 (fl), *Puente 1875* (ASU0007393); Nayarit, cerro Cangrejo, al NE del poblado Villa de Guadalupe, (22°16'N, 104°38'W), 1200 m, 18 Sep 1989 (fr), *Tenorio & Flores 16187* (MO). **Oaxaca**: Mihuatlán, Cañada San Jerónimo Coatlán (Río Trapiches), (16.23°N, 96.87°W), 28 Jun 1990 (fl), *Campos 3205* (ASU0004827); Sierra Norte, Ixtlán de Juárez, camino hacia tierra caliente, Cerca de Yégu lubdína, (17.33°S, 96.48°W), 250 m, 18 Aug 1998 (fr), *J. Garcia R. 252* (ASU0018653); Asunción Ixtaltepec, Distrito Juchitán, 3.24 km al NE de Chivela, pie de Cerro Timbón, (16.72°N, 94.98°W), 13 Sep 2002 (fr), *Salas 4631* (ASU0018656); Cuicatlán, 1.5 km al oeste de Dominguillo (18°03'N, 97°03'W), 750 m, 1 Jul 1987 (fr), *Salinas et al. 4152* (MO). **Puebla**: Zongozotla, por el camino viejo a Zapotitlán de Méndez, en la localidad de Xkge:nkgalha:na', (19.98°N, 97.73°W), 1134 m, 7 Oct 2016 (fr), *Osbel López Francisco 74331* (ASU0307135). **Sinaloa**: Mazatlán-Durango road, W of Concordia, 11.5 mi E of Villa Union, (23.34°N, 105.97°W), 28 Jun 1989 (fl, yfr), *Landrum 6301* (ASU0004836). **Sonora**: ca. 2 km east to Rancho Viejo on road to La Concepción, (28.33°N, 109.24°W), 27 May 1998 (fl), *Reina 98-693* (ASU0004877); upper crossing of the Río Cuchujaqui, 11.5 miles by road E of Alamos, 2 miles E of Sabinito Sur, (27.01°N, 108.78°W), 14 Dec 1988 (fr), *Sanders 8808* (ASU0004841). **Veracruz**: San Andres Tuxtla, Laguna Zacatal, camino a Cerro Lázaro Cárdenas (95°04–09'W, 18°34–36'N), 200 m, 13 Jul 1987 (fr), *Ibarra & Gonzalez 3141* (MO); 1.3 miles W of Fortín (plaza) upper slopes of deep canyon along Río San Antonio, (18.90°N, 97.00°W), 914 m, 3 Aug 1977 (st), *Elinor Lehto L-22046* (ASU0007392); Luz Bella, just E of the Mesa de las Flores, ca. 9 km SSE Misantla, (19.86°N, 96.82°W), 900 m, 26 Jun 2001 (yfr), *Mitch Provance 3337* (ASU0007468). **Yucatán**: Valladolid, (20.68°N, 88.20°W), 15 Jul 1988 (fr), *Luz Acosta 200* (ASU0004844).

NICARAGUA. **Boaco**: ca. 2.4 km N of Río Las Canas, along hwy 33 ca. 3.1 km N of Hwy 35, (12°38'N, 85°33'W), 275 m, 8 Jan 1978 (fl, fr), *Stevens 5908* (MO). **Chinandega**: El Realejo, (12°30–31'N, 87°10–11'W), 12 m, 4 Mar 1985 (fr), *Robleto 1815* (MO). **Chontales**: along road to Hacienda Corpus, 13.5 km W of Juigalpa, (12°07'N, 85°28'W), 100 m, 28 Aug 1983 (fr), *Nee 27613* (MO). **Esteli**: Salto de Estanzuela, ca. 5 km S de la ciudad de Esteli, (13°2'N, 86°20'W), 1000 m, 29 Sep 1980 (fr), *Guzman et al. 1217* (MO). **Jinotega**: Valle San Antonio, Comarca Kilambé, (13°36'N, 85°38'W), 650 m, 27 Apr 1980 (fl), *Sandino 8* (MO). **Matagalpa**: ca. 16.1 km SE of Río Blanco along road to Mataguás, (ca. 12°53'–54'N, 85°20'W), 350 m, 15 Feb 1979 (fr), *Stevens 12266* (MO). **Río San Ju**: Boca de Sábalo, (11°02'N, 84°28'W), 50 m, 20 Mar 1985 (fl, fr), *Moreno 25476* (MO). **Rivas**: Moyogalpa, Isla de Ometepe, (11°32'N, 86°41'W), 50 m, 16 Sep 1983 (fr), *Nee & Télez 28197* (MO); Isla Ometepe, Volcán Concepción, La Sabana, (11°33'N, 85°35'W), 300 m, 29 Oct 1984 (fr), *Robleto 1463* (MO). **Zelaya**: N de Puerto Cabezas, Tuapi, (14°06'N, 83°20'W), 15 m, 8 Feb 1983 (yfr), *Sandino 4049* (MO); near Tala Has and Puente Mango, (14°41'N, 84°03'W), 40 m, 18 Apr 1978 (fl), *Stevens 7596* (MO).

PANAMA. **Canal Zone**: Barro Colorado Island, (9.16°N, 79.84°W), 10 May 1968 (fl), *Croat 5450* (MO). **Chiriquí**: Las Lagunas W of El Hato del Volcán, (82°40W, 8°47'N), 1400 m, 23 Aug 1982 (fr), *Hamilton et al. 921* (MO). **Colon**: Río Guanche, (9°30'N, 79°39'W), near sea level, 16 Oct 1980 (fr), *Sytsma 1719* (MO). **San Blas**: Río Cangandi Hills W of river from the village to the confluence of Río Titamibe, (9.40°N, 79.12°W), 29 Jan 1985 (fl), *de Nevers 4730* (ASU0004857).

PARAGUAY. **Amambay**: Bella Vista, 2 km S of town, ranch of Félix Ocariz (56°30'W, 22°10'S), 22 Mar 1983 (fr), *Hahn 1279* (ASU0007433, PY); Parque Nacional Cerro Corá, NE limit of Parque, Naranja-hai, (22.58°S, 56.08°W), 150 m, 20 Aug 1995 (st), *Landrum 8711* (ASU0007451). **Caaguazú**: Arroyo Yakaréi, along southern side from route 2, (25.47°S, 56.02°W), 8 Feb 1989, *Zardini 10780* (ASU0052799); Tavai, Destacamento Militar, (26°10'S, 55°20'W), 6 Aug 1989 (fr), *Basualdo 2673* (FCQ). **Canindeyú**: Reserva Ita Poy, (24.17°S, 55.67°W), 20 Nov 1995 (fl), *Landrum 8867* (ASU0007421). **Central**: Tavarory, Río Paraguay, (25.47°S, 57.55°W), 100 m, 17 Jul 1995 (fr), *Landrum 8553* (ASU0007460); Ytyrore Country Club, ca. 20 km S of Asunción, (25.47°S, 57.55°W), 120 m, 2 Nov 1995 (fl), *Landrum 8730* (ASU0007437); estero del Ypoá, 5 km S of Pindoty, 2 km E of lake, (25°20'S, 57°28'W), 1 Sep 1990 (fr), *Zardini & Velazquez 23214*

(ASU0060492). **Concepción**: Paso Horqueta. Río Aquidabán, (23.12°S, 57.33°W), 18 Nov 1993 (fl), *Zardini 37474* (ASU0018589). **Cordillera**: Cerro Tobati, (25.26°S, 57.08°W), 23 Oct 1987 (fl), *Zardini 3611* (ASU0052801). **Guaira**: Cordillera de Ybytyruzú, Cerro Pero, 1 km W of destacamento Tororó, (25°55'S, 56°15'W), 17 Dec 1988 (fr), *Zardini 8812* (FCQ). **Itapua**: opposite Puerto Piray, Misiones, Argentina, (26.46°S, 54.73°W), 200 m, 23 Oct 1978, *Renvoize 3225* (ASU0007440). **Misiones**: Río Tebicuary, (26.40°S, 57.13°W), 28 Jul 1994 (fr), *Zardini 40153* (ASU0018593). **Paraguarí**: Estancia Lago Ypoá, Cerro Lima, (26.03°S, 57.40°W), 22 Dec 1993(yfr), *Zardini 37601* (ASU0018591). **Presidente Hayes**: Cuenca de Río Pilcomayo, Fortín Gral. Delgado, (24°31'S, 59°19'W°W), 100 m, 12 Nov 1985 (fl), *Brunner 1377* (PY); along Río Paraguay ca. 3 km NW of Puente Remanso between Asunción and Villa Hayes, (25.33°S, 57.67°W), 15 Dec 1995 (fr), *Landrum 8877* (ASU0007449); Pto. Militar, (23.44°S, 57.49°W), 9 Dec 1989 (fl), *Mereles 3451* (FCQ). **San Pedro**: 7 km al S del cruce a Lima, (23°9'S, 56°5'W), 15 Dec 1986 (fl), *Perez et al. 1480* (PY).

PERU. **Amazonas**: Bagua, along roadside from Chiriaco to Puente Venezuela, 43 km NE of Chiriaco, (5.00°S, 78.33°W), 732 m, 3 Nov 1978 (fl), *Barbour 4391* (MO); Suyobamba, 3 km NE of Pedro Ruiz Gallo (5°55'S, 77°58'W), 1400 m, 6 Feb 1988 (fl), *Gentry et al. 61311* (MO, USM). **Cajamarca**: San Ignacio, San Martin del Chinchipe, (5.32°S, 78.68°W), 1000 m, 15 Sep 1999 (fr), *Flores 164* (ASU0076726). **Cuzco**: La Convención, Dist. Vilcabamba, Resistencia camino a Espiritupampa, (12.81°S, 73.15°W), 1076 m, 20 Oct 2006 (fl), *Farfán 1144* (ASU0018798); Calca, Yanatile, Estrella, (12.45°S, 72.50°W), 1567 m, 1 Jan 1970 (fl), *Suclli 2489* (ASU0018763). **Huanuco**: Pachitea, Region Pucallpa, western part of the 'Sira Mountains' and adjacent lowland, 26 km S of Puerto Inca, next to the junction of the Río Pachitea and Río Yuyapichis, biological field station 'Panguana', (9.62°S, 74.93°W), 260 m, 23 Feb 1988 (fr), *Wallnofer 13-23288* (ASU0007414). **Loreto**: Prov. Maynas. Dist. Iquitos, Quistococha, (2.67°S, 73.84°W), 100 m, 4 Oct 1979 (fr), *Ayala 2038* (ASU0007417); Alto Amazonas, Old Andoas, Río Pastaza, 2º55'S, 76º25'W, 190 m, (2.92°S, 76.42°W), 190 m, 26 Dec 1985 (fr), *Lewis & Gnerre 10382*. **Madre de Dios**: Tambopata, 30 air km SSW of Puerto Maldonado at effluence of Río Tabopata, (12°49'S, 69°17'W), 260 m, 12 May 1980 (fr), *Barbour 5263* (MO). **Pasco**: Camino al Parque Nacional Yanachaga-Chemillén, Qda. San Alberto, (10.53°S, 75.38°W), 2000 m, 14 Nov 2001 (fl), *Landrum 10124* (ASU0069696).

PUERTO RICO. Salinas, N of PR 1 near border w/ Mpio. Aibonito, (18.09 °N, 66.24°W), 716 m, 29 May 2023 (fl, yfr), *Salywon et al. 2550* (DES); 1.2 mi on Rte 675 from junction with Rte 676, then 3 mi S on side rd, (18°24'N, 66°22'W), 31 Dec 1980 (fl, yfr), *Solomon 5725* (MO).

UNITED STATES. **Florida**: Lee Co, Central Sanibel, (26.45°N, 82.10°W), 14 Apr 1972 (fl), *Brumbach 7893* (MICH); Palm Beach County, Delray, El Clair Road, (26.69°N, 80.13°W), 5 May 1971 (fl), *Sanders 4* (MO); Lee County, vicinity of Fort Myers, (26.64°N, 81.87°W), 4 May 1916 (fl), *Standley 160* (MO). **Louisiana**: Jefferson, Grand Isle, old central part of town, along lanes running NW off Hwy 1, in middle of island, (29.24°N, 89.99°W), 5 Mar 1995, *Smith s.n.* (LSU).

VENEZUELA. **Bolivar**: Piar, Río Acanán, Guaruma, 5 km SW of confluence with Río Carrao (5°56'N, 62°17'W), 470 m, 18 May 1986 (fl, yfr), *Holst 2857* (MO). **Falcón**: Parque Nacional Quebrada de la Cueva El Toro, (10°50'N, 69°07'W), 600 m, 21 Jun 1979 (fr), *Liesner et al. 7772* (MO); Colina, Río Ricoa, S de Las Dos Bocas, (11°19'N, 69°24–25'W), 200 m, 11 Feb 1977 (st), *Steyermark & Gonzales 113702* (MO). **Sucre:** Peninsula de Paria, Don Pedro, (10°43'N, 61°47'W), 366 m, 15 Sep 1984 (fl), *Milliken et al. 231* (MO).

Phenology—Flowering in any month but mainly a few weeks after the spring equinox, e.g., in October and November in Brazil and April and May in Mexico; fruiting about 2 to 3 months after flowering.

Habitat and Distribution—Disturbed areas such as roadsides, pastures, and also frequently cultivated, from near sea level to 1000 m. Widely distributed as a cultivated and escaped-weedy species in tropical and subtropical regions around the world.

Distinguishing Features—Calyx closed in flower bud or open only as a terminal pore, tearing irregularly as the bud opens, usually in 2 or 3 parts; lateral veins usually more than 10 pairs; hairs on lower leaf surface appressed, whitish, or silvery.

Common names—Goiaba (Portuguese); guayaba (Spanish); guava (English); gobaya (French Guiana), sahiuntu (Peruvian indigenous name reported by Ruiz & Pavón, 1958).

Psidium guajava is frequently confused with similar *P. guineense*; they have been hypothesized to hybridize (Landrum et al. 1995). They are contrasted in the key below.

1. Lateral veins usually 9–22 pairs; young twigs quadrangular, more or less winged; indumentum of lower leaf surface appressed, whitish, yellowish, or silvery; calyx usually tearing into 2 or 3 parts; anthers 0.7–1 mm long, usually with less than 10 glands. ..... ***P. guajava***

1' Lateral veins 5–10 pairs; young twigs more or less terete or compressed (some vigorous shoots sometimes 4–winged); indumentum of lower leaf surface more or less erect, reddish brown, or less often appressed, whitish or grayish; calyx usually tearing into 4 or 5 parts; anthers 1–3 mm long, usually with more than 10 glands. .....***P. guineense***

Where was *Psidium guajava* first cultivated? The earliest archaeological remains known that are thought to be of *P. guajava* come from South American sites (Arévalo-Marín et al. 2021). The oldest is from Teotonio, Rondônia, Brazil (5000–9000 cal. BP), a locality especially good for fishing along the Madeira River (a tributary of the Amazon River) with evidence of human habitation as early as 9000 years ago. Evidence of other edible plants includes remains of squash (*Cucurbita* sp.), beans (*Phaseolus vulgaris* L.), manioc (*Manihot esculenta*), pequiá (*Caryocar* sp.), (Watling et al. 2018). There are several sites on the coast of Peru that are as much as 6000 years old (Arévalo-Marín et al. 2021). Other plants such as squash, beans, camote (*Ipomoea batatas* [L.] Lam.), and cotton (*Gossypium barbadense* L.), were grown at Caral, Peru (ca. 4000 years ago), for instance, but not corn (*Zea mays* L.), (Shady Solís et al. 2001). These South American sites are quite different in climate and separated by the Andes mountain range, but geographically separated by only 1500 km. So, archaeological evidence points toward this part of South America, from coastal Peru to the Amazon basin being a likely area of origin for cultivated *Psidium guajava*. Based on comparative population genetics of *P. guajava* from 11 different countries of tropical America, Arévalo-Marín et al. (2024) discovered the highest genetic diversity in South America and hypothesize the Brazilian Amazon as a probable area of domestication. Another kind of evidence is the apparent close relationship between *P. guajava* and *P. rutidocarpum* a narrow endemic of eastern Peru. These species are morphologically quite similar (Landrum 2021a) but their habitats are different, *P. guajava* generally growing in disturbed localities (along roads and in pastures) from sea level to about 1000 m and *P. rutidocarpum* in less disturbed areas such as forests and natural grasslands often above 1000 m. An unpublished molecular study in progress supports a close relationship between them (L. Conceição, pers. comm.).

In Central America and Mexico the earliest archaeological record of *P. guajava* is about 2000 years old in the Tehuacán Valley of Mexico (Smith 1965). The earliest records of peanut (*Arachis hypogaea* L., another cultivated plant from South America) in Mexico are also from the Tehuacán Valley and of the same approximate age (Smith 1965).

By the time of European contact *Psidium guajava* was widely cultivated in the Caribbean region and various cultivars had been selected according to Fernandez de Oviedo y Valdés (1851, vol. 1, p. 304) who wrote his account in the early 1500s.

It is interesting that "goiaba" is the common name frequently used for this species in Brazil, a variant of "guayaba" reported by Fernández de Oviedo y Valdés (1851) and the name frequently used in Spanish speaking countries. Non-cultivated species of *Psidium* in Brazil are usually called "araçá" (Legrand and Klein 1977), a name from Guaraní. So, it is possible that *P. guajava* is a relatively recent arrival in much of Brazil (Landrum 2021a).

24. *Psidium guayaquilense* Landrum & Cornejo, Brittonia 68(4): 418. 2016. TYPE. Ecuador. Guayas: Bosque Protector Cerro Blanco, carretera Guayaquil-Salinas, km 15 (ca. 2°10'S, 80°00'W), 250 m, 26 Feb 2015(fl), *X. Cornejo & L. R. Landrum 8690* (HOLOTYPE: GUAY!; ISOTYPES: AAU!, ASU0084581!, NY-2059261!, SEL!).

Fig. 30

Tree or shrub up to ca. 20 m high, glabrous to sparsely strigose on twigs, lower leaf surface and flower buds; *hairs* reddish brown, whitish or clear, up to ca. 0.5 mm long; *young twigs* quadrangular, with 4 well developed wings, these up to ca. 1 mm wide just below a node, the wings soon falling with the first epidermis, the bark of older twigs flaky, the flakes thin, papery, yellowish to light reddish brown. LEAF BLADES elliptic to elliptic-lanceolate, elliptic-oblanceolate, 3.1–11 cm long, 1.8–5.5 cm wide, 1.8–3.1 times as long as wide, submembranous, drying grayish green to yellowish green, dull above, the lower surface with11–14 glands/mm², the margins sinuate, crenate upon drying; *apex* acute to acuminate; *base* rounded, acute or acuminate; *petiole* 1–2 mm long, 0.8–1.2 mm wide, shallowly channeled; *venation* brochidodromous, the midvein impressed above, prominent below, the lateral veins 6–10 pairs, leaving the midvein at an angle of ca. 60 degrees, about flat or impressed above, prominent below, the marginal vein broadly arcing between laterals, running 1–3(–5) mm from the margin, the tertiary veins forming a dendritic pattern that usually appears to arise from the marginal vein. FLOWER BUDS 11–13 mm long, pyriform, densely glandular, the hypanthium conic to campanulate, 3–4 mm long, the distal portion of bud subglobose, 8–9 mm long, with a rostrate tip; *indumentum pattern of buds* with outer surfaces glabrous to sparsely strigose, the inner surfaces glabrous except for the puberulent to strigose staminal ring and sometimes strigose style base; *peduncles* 1.5–3 cm long, ca. 1 mm thick, quadrangular, slightly winged; *bracteoles* unknown, deciduous before anthesis. CALYX closed in the bud, with an apiculate to rostrate apex, tearing irregularly, ca. 0.5 mm thick, the tears cutting the staminal ring; *petals* densely glandular, probably 1–1.5 mm long; *disk* bowl-like in flower, ca. 9 mm across when flattened, the portion within the staminal ring ca. 6 mm across; *stamens* ca. 500, probably ca. 7–10 mm long; *anthers* ca. 0.8–1 mm long, with 1 terminal gland and 1–6 smaller glands below in the connective; *style* ca.7–10 mm long; *ovary* 3–5-locular, the placenta peltate; *ovules* 1–2 seriate on each lamella, reflexed, 12–30 per locule. FRUIT subglobose, 1.5–3 cm in diameter, the wall 0.5–2.5 mm thick; *seeds* 4–6, 6–11 mm long, with rounded and flat sides.

Representative specimens examined. ECUADOR. **El Oro**: Quebrada de Arena, San Vicente, Arenillas, (3.55°S, 80.02°W), 100 m, 20 Mar 1997 (fl), *Van den Eynden 955* (QCA). **Guayas**: Naranjal, Parroquia Taura, Reserva Ecológica Manglares–Churute, Cerro Perequetre Chico, Bosque disturbado, (2.45°S, 79.67°W), 160 m, 26 Feb 1992 (fl), *Ceron 18260* (MO, SEL, QAP); Bosque Protector Cerro Blanco, (2.17°S, 79.97°W), 400 m, 20 Feb 1994 (fl), *Cornejo 1777* (ASU0080868, GUAY); Cerro Azul, Cordillera Chongon-Colonche, behind Cemento Nacional, 12 km W of Guayaquil, Quebrada Canoa, (2.25°S, 80.00°W), 50 m, 17 Jan 1991(st), *Gentry & Josse 72344* (MO); Guayaquil, slopes Cerro Blanco, along sendero Buenavista above visitor Center, (2°10'S,79°58'W), 255 m, 1 Mar 1996 (fl), *Neill & Nunez 10511* (MO, QCA); Guayaquil, carretera a Salinas Km 15 (79°58'W, 2°10'S), Bosque Protector Cerro Blanco, (2.17°S, 79.97°W), 17 Aug 1991 (fr), *Rubio et al. 1978* (ASU0005119, MO, QCNE); Guayaquil, Cerro Azul, carretera a Salinas, km 13, (2.17°S, 80.03°W), 100 m, 7 May 1992 (fr), *Tipaz et al. 867* (ASU0005120, MO, QCNE). **Manabí**: San Sebastián, Machalilla National Park, (1.60°S, 80.70°W), 700 m, 21 Jan 1991 (st), *Gentry 72598* (MO); Jama, Reserva de Bosque Seco Lalo Loor, 22 km south of Pedernales along coastal highway, 2 km inland from the sea, (0.08°S, 80.15°W), 50 m, 4 Oct 2005 (st), *Neill 14908* (MO).

Phenology—Flowering February and March; fruiting mainly in August.

Habitat and Distribution—Forest, seasonally dry; western Ecuador; 50–700 m.

Distinguishing Features—Plants glabrous to sparsely strigose on young growth; young twigs with 4 well developed wings, these up to ca. 1 mm wide just below a node; peduncles 1.5–3 cm long, ca. 1 mm thick, quadrangular, slightly winged; flower buds 11–13 mm long, pyriform, densely glandular, seeds 4–6, 6–11 mm long, with rounded and flat sides.

Psidium guayaquilense is similar to *P. acidum*; they are compared in lead 18 of Key 2-C.

25. ***Psidium guedesiae*** Stadnik & Landrum, Phytotaxa 734(1): 2. 2025. Type: BRAZIL, Bahia, Licínio de Almeida, Jurema–estrada para São Domingos, 14° 40' 56"S, 42° 30' 27"W, 22 January 2017 (fr), *A. Stadnik, R. Lopes, J. G. Jardim & M. Ibrahim 279* (HOLOTYPE: ALCB 128229; ISOTYPES: HUEFS 231006, UB 226776). Fig. 31

Shrub up to 5 m tall, the young growth sparsely to moderately strigose, or hirtellous on inner flower surfaces or insect galls; *hairs* clear, white, or light yellowish, to ca. 1 mm long; *young twigs* yellowish brown, sparsely strigose, villous or pilose, glabrescent with age, moderately glandular, with dark conspicuous glands, the older twigs grayish, the bark smooth to longitudinally cracking, with vegetative buds present in some leaf axils, these apparently producing cataphylls as they open, the expanded cataphylls oblong, up to 7 mm long and 4 mm wide. LEAF BLADES obovate to oblanceolate, 2.2–5.8 cm long, 1–2.7 cm wide, 1.8–2.9 times as long as wide, sessile to subsessile, membranous to submembranous at anthesis, later chartaceous; *apex* acute to abruptly acuminate, sometimes mucronate; *base* cuneate or attenuate; *petiole* 0–2 mm long, ca. 1 mm wide, slightly channeled, with a spur-like protuberance ca. 0.5 mm long at base so that the petiole attachment appears to be above the base; *venation* brochidodromous distally, eucamptodromous proximally, the midvein scarcely visible and flat above, moderately prominent below, the lateral veins 6–7 pairs, leaving at an angle of ca. 45º or less, arching towards apex near the margin, the marginal vein weak, only present distally, running 1–4 mm from the margin, the tertiary and smaller veins forming a reticulate pattern between the laterals. FLOWER BUDS pyriform, 5–6 mm long, the hypanthium obconic, ca. 2.5 mm long, the distal portion not seen in bud; *indumentum pattern of buds* with external surfaces sparsely strigose, the inner surfaces densely hirtellous except for subglabrous disk within staminal ring and distal portion of style; *peduncles* uniflorous, 5–7 mm long, ca. 0.5 mm wide, borne in axils of leaves or at leafless nodes. CALYX closed in bud (perhaps sometimes with a terminal pore), sometimes with a rostrate tip ca 1.2 mm long, falling as a calyptra, or tearing irregularly in 2 to 5 parts; *petals* probably 5 based on shape of staminal ring, white, obovate, ca. 3 mm long, ca. 2 mm wide, ciliate; *disk* within staminal ring ca. 2 mm across; *stamens* ca. 2.5 mm long; *anthers* oblong, ca. 0.2 mm long, ca. 0.2 mm wide, with one gland in apex of connective; *style* 3–4 mm long, with a swollen, hirsutulose base; *ovary* 2-locular, the placenta central, peltate; *ovules* 7–10 per locule, reflexed. FRUIT globose, ca. 4–5 mm long; *seeds* 5–7, ca. 3–4 mm long.

BRAZIL. **Bahia**: Caetité, (14°4’S, W 42°29’W), 1 Mar 1993 (ofl), *Guedes 2922* (ALCB24308!); Licínio de Almeida, Serra Geral, Lagoa da Vereda, (14°34’11”S, 42°27’59”W), 738 m, 11 Dec 2009 (fr), *Gomes 336* (ALCB 93264, HUEFS 159457); Morro do Chapéu, Estrada para a serra, no caminho para a Gruta dos Brejões, (11°55’S, 41°15’W), 6 Dec 2009 (fr), *Machado 485* (HUEFS166152); Condeúba, (14°53’S, 41°58’W), 15 Dec 2017 (ofl), *Guedes 30146* (ALCB 130292); Mortugaba, Serra Geral, (15°01’S, 42°22’W), 16 Feb 2018 (fl), *Guedes 30198* (ALCB 130349; HURB 19487). **Pernambuco**: São Caitano, RPPN Pedra do Cachorro,

Trilha arbórea da subida do afloramento, (8°14'21,7"S, 36°11'12,7"W), 790 m, 20 Mar 2010 (fr), *Mendes 426* (ASE0032455).

Etymology—Named for the distinguished botanist, M. L. Guedes, of the Herbário Alexandre Leal Costa, Salvador, Bahia.

Phenology—Flowering in December and February; fruiting from December to March; probably variable and in response to rain.

Habitat and Distribution—Bahia to Pernambuco; caatinga to cerrado/caatinga transition

Distinguishing Features—Leaves submembranous to chartaceous, sessile to subsessile, the base cuneate or attenuate; calyx closed in bud, tearing irregularly or opening as a calyptra; young growth sparsely to moderately strigose or pubescent.

Psidium guedesiae seems to belong to a group of four species, which includes *P. rhombeum*, *P. pulcherrimum*, and *P. brevipedunculatum*. *Psidium rhombeum* has been known since its description by Berg in 1857, but the other three have been formally described only recently (Tuler et al. 2019d; Tuler et al. 2020; Stadnik & Landrum 2025). They were given temporary names (spp. *A, B*, and *C*) by Landrum (2017) who knew each from a single specimen.

These four species commonly grow in caatinga vegetation, which is characterized by a pronounced dry season. They all seem to lose their leaves for the dry part of the year and perhaps have flowers when the new leaves appear at the beginning of the rainy season. All have: small flowers (flower buds 4–6 mm long, styles ca. 3–5 mm long, stamens ca. 50–200, ovules per locule 3–12); small leaves (1–6.5 cm long) that are membranous to chartaceous. Some at least have vegetative buds with specialized scales that do not develop into leaves, and the twigs have some nodes that are 1.2–2 as times as wide as the internodes (see Fig. 54B). The three species with clearly visible venation have eucamptodromous venation proximally and brochidodromous venation distally; and the tertiary venation is finely reticulate. Whether all are closely related or if they have become similar through parallel adaptation to a similar habitat is not clear. I reproduce a key from Stadnik and Landrum (2025) that distinguishes these four species.

1. Calyx open in the bud; petioles 3–7 mm long; leaf blade elliptic to suborbicular, to obovate, the base attenuate to rounded ..... ***P. rhombeum***
1' Calyx closed in the bud; petioles 0–5 mm long; leaf blade linear, elliptic, obovate to oblanceolate, the base cuneate to acuminate.
    2. Leaf blade linear to narrowly oblanceolate, 7–9 times as long as wide; peduncle ca. 15 mm long……. ..... ***P. pulcherrimum***
    2' Leaf blade elliptic, obovate, to oblanceolate, 1–3 times as long as wide; peduncle up to ca. 5 mm long.
        3. Flower buds and lower surface of leaves densely tomentose; petiole 4–5 mm long; leaf blades subcoriaceous at maturity ..... ***P. brevipedunculatum***
        3' Flower buds and lower surface of leaves moderately to sparsely strigose or pubescent; petiole 0–2 mm long; leaf blades submembranous to chartaceous at maturity..... ***P. guedesiae***

26. *Psidium guineense* Sw., Prodr. 77. 1788. TYPE. "Insula principis Africes, in Domingo culta." On type specimens: "Culta in Hispaniola," "ex Africa". Presumably, *Swartz s.n.* (HOLOTYPE: S-r-5302; ISOTYPES: BM-616940, SBT-12641). Fig. 32

Psidium polycarpon Lambert, Trans. Linn. Soc. London 11: 231. 1813. TYPE. "indigenous to the grassy savannahs of Trinidad; from whence plants were sent to the St. Vicent's garden in 1792," (HOLOTYPE: BM; ISOTYPE: MICH-1210424!, W [= ASU photo]).

Psidium araca Raddi, Opusc. Sci. Bologna 4: 252. pl. 7, fig. 2. 1815. TYPE. Brazil. Rio-Janeiro. (HOLOTYPE: FI-5202).

Campomanesia tomentosa Kunth, Nov. Gen. et Sp. 6: 151. 1823. TYPE. Colombia. "prope Ibague Novo-Granatensium," *Humboldt and Bonpland s.n.* (HOLOTYPE: P-679485; ISOTYPE: F! [= ASU photo]).

Psidium hians DC., Prodr. 3: 234. 1828. TYPE. Brazil. "ad Vaodo Paraná in Tabuleiro et Catingas," *Martius* [*1791*] (SYNTYPES: M-32376, annotated by de Candolle, designated here as LECTOTYPE [= F neg. 19714]; ISOLECTOYPES: M-32377, M-146873!). This was mistakenly considered a synonym of *Campomanesia pubescens* by Landrum (1986).

Psidium dichotomum Weinm. Syll. Ratisb. 2: 166. 1828. TYPE. Brazil. "In Brasilia," (probable HOLOTYPE: LE [= ASU photo]).

Psidium multiflorum Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 281. 1833. TYPE. Brazil. "In sylvis caeduis prope urbem S. Pauli," *Saint-Hilaire s.n.* (SYNTYPE: P-258410! designated here as LECTOTYPE; ISOLECTOTYPES: P-258411!, P-258412!). Cambessèdes named a separate species (p. 287) *Psidium multiflorum*, based on a separate collection (P-1902177! the apparent holotype, and MPU-10990 an isotype), that is *Campomanesia pubescens* (DC.) O. Berg.

Psidium albidum Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 281. 1833. TYPE. Brazil. "Prope urbem S. João del Rey in provincia Minas Geraes," *Saint-Hilaire* [*370* on specimen] (HOLOTYPE: P-258493!

Psidium molle Bertol. in Alessandrini, Nuovi Ann. Sci. Nat. 3: 136. 1840. Later again published in Fl. Guatimal. 22, Tab. IX. 1840 (see Baldini et al. 2019). TYPE. Guatemala. (HOLOTYPE: *Velasquez s.n*. BOLO-0508016, seen as digital image, = ASU0310765).

Psidium sericiflorum Benth., Pl. hartw. 176. 1845. TYPE. Ecuador. "In campis circa Popayán," *Hartweg 980* (possible HOLOTYPE: K-565585 [labeled "possible isotype"]; ISOTYPES: BM-796855, F-65716!, LD-1514512).

Psidium laurifolium O. Berg, Linnaea 27: 364. Jan.1856. TYPE. "in monte Masaya in Costa Rica," *Oersted* [*4001 on type specimen*]. (HOLOTYPE: C-10015959).

Psidium costaricense O. Berg, Linnaea 27: 368. Jan. 1856. TYPE. Costa Rica. "ad Iaru [Irazú] in Costa Rica," *Oersted 17* (HOLOTYPE: C-10015950).

Psidium molle var. ***gracile*** (O. Berg ex Örsted) O. Berg, Linnaea 27: 370. Jan. 1856. TYPE. Costa Rica. "Irasu," [*Oersted 27*] (HOLOTYPE: C-10015957). Illegitimate name to be replaced by *P. molle* var. *molle* because *P. molle* Bertol. is cited as a synonym.

Psidium molle var. ***robustum*** O. Berg, Linnaea 27: 370. Jan. 1856. TYPE. [Guatemala]. "In monte Candelaria," [*Oersted 21*] (HOLOTYPE: C-10015956).

Psidium monticola O. Berg, in Örsted, Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn 1855: 11. Jul. 1856. This paper by Örsted was a record of new species of Myrtaceae he had collected with notes by Berg, basically a preview, without collection numbers, of what Berg would publish in Linnaea. Unfortunately the "preview" was published after the official publication in Linnaea (TL-2, 2025). In the case of this species Berg had changed his mind and considered these specimens to be *P. molle*. So, this is an accidental new species. TYPE. No specimens cited but *Oersted 21* and *Oersted 27* are implied by the context (LECTOTYPE designated here, *Oersted 27*, C-10015957).

Psidium monticola var. ***gracile*** O. Berg, Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn 1855: 11. Jul 1856. TYPE. Costa Rica. "Irasu," *Oersted 27* (HOLOTYPE: C-10015957).

Psidium monticola var. ***robustum*** O. Berg, Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn 1855: 11. Jul. 1856. TYPE. [Guatemala]. "In monte Candelaria," *Oersted 21* (HOLOTYPE: C-10015956).

Psidium schiedeanum O. Berg, Linnaea 27: 368. 1856. TYPE. Mexico. *Schiede 541* (HOLOTYPE: B, lost). Possible original material: LE-7006 (*Schiede 512*) annotated specimen by Berg as *P. schiedeanum*.

Psidium benthamianum O. Berg, Linnaea 27: 362. 1856. TYPE. Guyana ["Guiana Anglica"]. *Rob. Schomburgk 836* (SYNTYPE: B, lost; LECTOTYPE: G-227697!, designated here; ISOLECTOTYPES: BM-796849, , K-170097, K-170098, MICH-1210415!, P-258486!, W-46097!) and *Rich. Schomburgk 314* (SYNTYPE: B, lost).

Psidium ooideum O. Berg, in Mart., Fl. bras. 14(1): 398. 1857. TYPE. Brazil. "prov. S. Pauli," *Sellow s.n.* (HOLOTYPE: B, lost; ISOTYPES: K-170093, P-2428285).

Psidium hians var. ***truncatum*** O. Berg, in Mart., Fl. bras. 14(1): 394. 1857. Illegitimate name to be replaced by the autonym *P. hians* var. *hians* because Berg cites *P. hians* under this variety.

Psidium hians var. ***cuneatum*** O. Berg, in Mart., Fl. bras. 14(1): 394. 1857. TYPE. Brazil. Locality unclear. *Sellow s.n.* (HOLOTYPE: B, lost; ISOTYPE: K-170094). An additional specimen annotated by Berg but not cited is *Pohl 2154* [=W-48022!].

?*Psidium rubescens* O. Berg**,** in Mart., Fl. bras. 14(1): 394. 1857. TYPE. Brazil. "ad Itanaré in prov. Rio Grande do Sul," *Sellow s.n*., (HOLOTYPE: B, lost).

Psidium refractum O. Berg, in Mart., Fl. bras. 14(1): 394. 1857. TYPE. Brazil. "ad Porto Real in prov. Goyazenzsi", *Pohl* (SYNTYPES: B, lost, BR-843778).

Psidium ypanemense O. Berg, in Mart., Fl. bras. 14(1): 395. 1857. TYPE. Brazil. "v. in hb. Mart. et Berol," "ad pagum Ypanema in prov. S. Pauli," *Raben 757* (SYNTYPE: BR-843781) and *Sellow s.n.* (SYNTYPE: BR-843783; ISOSYNTYPES: K-565299, LE-7014, W-46099!).

Psidium ooideum var. ***parvifolium*** O. Berg, in Mart., Fl. bras. 14(1): 602. 1859. Illegitimate name to be replaced by the autonym *P. ooideum* var. *ooideum* because Berg considers it to include the type of the species.

Psidium ooideum var. ***intermedium*** O. Berg, in Mart., Fl. bras. 14(1): 602. 1859. TYPE. Brazil. "prope Batataes," *Riedel* [*2293*]. (HOLOTYPE: LE-6994).

Psidium ooideum var. ***grandifolium*** O. Berg, in Mart., Fl. bras. 14(1): 602. 1859. TYPE. Brazil. "prope Batataes et Itu," *Riedel* [*2059*] (SYNTYPES: LE-6989, LE-6990, LE-6991, LE-6992, LE-6993; ISOSYNTYPES: G-227729!, P-258402!, P-258403!).

Guajava albidum (Cambess.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava ypanemensis (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava polycarpa (Lambert) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava multiflora (Cambess.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava hians (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava rubescens (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava guineensis (Sw.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava ooidea (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava refracta (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava schiedeana (O. Berg) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Guajava costaricensis (O. Berg) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Guajava laurifolia (O. Berg) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Guajava mollis (Bertol.) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Guajava benthamiana (O. Berg) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Psidium ooideum var. ***longipedunculatum*** Rusby, Mem. Torrey Bot. Club 3(3): 27. 1893. TYPE. Bolivia. "Yungas," *Bang 287* (HOLOTYPE: NY-1288067!; ISOTYPES: BM-1125476, CORD-3582, E-504661, F-42755, M-146745!, MICH!, PH-22411, PUL-384, R-162777!, US-117670, W-1372!).

Psidium eugenii Kiaersk., Enum. Myrt. Brasil. 26. 1893. TYPE. Brazil. Minas Gerais. Lagoa Santa, *Warming s.n.* (HOLOTYPE: C-10015952)

Myrtus guineensis (Sw.) Kuntze, Revis. Gen. Pl. 3: 91. 1898.

Psidium hasslerianum Barb. Rodr., Myrt. Paraguay 9. 1903. TYPE. Paraguay. "prope Igatemy, ad Brasil," *Hassler 4870* (HOLOTYPE: G-194091).

Psidium lehmannii Diels, Bot. Jahrb. Syst. 37: 594. 1906. TYPE. Colombia. "circ. Popayán 1000-1800 m," *Lehmann 5820* (HOLOTYPE: B, lost; ISOTYPES: K-170070, NY-887977).

Psidium cordillerense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTIONS. Paraguay. "Cordillera de Altos," *Hassler 1689* (G!) as well as "in campis Nu-guazu," *Hassler 1687* (G!) and *Hassler1723* (G!, BM-511342, K-170078, P-258474!)

Psidium glandulosum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTION. Paraguay. "Cordillera de Piribebuy," *Hassler 6633* (G [3 sheets, = ASU photos]).

Psidium macrophyllum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "Cordillera de Altos," *Hassler 3393* (G [4 sheets, = ASU photos], BM-511324, K-565295, NY-1288061!, P-258427!, P-258428!, W-2678!).

Psidium tomasense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "in Colle So-Tomas," *Hassler 6554* (G [3 sheets, = ASU photos], A-71261, MICH-1210420!, MPU-10993, NY-1288093!, P-258360!, P-258361!, S-r-9460, W-763!).

Psidium laurifolium Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Igatimi," *Hassler 4762* (G [3 sheets, = ASU photos]).

Psidium atiraense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTIONS. Paraguay. "pr. Atira [3641]" and "in valle fluminis Y-aca pr. Chololo [6751]," *Hassler 3641* (G [3 sheets, = ASU photos], K-565296, NY-1288033!) and *Hassler 6751* (G, BM-511341).

Psidium schippii Standl., Publ. Field Mus., Bot. 8: 319. 1931. TYPE. Belize. "All Pines," *Schipp 595* (HOLOTYPE: F-65683; ISOTYPES: G-227694!, K-565291, MICH-1210422!, NY-1288088!).

Psidium rotundifolium Standl., Publ. Field Mus., Bot. 8: 318. 1931. TYPE. Belize. "All Pines," *Schipp S-85* (HOLOTYPE: F-65682; ISOTYPES: G-227693!, MICH-1210423!, MO!, NY-1288084!, WIS-v0255107).

Psidium hypoglaucum Standl., Publ. Field Mus., Bot. Ser. 8: 320. 1931. TYPE. Belize. "All Pines," *Schipp S-99* (HOLOTYPE: F-76373!).

Mosiera guineensis (Sw.) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 4. 1986 ["1985"].

Shrub or small tree up to about 6 m high, typically densely covered with velvety to subtomentose indumentum on the inflorescence and young growth but sometimes nearly glabrous, the trunk smooth to scaly; *hairs* simple, spreading (loosely appressed) to erect, often tangled together, grayish to reddish brown, ca. 0.3–0.5 mm long; *young twigs* densely to moderately velutinous, or less often glabrous, compressed to terete in section, losing indumentum in about 1 year, usually not angled but sometimes grooved when young, vigorous shoots sometimes weakly angled, the older bark usually remaining more or less smooth, less often somewhat flaky or stringy. LEAF BLADES elliptic, elliptic-oblong, obovate, 4–11.5 cm long, 2–8 cm wide, 1.3–2.4 times as long as wide, coriaceous, drying yellowish brown to reddish brown, concolorous to somewhat darker above, when dry often mottled and/or lustrous above, usually densely to moderately velutinous below, glabrous to covered with hairs along the midvein above, the margin entire; *apex* obtuse, rounded, or acute; *base* rounded to acute; *petiole* 4–12 mm long, 1.5–2 mm thick, channeled, densely to sparsely pubescent, rarely glabrous; *venation* brochidodromous to eucamptodromous distally, the midvein impressed or nearly flat above, prominent below, the lateral veins 5–10 pairs, ascending at an angle of ca. 45°, diminishing and looping near the margin to connect with the next lateral, a clear marginal vein not formed, the tertiary veins, connecting the laterals in a ladder-like to reticulate pattern. FLOWER BUDS pyriform, 8–15(–17) mm long, the hypanthium ellipsoid to obconic, 3.5–7 mm long, the distal portion of bud ellipsoid, subglobose, or ovoid, 4.5–10 mm long; *indumentum pattern of buds* with all external surfaces moderately to densely pubescent (rarely subglabrous), the calyx pubescent without, but less densely so than hypanthium, distally pubescent within, the petals pubescent without, the disk sparsely pubescent (less often glabrous), the style glabrous; *peduncles* terete to compressed, 9–25(–30) mm long, 1–2 mm wide, uniflorous or triflorous, the branches of the dichasium when present 2–12 mm long; *bracteoles* narrowly triangular, ca. 2–3 mm long, caducous at about anthesis. CALYX closed completely, or with a terminal, pore-like opening at the apex, tearing longitudinally to the staminal ring, usually in 5 parts, these sometimes persisting until the fruit matures, the margin of calyx pore if present sinuate or with 5 small lobes; *petals* elliptic to obovate, concave, 7–15 mm long, 7–10 mm wide, sometimes more than 5; *disk* 4–5 mm across; *stamens* 180–300, 7–10 mm long; *anthers* 1–3 mm long, more or less introrsely dehiscent, the glands in the connective 1 to over 50; *style* 8–12 mm long; *ovary* 3–5-locular; *ovules* 50–100 per locule, ca. 8-seriate. FRUIT subglobose to ellipsoidal, 1–3 cm long; *seeds* 19–250 per fruit, 2.5–5 mm long, the seed coat 0.2–0.3 mm thick at narrowest point. $2n = 44$.

Representative specimens examined. ARGENTINA. **Corrientes**: General Paz, Arroyo Sta. Isabel at ruta 12 E of Itá Ibaté, (27.33°S, 57.50°W), 9 Dec 1987 (fl, yfr), *Landrum 5676* (ASU0004988); Ituzaingó, 7 km S of Río Aguapey on Ruta 39, (27.58°S, 56.25°W), 9 Dec 1987 (fl), *Landrum 5708* (ASU0004996); Empedrado, Río Paraná near Arroyo Sombrero, riverine woodland and grassland on INTA estate, (27.95°S, 58.80°W), 27 Nov 1978 (fl), *Renvoize 3634* (ASU0007555); Santo Tomé, Paraje Galarza, (28.10°S, 56.67°W), 30 Oct 2001 (fl), *Schinini 35655* (ASU0069697); Isla Apipé Grande, Pto. Arazá, (27.50°S, 56.90°W), 26 Nov

1988 (fl, fr), *Tressens 3470* (ASU0007486). **Misiones**: San Ignacio, Teyucuaré, Peñón Reina Victoria, (27°S, 54°W), 29 Jul 1992 (yfr), *Krapovickas 44151* (ASU0007485); San Ignacio, new road to Loreto, ca. 1 km from Ruta 12, (27.26°S, 55.54°W), 11 Dec 1987 (st), *Landrum 5734* (ASU0007498). **Salta**: Santa Victoria, Los Toldos, entre la municipalidad y El Arrazay, 3–4 km al S del pueblo, (22.28°S, 64.70°W), 1600 m, 16 Mar 1986 (fl), *Navara 5111* (MCNS).

BELIZE. **Cayo**. La Flor Hunting Camp, on Rio La Flor, 6 miles S of Grano de Oro, 1700–2000 ft, 3 Jun 1973 (fl), *Gentry 7838* (BRH) seen as image only.

BOLIVIA. **Beni**: Ballivián, Espíritu, (14.13°S, 66.72°W), 200 m, 17 Apr 1980 (fr), *Beck 3451* (MICH); Yacuma, 1 km E of the Río Matos, then 6 km S on track, Estancia La Pascana, (14.82°S, 66.33°W), 250 m, 4 Nov 1985 (fl), *Solomon 14564* (ASU0007528). **Chuquisaca**: Hernando Silas, Mun. Huacareta, cima Serranía Los Milagros, Laguna Milagros, (20.33°S, 64.04°W), 1854 m, 25 Dec 2005 (fl), *Serrano et al. 6900* (ASU0080866). **La Paz**: Franz Tamayo; Parque Nacional Madidi, Río Tuichi, arroyo Pintata, (14.53°S, 68.70°W), 1150 m, 4 Dec 2005 (fl, yfr), *Araujo-M. 2629* (ASU0053041); La Ceja, Hacienda Carama sobre camino a Tipuani, (15.50°S, 68.00°W), 1600 m, 1 Mar 1923, *Buchtien 7391* (NY); Inquisivi, comunidad Khora-Charapampa, cuenca del río Miquillas, ca. 22 Km al N de Choquetanga, (16.67°S, 67.33°W), 1340 m, 29 Oct 1994 (fl), *Salinas 2924* (ASU0053025). **Santa Cruz**: Ángel Sandoval, Germán Busch, área natural de manejo integrado y Parque Nacional Otuquis, Estancia Quebracho, en las lajas, (19.36°S, 58.10°W), 140 m, 5 Nov 1998 (fl), *Carrión 689* (ASU0053024); San José - San Ignacio, km 117, (16.90°S, 60.64°W), 24 Oct 1977 (fl), *Evrard 8285*; Velasco Province, Isla de bosque 3 km al E del campamento La Toledo, (14.76°S, 61.11°W), 210 m, 16 Sep 1995 (fl, fr), *Foster 162* (ASU0007527); Chiquitos. 26 km NE de San José yendo a Taperas, (18.40°S, 60.62°W), 200 m, 11 Nov 1996 (yfr), *Jardim 3572* (ASU0069698); Nulfo de Chavez. Rancho Puesto Nuevo, 40 km S of Concepción, (16°25'S, 62°00'W), 1 Mar 1987 (fr), *Killeen 2359* (ASU0007495); Vallegrande, 5.5 km S of Vallegrande, vic. Santa Rosita, Quebrada Huasa, Cañada, (18.53°S, 64.10°W), 2050 m, 31 Dec 1988 (fl, fr), *Nee & Vargas 37455* (ASU0007533); Ichilo, 11 km NE of Buena Vista, 1 km N Buena Vista-Portachuelo highway, on road to Palacios, (17.38°S, 63.58°W), 300 m, 8 Dec 1990 (fr), *Nee 40273* (ASU0007530). **Tarija**: O`Connor, Entre Ríos, subiendo de Valle del Medio hacia la divisoria del valle de Chiquiaca, (21.53°S, 64.17°W), 1480 m, 28 Feb 2006 (yfr), *Beck. 31843* (ASU0053027).

BRAZIL. **Alagoas**: Maceió, Bairro Salvador Lira, (9.67°S, 35.72°W), 25 Mar 1999 (fr), *Filgueiras 3520* (ASU0007500). **Amapá**: Parque Indigena do Tumucumaque, Rio Parú de Oeste, Missão Tiriyo, (2.33°N, 55.75°W), 19 Feb 1970 (fl), *Cavalcante 2424* (MICH); Igarapé Ariramba, (1.22°N, 51.05°W), 4 Aug 1962 (fl), *Pires & Cavalcante 52347* (MICH); 12 km de Alenquer, a caminho da Faz. Capintuba, (1.88°S, 54.65°W), 4 Nov 1987 (fl), *Cid 9439* (F); Campina do Mangaba, Martins Pinheiro, (0.80°S, 57.58°W), 28 Feb 1975 (yfr), *Coradin 120* (MICH); á 10 km de Macapá, rodovia Macapá/Santana, (0.03°N, 51.05°W), 5 May 1982 (fr), *Rosa & Rosa 4307* (HRB). **Bahia**: Ilhéus, 16 km de Itabuna, (14.82°S, 39.03°W), 19 Jan 1965 (fr), *Belém & Mendes 167* (CEPEC); ca. 2 km ao N de Maracás, (13.43°S, 40.45°W), 12 Oct 1983 (fl), *de Carvalho et al. 1957* (CEPEC, HRB); Belmonte, a 10 km S da cidade, restinga a borda do mangue, (15.85°S, 38.90°W), 7 Jan 1981 (fl), *Carvalho & Gatti 476* (CEPEC, HRB); Caravelas, ca. 16 km na estrada Caravelas/Alcobaca, (17.75°S, 39.25°W), 5 Sep 1989 (fr), *Carvalho et al. 2468* (CEPEC, HUEFS); Mata a NE de B. Bananeiras, (12.53°S, 39.08°W), 1 Nov 1980 (fl), *Pedra do Cavalo 899* (ALCB, CEPEC, HRB, HUEFS); Senhor do Bonfim: Serra do Barro Amarelo, (10.54°S, 40.32°W), 900 m, 28 Oct 2005 (fl), *Conceição 353* (ASU0007553); estrada do Feijão, ca. 34 km de Morro do Chapéu, (11.66°S, 40.87°W), 855 m, 15 Jun 2003 (fr), *França et al. 4759* (ASU0007546); Lençóis, (12.56°S, 41.39°W), 500 m, 18 Mar 2002 (fr), *R. Funch 8* (ASU0007543); Rio de Contas, Pico das Almas, vertente leste, Campo do Queiroz, (13.53°S, 41.95°W), 1500 m, 5 Dec 1988 (fl), *Harley 26590* (ASU0007557); Vila de Sauipe, Mata de São João, (12.37°S, 37.89°W), 16 Nov 2004 (fl), *Queiroz 1137* (ASU0007560); Ibiraba, ca. 313 km NE de Xique-Xique na estrada para Barra (area plana, alagada, na margem do rio São Francisco), (11.10°S, 42.74°W), 421 m, 15 Oct 2000 (fl), *Queiroz et al. 6455* (ASU0007547); Licínio de Almeida, (14.53°S, 42.53°W), 825 m, 29 Oct 2012 (fl), *Roque* (ASU0075032); Maraú, estrada para a Península de Campinho, (13.90°S, 38.97°W), 30 Dec 1999 (fl), *Carneiro Torres 187* (ASU0057592). **Distrito Federal**: Brasília, Bacia do Rio São Bartolomeu, (15.78°S, 47.92°W), 12 Nov 1981 (fl), *Heringer 6171* (MO, NY). **Espírito Santo**: Santa Teresa, morro do Loteamento Jardim da Montanha, (19.92°S, 40.60°W), 23 Oct 1985 (fl), *Boudet Fernandes 1572* (CEPEC); Reserva Florestal de Linhares, Estrada Flamengo, 16.71 km, (19.15°S, 40.07°W), 4 Mar 1993 (fr), *Folli 1820* (ASU0069733); arredores de Guarapari, (20.67°S, 40.50°W), 24 Jan 1964 (fl,fr), *Hoehne 5530* (SPF); Linhares, Restinga de Povoação, Ponto do Monsaraz, (19.58°S, 39.80°W), 19 Feb 1988 (fr), *Pirani 2384* (ASU0069720); Domingos Martins, BR 262 km 42, (20.36°S, 40.66°W), 11 May 1993 (fl), *Pirani 2798* (ASU0069730, SPF). **Goiás**: Posse, Rodovia Brasília-Fortaleza, 220 km de Formosa, (14.09°S, 46.37°W), 8

Jan 1965, *Belém 111* (CEPEC, NY); Alto Horizonte, (14.19°S, 49.33°W), 29 Dec 2005 (fr), *Faria 200* (ASU0018564); Flor de Goiás, Rod. GO-202, Rio dos Macacos (14.44°S, 47.05°W), 8 Oct 1981 (fl), *Hatschbach 44082* (ASU0069726); São João da Aliança, Córrego das Brancas, próximo a Barra do Jacaré, (14.71°S, 47.52°W), 9 Feb 1994 (fr), *Hatschbach 60177* (ASU0010509); BR.153, 36 km S de Goiânia, (17.09°S, 49.22°W), 20 Jan 1978 (fr), *Krapovickas et al. 33127* (CTES, MO); Barro Alto, estrada da terra que sai da GO-342 p/ a barra dos Rios Maranhão e Almas (Rumo a Faz. Pontal), (14.70°S, 48.97°W), 8 Feb 1996 (fr), *Walter et al. 3148* (SP); Alto Paraíso de Goiás, Chapada dos Veadeiros, ca. 15 km W. of Alto Paraíso de Goiás, (14.12°S, 47.66°W), 1000 m, 12 Feb 1966, *Irwin 12667* (MO, NY). **Maranhão**: Campo on Fazenda do Senhor Miquel Pacheco, Km 176 of BR 135, 2 km N of São Mateus, (4.00°S, 44.50°W), 27 Sep 1980 (fl), *Daly et al. 305* (HRB, MICH, MO). **Mato Grosso do Sul**: Brasilândia, várzea do Rio Paraná, (21.26°S, 52.04°W), 25 Nov 1992 (fl), *Catharino 1711* (ASU0010508); Miranda, (20.23°S, 56.37°W), 12 Oct 1972 (fl), *Hatschbach 30415* (ASU0007550); Fazenda Água Amarela, between Boqueirão and Bela Vista, (22.08°S, 56.53°W), 27 Sep 1996 (fl), *Ratter et al. R-7567* (ASU0007475). **Minas Gerais**: Santa Luzia, Fazenda da Chicaca, (19.77°S, 43.85°W), 1100 m, 25 Oct 1945, *Assis 33* (MO); Grão-Mogol, Vale do Rio Itacambiruçu, (16.60°S, 42.92°W), 650 m, 12 Dec 1989 (fl), *Pirani et al. CFCR 12558* (SP); Hermilo Alves, Carandaí, (21.02°S, 43.80°W), without date (fl), *Duarte 5084* (HB); Monte Azul, Serra do Espinhaço, (15.15°S, 42.88°W), 14 Mar 1995 (yfr), *Hatschbach 61858* (ASU0018822); Ituiutaba, (18.97°S, 49.47°W), 16 Oct 1949, *Macedo 1946* (MO); Viçosa, Morro de Lambari, (20.75°S, 42.88°W), 750 m, 12 Nov 1930 (fl), *Mexia 5290* (CAS, MICH, MO, NY); Arinos, Fazenda Cuscuzeiro, ca. 30 km do trevo da rodovia MG-202, seguindo pela estrada de terra que liga Arinos a Buritis, (15.92°S, 46.07°W), 7 Oct 1994 (fl), *Pereira 2666* (ASU0007569); Pandeiros, ca. 35 km W of Januária, (15.50°S, 44.83°W), 25 Oct 1972 (fl), *Ratter et al. 2685* (MICH, UB); Santa Rita do Sapucai, Timburé, (22.25°S, 45.70°W), 26 Feb 2001 (fr), *Ribas 3312* (ASU0007567); Arinos-Formoso, Bacia do Rio Piratinga, (15.44°S, 46.20°W), 28 Sep 2000 (fl), *Salino 5712* (ASU0069728). **Pará**: Campina do Palha, estrada da Vigia, (0.80°S, 48.13°W), 21 Oct 1953 (yfr), *Froes 29347* (MICH); Belém, (1.45°S, 48.48°W), 19 Feb 1947 (fl), *Pires & Black 1387* (MICH). **Paraná**: Rio das Mortes, Jaguariaíva, (24.25°S, 49.70°W), 25 Nov 1980 (fl), *Hatschbach 44385* (ASU0008045). **Pernambuco**: Arquipélago de Fernando de Noronha, Costões da praia do bode, (3.84°S, 32.42°W), 3 Jun 1993 (fr), *Miranda et al. 976* (ALCB); Morro do Pico, Ilha de Fernando de Noronha, (14.82°S, 39.03°W), 8 Mar 1993 (fl), *Polix et al.5671* (ALCB). **Rio de Janeiro**: Serra da Estrela, ca. 2 km above Meio da Serra near Petrópolis, (20.67°S, 43.17°W), 500 m, 16 Oct 1977 (fl), *Landrum 2074* (ASU0069721, MICH); Posse section of Teresópolis, (22.41°S, 42.97°W), 27 Jan 1982 (yfr), *Landrum 4200* (CAS, NY); Atafona, (21.62°S, 41.02°W), without date (fl), *Sampaio 8154* (R). **Roraima**: Ilha de Maracá, Alto Alegre, SEMA Estação, (3.37°N, 61.33°W), 16 Jun 1986 (fl), *Hopkins 773* (ASU0069722). **São Paulo**: Icém, Fazenda Porto Velho-Usina Moema, (20.35°S, 49.20°W), 12 Oct 1994 (fr), *Barraca 17-SAB* (ASU0007573); Matão, (21.58°S, 48.37°W), 11 May 1949, *Gomes 326* (RB); São Paulo, Campo do Butantã, (23.53°S, 46.62°W), 1 Nov 1947 (fl), *Joly 318* (ASU0008044); 2 km oeste de Jeriquara, (20.31°S, 47.59°W), 16 Mar 1964 (fr), *Mattos & Bicalho 11536* (ASU0007571); perto de Itapetininga, (23.59°S, 48.05°W), 3 Dec 1974 (fl), *Mattos 16123* (ASU0008020); São José dos Campos, 6–6,5 km a SW (rod. Pres. Dutra) da saída para S. J. dos Campos, 100–500 m ao lado SE da rodovia, (23.18°S, 45.89°W), 600 m, 22 Nov 1967 (fl) *Mimura 605* (ASU0010506). **Sergipe**: Mata do Crasto, Santa Luzia do Itanhy, (11.35°S, 37.45°W), 25 Sep 1995 (fr), *Landim 843* (ASU0069724).

COLOMBIA. **Antioquia**: Yarumal, carretera entre Yarumal y El Alto de Ventanas, (6.96°N, 75.43°W), 2000 m, 25 Jul 1979 (fl, fr), *Hoyos 96* (ASU0007512); San Jerónimo, km 10 of road San Jerónimo-Medellín (6°25'N, 75°42'W), 1225 m, 19 Sep 1987 (yfr), *Zarucchi et al. 5419* (MO); Sonsón, km 22.2 of road Sonsón-La Unión (5°50'N, 75°17'W), 4 Oct 1987 (fr), *Zarucchi et al. 6259* (MO). **Cauca**: Cordillera Central, vertiente occidental, Hoya del río Palo, La Tolda, arriba de Tacueyó, (3.07°N, 76.23°W), 2000 m, 18 Dec 1944, *Cuatrecasas 19466* (US); Zarzal, La Paila, (4.32°N, 76.08°W), 22 Mar 1853, *Holton* (NY). **Huila**: along road NE past El Caguán toward Cerro Neiva, 7 km above El Caguán (2°52'N, 75°11'W), 900 m, 22 Mar 1983 (fr), *Croat 55371* (MO). **Magdalena**: vicinity of Pantano, 3 km W of San Sebastián de Rábago (73°37'W, 10°34'N), 2000 m, 15 May 1977 (fl), *Starker & Alverson 498* (MO). **Meta**: Sierra de la Macarena, San Juan de Arama, carretera a Mesetas, (2.96°N, 73.87°W), 520 m, 26 Sep 1987 (fl), *Estrada 420* (ASU0061598). **Valle del Cauca**: Pereira, Hacienda La Carmelita, extremo norte de parte ancha del Valle del Río Cauca, (3.46°N, 76.47°W), 1000 m, 12 Aug 1991 (fr), *Silverstone Sopkin 6325* (ASU0007513).

COSTA RICA. **Alajuela**:13–16 km north of Liberia along Camino Santa Maria, (10.68°N, 85.37°W), 600 m, 9 Jul 1976 (fr), *Utley & Utley 5391* (CAS). **Guanacaste**: Cerro Coyote, (10.38°N, 85.33°W), 11 Sep 1992 (fr), *Chavarria 676* (ASU0004918); Santa Rosa National Park (10°50'N, 85°37'W), 200 m, 25 Jan 1978 (fl), *Liesner 4540* (MO).

CUBA. **Guantánamo**: Yateras, Sierra de Frijol, en el camino del Riíto a Cayo Fortuna, (20.39°N, 74.92°W), 700 m, 12 May 1983 (fl), *Arias et al. 49321* (JE); subida hacia la zona de Monte Líbano, (20.28°N, 75.15°W), 300 m, without date (fl), *Bisse & Kohler 7928* (JE); La Prenda, (20.34°, 75.04°), 11 Jul 1919, *Bro. Hioram 2501* (NY); montanas de Guantánamo, (20.15°N, 74.87°W), 16 May 1983 (ofl), *Urquiola 685* (ASU0004977). **Holguín**: Pinares de Mayarí, Pinar Redondo, en el camino de La Chivera a Río Piloto, (20.40°N, 75.78°W), 400 m, 25 May 1983 (yfr), *Arias et al. 50203* (JE); Cuchilos de Toa, Cayo Fortuna, trillo de Riíto a Piloto Arriba, (20.52°, 74.88°), 31 Mar 1972 (fl), *Bisse & Berasain 22249* (JE); Sierra de Nipe in pinetis, (20.46°N, 75.83°W), 20 Oct 1919 *Ekman 9776* (NY).

ECUADOR. **Azuay**: Via San José de Huigra-Molleturo, (2.75°S, 79.38°W), 1900 m, 3 Oct 1994 (fl, fr), *Cornejo 3310* (ASU0007515); **Chimborazo**: Hacienda de Licay, near Río Chanchan, hill behind (north) of Huigra, old road from, (2.25°S, 78.92°W), 1900 m, 26 May 1989 (fl), *Smith 2050* (QCA). **Guayas**: Ecuador, (1.53°S, 80.00°W), 20 m, 31 Aug 2016 (fl), *Cornejo 8850* (ASU0108258). **Ibabura**: Agochagua, (0.25°N, 78.06°W), 2500 m, 26 Nov 1949, *Acosta Solis 14654* (F). **Loja**: Catacocha, cerro Guanchurro, (4.05°S, 79.65°W), 1930 m, 12 Feb 1995 (fr), *Eynden 264* (ASU0007514). **Pichincha**: Mitad del Mundo-Calacali road km 5, (0.01°N, 78.47°W), 2840 m, 6 Nov 1984 (fl, fr), *Jorgensen 56296* (ASU0007516). **Tungarahua**: Banos, path to Buena Vista Café, on hill overlooking town, (1.40°S, 78.42°W), 450 m, 27 Jun 2003 (fl), *Landrum 10879* (ASU0007509). **Zamora-Chinchipe**: immediately S and SE of Zamora (ca. 78°57'W, 4°4'S), 1000 m, 14 Jun 1988 (fl, fr), *Ollgaard et al. 74853* (AAU, QCA).

EL SALVADOR. **Ahuachapán**: San Benito, al S de las faldas del Cerro León (13°49'N, 89°56'W), 900 m, 22 Nov 1993 (fl), *Sandoval 1519* (MO). **Chalatenango**: along trail from San Ignacio to Las Pilas, west slope Los Esismiles, (14°21'N, 89°10'W), 1200 m, 6 Apr 1942 (yfl), *Tucker 1208* (MICH, US). **Morazán**: camino a Lolotiquillo, 2 km de carr. San Fco. a Honduras (13°43'N, 88°05'W), 340 m, 22 Apr 1989 (fl, fr), *Reyna 1430* (MO). **San Vicente**: San Vicente, La Joya, A.N.P. La Joya, limite Tequera y Area Protegida, Cerco de Piedra, (13.59°N, 88.71°W), 5 May 2013 (fl, fr), *Galán 2364* ASU0299377).

GUATEMALA. **Baja Verapaz**: San Jerónimo. Km 137 carretera La Cumbre-Salama, (15.05°N, 90.20°W), 1030 m, 24 Jul 1988 (fr), *Tenorio 14771* (ASU0004923).

GUYANA. **Cuyuni-Mazaruni**: SW end of Paruima village, NW of Conoch Tipu, (5.80°N, 61.05°W), 495 m, 18 May 1990 (fr), *McDowell 2635* (ASU0007587). **Rupununi**: near village of Karasbai (4° 0'N, 59°21'W), 300 m, 2 Jan 1982 (fl), *Knapp & Mallet 2777* (MO); Rupununi Savanna, Mt. Shiriri, (2.90°N, 59.72°W), 200 m, 1 Mar 1985 (fr), *Jansen-Jacobs 522* (ASU0008049); nearly 3,5 km SW of Aishalton, (2.50°N, 59.25°W), 17 Nov 1982, *Stoffers 353* (CAS).

HAITI. **Grand'Anse**: Massif de la Hotte, western group, Carail, on the road to Dutreuil, hillside, (18.40°N, 74.00°W), 100 m, 29 Sep 1928 (st), *Ekman H10766* (NY). **Nord-Est**: Massif du Norde, Vallière, slope of Morne Salnave, (19.44°N, 71.88°W), 800 m, 1 May 1928 *Ekman H 9931* (US).

HONDURAS. **Comayagua**: NW of Siguatepeque, hwy to Taulabé, 13.4 km before turnoff to Taulabé, km 125, (14.65°N, 87.93°W), 1200 m, 26 Aug 1989 (fl), *Landrum 6486* (ASU0004971). **El Paraiso**: near Yuscarán, (13.93°N, 86.85°W), 17 Apr 1970 (fl), *Barkley 40174* (TEFH). **Francisco Morazán**: Road from Comayagua to Tegucigalpa, 6.7 km SW of Parque Aurora, near km post 27 and where lines cross hwy, (14.29°N, 87.40°W), 27 Aug 1989 (fr), *Landrum 6514* (ASU0004943). **La Esperanza**: Intibucá, orillas de La Pozona, 2 km de La Esperanza, (14.32°N, 88.18°W), 28 Jun 1974, *Martinez 231* (TEFH).

JAMAICA. **St. Andrew**: vicinity of Irish Town, (18.05°N, 76.72°W), 783 m, 6 Mar 1960 (fr), *Proctor 20669* (MICH).

MARTINIQUE. Fort de France, (14.63°N, 61.05°W), 30 Nov 1880, *Duss 595657* (NY).

MEXICO. **Chiapas**: 35 km beyond turnoff to Agua Azul on road to Ocosingo, about 1 km before Tunapaz, (17.26°N, 92.11°W), 30 Jul 1989 (fr), *Landrum 6373* (ASU0004963); 3.1 km E of junction with hwy 195 on hwy 190, ca. 47 km W of San Cristóbal, (16.74°N, 92.64°W), 1 Aug 1989 (fr), *Landrum 6395* (ASU0004890); road to Apic Pac, ca. 20 km N of beginning of road at Ocozocoautla, (16.92°N, 93.45°W), 3 Aug 1989 (fr), *Landrum 6427* (ASU0004916); 18 km N on hwy 195 toward Villahermosa from hwy 190, (16.93°N, 92.91°W), 4 Aug 1989 (fr), *Landrum 6431* (ASU0004902); La Concordia, 2 km al NO de Jaltenango, camino a Tuxtla, (15.89°N, 92.74°W), 2 Mar 1988 (fl, fr), *Martinez 22627* (ASU0004924). **Guerrero**: Acapulco, Parque Nacional El Veladero (Cerro El Mirador), (16.89°N, 99.91°W), 150 m, 6 Jul 1985 (fr), *Noriega Acosta 595* (ASU0004959); San Luis Acatlán, between, Yoloxóchitl y Cumiapa, (16.82°N, 98.64°W), 11 Jul 2013 (yfr), *Amith F0039* (ASU0077441); Água de Obispo, 35 km W of Chilpancingo on road to Acapulco, (17.32°N, 99.47°W), 23 Jul 1989 (bud), *Landrum 6342* (ASU0004962). **Jalisco**:1.4 km by road SW of Ayotitlán on rd. to Cuautitlán, (19.46°N, 104.19°W), 28 Mar 1989 (fl), *Cochrane 11-11800* (ASU0004965); 1–2 km NW of Jirosoto, 15–17 km WNW of Purificación, (19.76°N, 104.75°W), 400 m, 1

Nov 1979, *Iltis & Nee 1449* (WIS). **Nayarit**:1 km from highway 15 along the road to Santa Maria del Oro, (21.37°N, 104.60°W), 1000 m, 21 Jun 1987 (fl), *Miller 3201* (ASU0004955). **Oaxaca**: San Felipe Usila, senda para la pista de Santiago TIatepusco, (17.90°N, 96.53°W), 24 Sep 1990 (fl), *Calzada 16441* (ASU0018647); Santa María de Chimalapa, Cafetales cerca de Sta. María, (16.96°N, 94.67°W), 2 Jul 1984 (fr), *Hernández 181* (ASU0004967); Tehuantepec, Zacatal, Rancho Limón, 17 km O de Tehuantepec, (16.32°N, 95.24°W), 9 Sep 1985 (fr), *Martínez Ramírez 205* (ASU0018650); Mixe, Totontepec, (17.25°N, 96.00°W), 8 Apr 1991 (fl), *Rivera 757* (ASU0004949); San Miguel del Puerto, Pochutla, Brecha Xadani-San Miguel del Puerto, camino a La Blas, (15.92°N, 96.12°W), 540 m, 29 Sep 2001 (yfr), *Salas 4184* (ASU0018644); Mpio. de San Juan Lajarcia. Distrito Yautepec. 1070 m linea recta al S-SE del punto trino de Nejapa-Camaron-Lajarcia, meseta del Cerro Gavilan, (16.54°N, 95.91°W), 1544 m, 2 Nov 2001 (yfr), *Salas 4302* (ASU0018651). **Sinaloa**: Concordia, 56.7 km NE of Villa Union at km 239 from Durango on rd. to Mazatlán, (23.55°N, 105.82°W), 950 m, 1 Oct 1985 (yfr), *Bartholomew et al. 2532* (CAS); Concordia. between El Comal and El Walamar, 15 km by air NE of Concordia, Comunidad La Guasima, (23.35°N, 105.93°W), 323 m, 3 Dec 2007 (yfr), *Van Devender 2007-1130* (ASU0004914). **Veracruz**: Coatepec, 3.8 km E Tuzamapan (19°22'N, 96°53'W), (19.37°N, 96.88°W), 10 Nov 1975 (yfr), *Velazquez Licea 6* (ASU0004957).

NICARAGUA. **Chontales**: 0.4 km SE of bridge over Quebrada Niscala along road between Acoyapa and Río Oyate (11°47'N,85°1'W), 50 m, 7 Jun 1981 (fl), *Henrich & Stevens 168* (MO). **Esteli**: La Tejera, 11 km de la Panamericana, camino al Cerro Tisey (12°58'N, 86°33'W), 26 May 1981 (fl), *Moreno & Henrich 8668* (MO). **Nuevo Segovia**: 5 km al NE de Dipilto (13°45'N, 86°33'W), 1200 m, 21 Sep 1984 (fr), *Moreno et al. 24754* (MO). **Zelaya**: along road to Limbaika ca. 3.9 km E of Alamikamba (ca. 13°32N, 84°13'W), 30 m, 25 Apr 1978 (fl), *Stevens 8199* (MO).

PANAMÁ. San José Island, Pearl Archipelago, (8.25°N, 79.13°W), 15 Jun 1945 (fl), *Erlason 295* (US). **Canal Zone**: Barro Colorado Island, La Campana, (9.16°N, 79.84°W), 5 Oct 1938 (fl), *Zetek 4228* (MO). **Chiriquí**: north of Volcán, on llanos, (8.80°N, 82.58°W), 1800 m, 15 Jan 1989 (fl), *McPherson 13534* (ASU0004956). **Panamá**: Campana, sendero al Cerro Campana, (8.67°N, 79.92°W), 800 m, 20 Apr 1995 (fr), *Correa 11072* (ASU0004919).

PARAGUAY. **Alto Paraná**: sud du Río Monday, (25.30°S, 55.20°W), 250 m, 12 Sep 1983 (fr), *Stutz 1897* (ASU0057652). **Amambay**: Parque Nacional Cerro Corá, road from Lugar Histórico to Administración, near Lugar Histórico, (22.58°S, 56.08°W), 20 Aug 1995 (yfr), *Landrum 8675* (ASU0018816). **Caaguazú**: 3 km N of Yhú, (25°00'S, 55°55'W), 13 Dec 1982 (yfr), *Hahn et al. 872* (MO, PY). **Caazapá**: Tavaí, Cerro Tupasy, (26.17°S, 55.68°W), 29 Oct 1988 (fl), *Degen 899* (ASU0018665). Ygatimí, Reserva Ita Poty, (24.17°S, 55.67°W), 20 Nov 1995 (ofl), *Landrum 8866* (ASU0007536). **Concepción**: Arroyo Trementina, 15 km east of Paso Barreto, (23.04°S, 57.01°W), 210 m, 1 Jul 1994 (fl), *Zardini 39917* (ASU0060412). **Cordillera**: western side of Río Piribebuy basin, 27 km W of Arroyos y Esteros, (25.13°S, 57.30°W), 23 Dec 1989 (yfr), *Zardini 17281* (ASU0008029). **Guairá**: Cordillera de Ybytyruzú, isolated peak 10 km W of Melgarejo, (25°45'S,56°25'W), 16 Oct 1989 (fl), *Zardini & Aguayo 14951* (ASU0007584). **Itapúa**: Capt. Miranda, 4.2 km N of entrance to Hotel Tirol beside and behind CONAVI project, (27.15°S, 55.76°W), 210 m, 9 Nov 1995 (fl), *Landrum 8807* (ASU0010503). **Misiones**: rt. 1 between San Patricio and Santa Rosa at Km A250, (27.00°S, 56.75°W), 265 m, 14 Aug 1995 (bud, fr), *Landrum 8672* (ASU0007541). **Paraguarí**: 35 km N of Caapucú, Arroyo Apichapa, (26°10'S, 57°10'W), 29 Apr 1984 (fr), *Hahn 2393* (MO, PY), ca. 3 km S of Emboscada on road to Nueva Colombia, (25.15°S, 57.33°W), 100 m, 20 Jul 1995 (st), *Landrum 8613-B* (ASU0007476).

PERU. **Amazonas**: Rodriguez de Mendoza, Mariscal Benavides, Michina, (6.38°S, 77.51°W), 1420 m, 2 Sep 1998 (fl, fr), *Vazquez & Campos 25420* (ASU0007507). **Cajamarca**: San Ignacio, Coipa: La lima, (5.42°S, 78.82°W), 1300 m, 23 Feb 1996 (fl, fr), *Campos et al. 2572* (ASU0007501). **Cuzco**: La Convención Dist. Echarate, Cirialo, (12.68°S, 73.03°W), 792 m, 27 Jun 2005 (fl), *Huamantupa 7250* (ASU0007523); La Convención, just east of Quillabamba, Finca Chichima, (13.53°S, 71.97°W), 1300 m, 20 Apr 1981 (fr), *Young 262* (ASU0007518). **Pasco**: camino a Yanahuanca saliendo de Pozuzo. Dtto. Pozuzo. Prov. Oxapampa, (10.07°S, 75.53°W), 1000 m, 15 Nov 2001 (yfr), *Landrum 10127* (ASU0069694). **San Martin**: outskirts of Tarapoto, (6.50°S, 76.42°W), 15 Feb 1984 (fr), *Gentry 45552* (ASU0007519).

VENEZUELA. **Amazonas**: Puerto Ayacucho, (5.67°N, 67.58°W), 100 m, 30 Apr 1931, *Holt & Blake 823* (NY); Atures, N de la Laguna Maguari (ca. 5°43'N, 65°48'W), 1 Mar 1979 (fl), *Huber 3552* (MICH); Sierra Parima, vecindades de Simarawochi, Río Matacuni, (3°49'N, 64°36'W), 795 m, without date (fl), *Steyermark 107097* (MICH, MO). **Apure**: Pedro Camejo, 11 km directly E of Paso de San Pablo, (7.03°N, 67.65°W), 45 m, without date (fr), *Davidse & Gonzalez 12944* (MICH). **Bolívar**: Cedeño, Caserio El Tigre, (7.25°N, 66.13°W), 80 m, 1 Jun 1988 (fl), *Fernandez 112* (ASU0007551); Roscio, Urdaneta, Tarenken (5°1'N,

61°8'W), 850 m, 25 Jan 1986 (fl), *Hernandez 174* (MO); Piar, Hato `Terecay` ca. 16 km N de El Manteco, (ca. 7°28'N, 62°27'W), 300 m, 24 Sep 1982 (fr), *Huber & Alarcon 6604* (MO, NY); Gran Sabana, carretera Fuerte Luepa-Kavanayen, Rastrojo a 300 m de la Estación Río Parupa (margem derecha), Parque Nacional Canaima, (5.52°N, 61.99°W), 23 Mar 1993 (fl, fr), *Ramírez 4016* (ASU0007520); la cuenca del Río Paragua, medio Río Oris, en los alrededores del Campamento Turumbán, (6.36°N, 63.76°W), 300 m, 13 May 1987 (fl), *Stergios 10749* (ASU0007522). **Guarico**: Est. Biol. de Los Llanos, 12 km SE de Calabozo, (8°56'N, 67°25'W), 75 m, 15 May 1987 (fr), *Ramírez 2166* (MO). **Lara**: Jimenez, 4-5 km S of Sanare, (69°38'W, 9°42'N), 1550 m, 28 Oct 1982 (fl), *Davidse & Gonzalez 21352* (MO).

MADAGASCAR. **Toliara**: Reserve Forestale de Mandena, ca. 7.5 km N of Tolanaro, (24°58'S, 46°59'E), 0 m, 20 Mar 1989 (fr), *Gereau et al. 3297* (MO).

NEW CALEDONIA. **Southern**: Road to Mt Dzumac from Dumbea, (22.08°S, 165.45°E), 149 m, 16 Aug 2003 (fr), *Snow 9278* (ASU0069693).

Phenology—Flowering throughout year but mainly in September to November in Argentina and Brazil and May to July in Mexico; fruiting throughout year but mainly in January to February in Brazil and July to August in Mexico.

Habitat and Distribution—Forest, restinga, cerrado, várzea, campo, caatinga, disturbed areas from near sea level to 1650 m. *Psidium guineense* is a widespread species of disturbed habitats, ranging from northern Argentina to Mexico and the Caribbean. It has been widely introduced in subtropical and tropical areas around the world.

Distinguishing Features—Calyx closed or with a small terminal pore in bud, usually tearing into 5 parts; lateral veins 5–10 pairs, usually with a ladder-like pattern of tertiary veins; indumentum of lower leaf surface more or less erect, reddish brown, or more or less appressed, whitish, silvery, or gray; anthers 1–3 mm long, often with more than 10 glands.

I believe that *Psidium guineense* hybridizes with at least a few other species, namely, *P. guajava*, *P. australe,* and *P. grandifolium*. Some hybrids seem to be locally common. Most of the hybrids tend to be similar in having more or less obovate leaves that are usually densely appressed pubescent below. Thus, it is not always clear what species has crossed with *P. guineense* to produce a hybrid. In *P. guineense* × *P. guajava* the calyx is closed or nearly so in the bud, while in *P. guineense* × *P. australe* the calyx is usually open. Otherwise, these two hybrids can be quite similar. In *P. guineense* × *P. grandifolium* the leaves are often quite large (e.g., *Landrum 8862*, ASU0008015). If one has not seen the hybrids and their parents in the field, it can be difficult to know the parentage of individuals.

Psidium guineense is contrasted with *P. guajava* and *P. grandifolium* in the discussion of those species. One possible intermediate between *P. guineense* and *P. grandifolium* is a population in the area of Parque Nacional Cerro Corá, Amambay, Paraguay that I assign to *P. guineense. Landrum 8675* (ASU0018816) and *Landrum 8692* (ASU0018815) are good examples. This population should be the subject of additional research.

There are two common morphologies (morphs) found in *Psidium guineense* that seem to intergrade and that often grow together. I contrast them in a key below.

1. Leaves usually oblong-elliptic; lower leaf surface with spreading to erect reddish or yellowish brown hairs; anthers 0.9–2(–3) mm long. Typical morph
1’ Leaves elliptic to obovate; lower leaf surface with appressed grayish to silvery hairs; anthers 0.8–1.3(–2) mm long. Atypical morph (e.g, type of *Psidium ooideum*).

At least some of these atypical specimens have been hypothesized to be hybrids between *Psidium guineense* and *P. guajava* (Landrum et al. 1995). I now know that the atypical entity is often locally more common than the typical and sometimes the only morph known

to occur in a locality. It is possible that the atypical specimens are due to introgression from *P. grandifolium*, *P. guajava*, or *P. australe.* Perhaps additional field studies in conjunction with molecular studies will shed light on this taxonomically difficult situation.

The following are examples of pairs of specimens of typical and atypical morphs of *Psidium guineense* growing near one another:

Argentina, Corrientes, Depto. General Paz: *Landrum 5676*, ASU0004988 (typical) and *Landrum 5682*, ASU0004999 (atypical).

Paraguay, Paraguarí: *Landrum 8773*, ASU0007481 (typical) and *Landrum 8785*, ASU0010497 (atypical).

Paraguay, Itapua: *Landrum 8802*, ASU0007538 (typical) and *Landrum 8807*, ASU0010503 (atypical).

Paraguay, Canindeyú: *Landrum 8866*, ASU0007536 (typical) and *Landrum 8847*, ASU0008040 (atypical).

Images of each specimen are available at http://swbiodiversity.org/seinet/index.php. Search on collector plus number or herbarium catalog number.

27. *Psidium guyanense* Pers., Syn. Pl. [Persoon] 2: 27. 1806. TYPE. Guyana. *Richard s.n.* (HOLOTYPE: P-herbarium Jussieu -13845, photo at ASU). Fig. 33

Psidium sprucei O. Berg, in Mart., Fl. bras. 14(1): 396. 1857. TYPE. Brazil. "Santarem prov. Paraënsis, floret Augosto", *R. Spruce 825* (HOLOTYPE: M-32385; ISOTYPES: BM-796911, K-565298, NY-1288052!, W-18890013472).

Psidium donianum O. Berg, in Mart., Fl. bras. 14(1): 521. 1858. TYPE. Brazil. Maranhão, *G. Don 102* (HOLOTYPE: BR-5269532!).

Psidium umbrosum O. Berg, in Mart., Fl. bras. 14(1): 599. 1859. TYPE. Brazil. Pará, "prope Sanatarem, florebat Novembri", *Reidel [1528].* (HOLOTYPE: LE-7013; ISOTYPES: G-227670!, K-565279, MO-1703722, NY-1365091!, P-258358!, P-258359!, U-5182).

Psidium richardianum O. Berg, Linnaea 30(6): 705. 1861. TYPE. "*Psidium laurifolium* L. Cl. Richard. Herb." …. "Habitat in silvis Cayennae, Floret Octobri". Richard (HOLOTYPE: P-258449. With long attached note, "Louis Claude Richard. Herbarium Guyanense-Anrillianum", has been annotated as a type collection of *Psidium richardianum* O. Berg.

Guajava sprucei (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Guajava umbrosa (O. Berg) Kuntze,Rev. Gen. 239. 1891.

Guajava doniana (O. Berg) Kuntze,Rev. Gen. 239. 1891.

Guajava richardiana (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Tree or shrub to 1–5 m high, minutely hirtellous on young growth; *hairs* mainly less than 0.1 mm long, erect, whitish to yellowish brown; *young twigs* minutely and sparsely hirtellous, sometimes appearing glabrous, drying dark reddish brown to light brown, the bark of older twigs smooth or flaky, often gland-dotted, the hairs persisting on first bark until it falls. LEAF BLADES ovate, lanceolate, or elliptic, 6–13.5 cm long, 3–6.5 cm wide, (1.3–)1.8–2.6(–3) times as long as wide, sometimes submembranous at anthesis, coriaceous at maturity, drying dark reddish brown; *apex* acute to acuminate; *base* rounded, acute or cuneate; *petiole* 3–9 mm long, 1.5–2 mm thick, slightly to deeply channeled, minutely hirtellous; *venation* brochidodromous distally, eucamptodromous proximally, the mivein impressed or flat above, prominent below, the lateral veins 4–7, the marginal arching broadly distally, 0.5–3(–5) mm from margin, the tertiary venation dendritic. FLOWER

BUDS 8–12 mm long, pyriform, the hypanthium obconic to campanulate, ca. 3.5–5 mm long, the distal portion of bud subglobose, 4–7 mm long, often wider than long, sparsely minutely hirtellous; *indumentum pattern of buds* with external surfaces sparsely to densely minutely hirtellous, the calyx often less densely so than adjacent hypanthium, the calyx within densely hirtellous, the disk hirtellous to pubescent, the style glabrous or with scattered hairs; *peduncles* 1–3-flowered, 4–20 mm long, 1–1.5 mm wide, compressed; *bracteoles* caducous before anthesis, perhaps small, narrowly triangular, those seen narrowly elliptic, 5–7 mm long. CALYX nearly closed (with a small terminal pore), or bowl-like with a large terminal pore, with a sinuate margin, tearing into 5 lobes at anthesis, these ca. 5 mm long, 3–5 mm wide; *petals* obovate to suborbicular, 6–9 mm long, glandular; *disk* including staminal ring 5–6 mm wide after anthesis; *stamens* 200–400, ca. 10 mm long, sparsely pubescent to glabrous; *anthers* oblong, 1–1.5 mm long, with 3–5 glands in the connective; *style* ca. 10 mm long, the stigma peltate, ca. ca. 1 mm wide; *ovary* 3–5 locular; *ovules* 50–75 per locule, the placenta protruding, sometime reflexed with ovules pointing towards center of flower. FRUIT oblong to suborbicular, to 5 cm long, the fruit wall 4–6 mm thick; *seeds* (2.5)3–5 mm long, 44–188, with rounded and flat sides.

A species similar to *P. guineense* but differing in having a minutely hirtellous indumentum, a calyx often with a small to large terminal pore before anthesis, and leaves with an acute to acuminate apex and tertiary venation that is mainly dentritic.

Two specimens (*Smith 2500*, Isherton, Guyana; *Irwin et al. 21204*, Araguaina, Brazil) have the indumentum and open calyx of *P. guyanense* and the leaves of *P. nutans* (rounded, coriaceous at anthesis with pronounced veins). They are very similar to each other and perhaps another taxon.

BRAZIL. Amapá: Macapá, Parque Florestal da Fazendinha, 8 km S of Macapá, (ca. 0.02°N, 51.08°W), 16 Dec 1984 (fl), *Mori 17404* (ASU); Macapá, Parque Florestal da Fazendinha, (ca. 0.03°N, 51.05°W), 6 Feb 1984 (fl), *Rabelo & Nonato 2512* (ASU); Pôrto Platon, Rio Amapari, (ca. 0.7°N, 51.45°W), 12 Oct 1976 (fl), *Ribeiro 1489* (CAS, NY); Quadricula SB-22-VA- Ponto 44, (1.44°N, 52.02°W), 9 Apr 1982 (fr), *Rosa 4220* (ASU). **Maranhão**: Island of São Luiz, estrada do Olho d'Agua, (2.52°S, 44.27°W), without date (fl), *Froes 11626* (MO, NY); Anajatuba, (3.27°S, 44.67°W), 21 Jan 1976 (fl), *Ribeiro & Pinheiro 1184* (HRB, MICH); margem da estrada Colombo - Anajatuba, (3.27°S, 44.62°W), 27 Jan 1976 (fl), *Ribeiro & Pinheiro 1264* (MICH); Anajatuba, (3.27°S, 44.62°W), 21 Jan 1976 (fl), *Ribeiro & Pinheiro 151843* (ASU). **Mato Grosso**: São Félix do Araguaia. Beira do Rio Araguaia, entre São Félix do Araguaia e o encontro com o Rio das Mortes, (11.68°S, 50.67°W), 16 Mar 1997, *Souza 14262* (ASU); São Feliz do Araguaia, W bank of Rio Araguaia on inlet called Lago Ingles, (11.57°S, 50.72°W), 7 Oct 1985 (fl), *Thomas et al. 4290* (ASU). **Pará**: Santarém, Belterra, estrada Pôrto Novo-Pindobal, (2.43°S, 54.7°W), 7 Dec 1978 (fr), *Lobo et al. 209* (NY); Legeira, airstrip on Rio Maicuru, (0.9°S, 54.43°W), 800 m, 20 Jul 1981 fr), *Strudwick et al. 3315* (NY); Sete Varas airstrip on Rio Curuá, (1°S, 54.9°W), 10 Aug 1981 (fr), *Strudwick et al. 4462* (MICH, MO). **Tocantins**: Ca. 15 km S. of Araguaína, (7.19°S, 48.21°W), 300 m, 15 Mar 1968 (fr), *Irwin 21204* (NY).

VENEZUELA. Bolivar: Calzeta de la Botella, cerca de El Dorado, (ca. 6.71° N, 61.64°W), 100 m, 14 Apr 1957 (yfr), *Bernardi 6539* (MICH, NY).

Phenology—Flowering mainly from December to March; fruiting April, July, August, and December.

Habitat and distribution—Wet forests near streams, sometimes periodically flooded. Eastern Amazon region of Brazil and Bolivar, Venezuela.

Distinguishing features—Young growth covered with minute, erect hairs (minutely hirtellous); closed calyx with a large pore; leaves ovate, lanceolate, or elliptic, 6–13.5 cm long, 3–6.5 cm wide, the apex usually acute to acuminate, the base rounded, acute or cuneate; *petiole* 3–9 mm long, 1.5–2 mm thick.

Psidium guyanense is similar to *P. guineense* and the names are commonly confused. *Psidium guineense* is widespread, growing in a variety of habitats that are often disturbed and usually not near rivers; *Psidium guyanense* grows in the eastern Amazon region, usually near water, and sometimes in periodically flooded places. See Key 1-H for a comparison of *P. guyanense* with its similar relatives *P. guineense* and *P. nutans*.

28. *Psidium harrisianum* Urb., Symb. Ant. 7: 294. 1912. TYPE. Jamaica, "supra Clarendon in sylvis Peckham dictis, 800 m. alt.," *Harris 11000* (HOLOTYPE: B, lost; ISOTYPE: NY-1288054!, designated here as LECTOTYPE). Fig. 34

Shrub or small tree 1.5–10 m high, glabrous except for inner surface of calyx and staminal ring, densely glandular on young growth; *hairs* less than 0.1 mm long, reddish brown to whitish; *young twigs* whitish, spotted with reddish brown glands (less often dry dark brown with glands of the same color), the first bark falling as thin flakes, the older twigs reddish gray. LEAF BLADES suborbicular, sessile or nearly so, 2–8 cm long, 1.8–7 cm wide, 0.9–1.1(–1.5) times as long as wide, subcoriaceous, somewhat lustrous above and below, drying dark reddish brown to gray green, lighter below; *apex* rounded to truncate, sometimes emarginate to indented; *base* cordate to truncate; *petiole* 0–1 mm long, 0.5–3 mm wide; *venation* brochidodromous, the midvein prominent below, about flat above, the lateral veins 4–6 pairs, leaving the midvein at angle of 45 to nearly 90 degrees, the marginal vein arching deeply between laterals, running from about 1–10 mm from the margin, the tertiary veins weak, dendritic. FLOWER BUDS pyriform, 3.5–4 mm long, usually constricted between calyx and hypanthium, “dull red” when fresh (fide *Franck 3796*); *hypanthium* obconic, campanulate, ca. 2 mm long; *indumentum pattern of buds* with all external surfaces glabrous, the inner surface of calyx and staminal ring strigose-puberulent; *peduncles* 3–8 mm long, 0.3–0.8 mm wide; *bracteoles* narrowly triangular, 0.3–0.5 mm long, usually deciduous before anthesis. CALYX closed or with a terminal small pore, tearing irregularly in 2–4 parts; *petals* not seen extended, glabrous, densely glandular; *disk* within staminal ring ca. 1.5 mm across; *stamens* 35–47, probably ca 3 mm long; *anthers* subglobose, ca. 0.5 mm long, with a terminal gland and 4–7 smaller glands below; *style* ca. 2.5 mm long; *ovary* 2-locular; *ovules* borne on the edge of a peltate placenta, 8–19 per locule, mainly 1-seriate on each lamella. FRUIT subglobose, 1–1.5 cm wide; *seeds* 17 in one fruit, 4–5 mm long.

Representative specimens. JAMAICA. Clarendon: Peckham Woods, (18.20°N, 77.39°W), 770 m, 4 May 2015, *Franck 3796* (USF); Peckham Woods, (18.17°N, 77.41°W), 762 m, 15 Aug 1954 (fl), *Webster & Proctor 5420* (MICH). **St. Ann**: Douglas Castle district, (18.20°N, 77.27°W), 701 m, 8 Oct 1977 (fr), *Proctor 37325* (FTG, MO). **St. Catherine**: Forest Reserve are east of Crofts Mountain, (18.13°N, 77.18°W), 503 m, 6 Sep 1962 (fl), *Proctor 22738* (MICH). **Trelawny**: Cockpit country, Lichfield–Barret Hut, `Little Kilimanjaro Hill`, (18.25°N, 77.50°W), 600 m, 17 Mar 2011 (fl, fr), *Abdo & Campbell 2610* (FTG); Burnt Hill, (18.31°N, 77.56°W), 549 m, 3 Sep 1965 (fr), *Proctor 26691* (MICH).

Phenology—Flowering or with flower buds from March to November; fruiting in September, October, and March.

Habitat and distribution—Wooded limestone hills at 500 to 800 m; a rare and perhaps endangered species of the central Jamaican highlands.

Distinguishing features—Large suborbicular leaves up to 8 cm long with lateral veins leaving the midvein at an angle of 45 to 90 degrees; flower buds 3.5–4 mm long.

29. *Psidium huanucoense* Landrum, Novon 15(3): 444. 2005. TYPE. Peru. Huánuco. Puerto Inca, Dtto. Yuyapichis, Unidad Modelo de Manejo y Producción Forestal DANTAS, 9°40'S, 75°02'W, 270 m, 16–30 April 1990 (fl), *Tello 47* (HOLOTYPE: USM!; ISOTYPES: G-227702!, MO-2246730!, NY-887975). Fig. 35

Tree up to ca. 15 m high, sparsely to densely puberulent on most surfaces; *hairs* light tan to whitish, usually erect, up to ca. 0.25 mm long; *young twigs* with 4 prominent wings, light bown to reddish brown when dry, moderately puberulent, glabrescent with age. LEAF BLADES elliptic-oval, ovate, or lanceolate, 8.5–21 cm long, 5.5–9 cm wide, 1.3–2.5 times as long as wide, coriaceous, drying dark reddish brown above, olive green below, moderately puberulent below (especially along veins), sparsely puberulent to glabrescent above; *apex* broadly rounded to acute or acuminate (sometimes abruptly so); *base* cuneate to rounded; *petiole* 5–12 mm long, 1.5–3 mm wide, channeled, puberulent to glabrescent; *venation* brochidodromous or partially eucamptodromous, the midvein prominent below, impressed above, the lateral veins 7–10 pairs, prominent below, impressed to about flat above, leaving midvein at about 45 degrees, a clear marginal vein evident at least distally, arching slightly between laterals, more or less equaling laterals in prominence, running 3–12 mm from margin, a second weaker marginal running along margin itself sometimes evident, the tertiary veins connecting larger veins in a dendritic to ladder-like pattern. FLOWER BUDS pyriform, 15–17 mm long, densely puberulent, the hypanthium campanulate, 5–6 mm long, the distal portion of bud subglobose to ovoid, 10–11 mm long; *indumentum pattern of buds* with external surfaces (including central portion of petals without) puberulent, calyx within, disk and style glabrous; *peduncles* uniflorous or triflorous, 10–35 mm long, 1.5–2.5 mm long wide, flattened, the lateral arms of the dichasia to ca. 8 mm long; *bracteoles* lanceolate-linear, 6–10 mm long, 1–2 mm wide, caducous before anthesis. CALYX closed in bud, terminating in an acute tip, tearing irregularly at anthesis, the tears not cutting the staminal ring; *petals* obovate to suborbicular, probably ca. 1.5 cm long when expanded, strongly glandular; *disk* ca. 6–10 mm across; *stamens* ca. 600; *anthers* oblong, ca. 1.5 mm long (perhaps longer when fully expanded); *style* perhaps ca. 1.5 cm long, the stigma peltate; *ovary* 5-locular in 1 ovary examined; *ovules* ca. 265 in 1 locule examined. FRUIT ca. 5 cm in diameter, the wall ca. 2 mm thick; *seeds* probably more than 200, ca. 5 mm long.

Representative specimens examined. PERU. **Huanuco**: Puerto Inca, Dtto. Llullapichis, (9.67°S, 75.03°W), 280 m, 1 Nov 1989 (fr), *Kroll*, *684* (ASU0008056); Dtto. Yuyapichis, Forestal Dantas, arbol aboretum #26-413, (9.67°S, 75.03°W), without date, (yfr), *Tello*, *47* (ASU0008058); Dtto. Yupapichis, Arbol barrera # VW-18-023, 24 cm dap. 15 m alto, (9.67°S, 75.03°W), 270 m, without date (fl) *Tello*, *1756*, (MOL-F, NY, USM). **Pasco**: Oxapampa, Dtto. Pozuzo, (10.18°S, 75.57°W), 1250 m, 21 Sep 2002 (fl, yfr), *Monteagudo et al. 3934* (ASU0008057, ASU0018600).

Phenology—Flowering April and September; fruiting November.

Habitat and distribution—Forest, abandoned agricultural areas; eastern Peru, at 200–1250 m.

Distinguishing features—Young twigs 4-winged; flower buds large, 15–17 mm long, densely puberulent; fruit ca. 5 cm in diameter, the wall ca. 2 mm thick.

Psidium huanucoense appears to combine features of *P. acidum* (which is essentially glabrous) and *P. guineense* (which has smaller flowers) and is compared with them in Key 2-C.

30. ***Psidium kennedyanum*** Morong, Ann. N. Y. Acad. Sci. 7: 104. 1893. TYPE. Paraguay. Pilcomayo River, *T. Morong 890* (SYNTYPES: NY-1288056!, NY-1288057!. ISOSYNTYPES: BM-511326, GH-71255, NDG-34691, NY-405565 [ex WELC], PH-22410, US-117665). Fig. 36

Psidium paranense O. Berg, in Mart. Fl. bras. 14(1): 604. 1859, a later homonym of *Psidium paraense* in Mart., Fl. bras. 14(1): 386. 1857. TYPE. Brazil. São Paulo, "Tieté prov. Paranense," *Riedel [376]* (SYNTYPES: LE-6996, LE-6995 [both annotated by Landrum but seen as images only]).

Psidium striatulum var. ***paranense*** O. Berg, in Mart. Fl. bras. 14(1): 603. 1859. TYPE. Brazil. São Paulo, "R. Pardo, Tieté, Paraná, florebat Augusto," *Riedel* [*411*] (SYNTYPES: LE-7010, LE-7011 [both annotated by Landrum but seen as images only]).

Psidium striatulum var. ***australe*** O. Berg, in Mart., Fl. bras. 14(1): 604. 1859. TYPE. Brazil. "prov. Rio Grande do Sul, florebat Julio" *Riedel* [*2394*] (SYNTYPES: LE-7008 [annotated by Landrum, but seen as an image only], LE-7009. ISOSYNTYPE: K-565400).

This is an unusual case. First, the specimens are annotated by Berg as "*Psidium striatulum* β *paranense*." Since he also described a related species as *P. paranense* (=*P. kennedyanum*), did he think at one time that this collection was the same taxon and planned to change *P. paranense* to a varietal status? Before publishing Berg appears to have changed his mind and called the collection *P. striatulum* γ [var.] *australe*, apparently because he thought it came from southern Brazil. The labels say only "Rio grande." Rio Grande probably refers to a tributary of the Paraná River that now defines the border between São Paulo and Minas Gerais. It is north of the Rio Tieté in São Paulo, where Riedel was a month later. It is unlikely that these specimens truly come from Rio Grande do Sul, Brazil (where the species has not yet been found) as Berg thought.

Guajava paranensis Kuntze, Revis. Gen. Pl. 1: 239. 1891, a new name for *Psidium paranense* O. Berg, a later homonym. ***Guajava paraensis*** (O. Berg) Kuntze and ***Guajava paranensis*** Kuntze are simultaneously published in Revis. Gen. Pl. 1: 239. 1891. One must be chosen to have priority, and I here choose ***Guajava paraensis*** to have priority in parallel with the priority of *P. paraense* in *Psidium*. (See article 53.5 of Code).

Psidium tripartitum S. Moore, Trans, Linn. Soc. ser. 2, 4: 353. 1895. TYPE. Brazil. Mato Grosso, *S. Moore 971* (HOLOTYPE: BM-796859; ISOTYPES: K!, NY-1288096!).

Psidium sabulosum Barb. Rodr. ex Chodat & Hassler, Bull. Herb. Boissier 7: 798. 1907, nomen nudum. CITED COLLECTION. Paraguay. "ad ripam fluminis Paraguay," *Hassler 7402* (G [= ASU photos], A-71260, BM-511333, MICH-1210418!, MIN-1002846!, MPU-10991, NY-1288087!, P-258379!, S-r-9459, W-19040001086!).

Tree or shrub 1.5–12 m high, glabrous or puberulent on young growth; *hairs* erect, up to ca. 0.3 mm long; *young twigs* puberulent to glabrous, terete or weakly 4-angled, the young bark light tan, falling in strips and flakes, the older bark smooth. LEAF BLADES lanceolate, narrowly lanceolate, less often ovate or elliptic, 2.5–7.5 cm long, 0.8–2.4 cm wide, 1.5–6 times as long as wide, submembranous to subcoriaceous, drying olive green to dark reddish brown; *apex* acute or obtuse; *base* attenuate, rounded, or cuneate; *petiole* 1–7 mm long, 0.5–1 mm wide, usually channeled, glabrous or puberulent; *venation* brochidodromous, the midvein impressed to nearly flat above, prominent below, the lateral veins obscure or evident, raised or flat above and below, 6–10 pairs, extending straight towards margin, connecting with marginal vein near margin, the marginal vein arching slightly between laterals, about equaling them in prominence, mostly up to 1(–2) mm from the margin, the tertiary veins usually obscure, forming an irregular reticulate pattern between the laterals. FLOWER BUDS pyriform, 8–10 mm long, the hypanthium campanulate, obconic, to narrowly fusiform, 2.5–4.5 mm long, the distal portion of bud subglobose to ovoid, 4.5–7.5 mm long; *indumentum pattern of buds* with all surfaces

glabrous or with the peduncles puberulent, or sometimes with bracteoles, rim of the calyx pore, and petals ciliate, the style sometimes puberulent proximally; *peduncles* 1.2–2.5 cm long, 0.5–0.8 mm wide, glabrous or puberulent; *bracteoles* narrowly lanceolate, up to ca. 1.5 mm long, caducous before anthesis. CALYX closed completely or with a small terminal pore, subglobous in the bud, ca. 4–5 mm long, ca. 2 times as wide at the ovary summit, usually tearing in 2 or 3 parts that fall soon after anthesis, the tears not cutting the staminal ring; *petals* elliptic-obovate, 1–1.2 cm long; *hypanthium* obconic to ellipsoid, 2.5–4 long; *disk* 4–6 mm across; *stamens* 230–400, 7–12 mm long; *anthers* oblong, 1.2–1.5 mm long, with a large terminal gland and sometimes with 1–2 smaller glands below; *style* 12–13 mm long, glabrous or puberulent basally; *ovary* 2–3-locular, the locules sometimes puberulent within; *ovules* 25–72 per locule, ca. 2 seriate on the edge of a peltate placenta. FRUIT globose, to 2.5 cm in diam., the wall 0.7–1.2 mm thick; *seeds* 20–60, flattened, angular, 5–6 mm long.

Representative specimens examined. ARGENTINA. **Chaco**: Bermejo, Ayo. Zapirán, Dep. Bermejo, (26.85°S, 58.75°W), 26 Feb 1985 (fl), *Neiff 1670* (CTES); Riacho Guaycurú y Ruta 11, Dep. 1 de Mayo, (27.29°S, 58.97°W), 27 Jan 1982 (fr), *Rumiz 173* (CTES); 2 km N de Makalle. Dep. Gral. Donovan, (27.21°S, 59.29°W), 19 Feb 1980 (fr), *Schinini 20027* (CTES); Colonia Benitez, (27.33°S, 58.93°W), 8 Nov 1936 (fl), *Schulz 9826* (CTES); Paranacito (ca. 27°39′03″S, 58°53′57″W), 11 Jun 1968 (fr), *Schulz 16291* (CTES). **Corrientes**: 16 km NE de Ituzaingó, costa Río Paraná, (27.48°S, 56.57°W), 10 Apr 1978 (fr), *Ahumada et al. 2462* (CTES, NY); vicinity of Goya 29°8′S 59°15′W, 15 m, 3 Sep 1913 (fl), *Curran* (MO); Puerto Valle, Dep. Ituzaingó, (27.48°S, 56.57°W), without date (fr), *Heinonen et al. 179* (CTES); Ituzaingó, Puerto Lujan, (27.37°S, 56.17°W), without date (fl), *Heinonen et al. 281* (CTES); San Cosme, Isla Toledo, (27.29°S, 58.49°W), 10 Apr 1945 (fl), *Huidobro 1920* (NY); Itati, Tuyutí, (27.27°S, 58.24°W), 19 Jan 1957 (fl, fr), *Pedersen 4439* (NY); General Paz, Ita Ibaté, (27.42°S, 57.32°W), 21 Dec 1944 (fr), *Schwarz 402* (NY); Est. Agric. Guaycolec, Dep. Formosa, (25.98°S, 58.16°W), 19 Feb 1982 (fl), *Rumiz 220* (CTES). **Misiones**: San Ignacio, Corpus, (27.12°S, 55.52°W), 2 May 1945 (fl), *Bertoni 1236* (NY). **Santa Fé**: General Obligado, Altura Los Laureles, (29.38°S, 59.61°W), 23 Dec 1986 (fr), *Blanchoud 2243* (CTES).

BOLIVIA. **Beni**: Yacuma, Bosque de Chimanes, ca. 20 km SW of San Ignacio, rd. to Hervel sawmill, (13.55°S, 64.75°W), 24 Oct 1989 (fl), *Foster 13368* (ASU0015615, F). **Santa Cruz**: Valle de Tucavaca, road from Santiago de Chiquitos to Santo Corazón, on bank of Tucavaca River, (18.17°S, 59.44°W), 200 m, 30 Jan 1995 (fr), *Abbott 15905* (ASU0008063).

BRAZIL. **Mato Grosso do Sul**: Corumbá, Rod. BR-262, 10–20 km O do Rio Paraguai, (19.02°S, 57.65°W), 22 Oct 1988 (fl), *Hatschbach 52495* (ASU0008064). **Minas Gerais**: Paracatu, margem esquerda do Rio São Marcos (divisa Minas Gerais/Goias), no local denominado Pôrto Faustino Lemos, (17.22°S, 46.87°W), 800 m, 25 Oct 1997 (fr), *Pereira & Alvarenga. 3450* (ASU0008061). **Paraná**: Guaira, P. N. de Sete Quedas, Prainha, a 7 km do centro da cidade, (24.08°S, 54.26°W), 10 Sep 1980 (fl), *Fontella 1177* (ASU0008066); bank of Rio Paraná near Pôrto Mendes, (24.49°S, 54.30°W), 21 Jun 1967 (fl), *Lindeman & Haas 5487* (MBM).

PARAGUAY. **Caazapá**: ruta 6 y Río Tebicuary, (26.67°S, 56.25°W), 22 Mar 1993 (fr), *Schinini, 27706* (ASU0008059). **Central**: Tavarory, Arroyo Avaí near confluence with Río Paraguay, (25.50°S, 57.50°W), 30 Nov 1990 (fl, fr), *Zardini & Velazquez 24379* (ASU0008077). **Cordillera**: Parque Nacional Vapor Cué, Arroyo Yaghuy, (25.33°S, 56.67°W), 7 Jul 1990 (fr), *Zardini & Velazquez 21849* (ASU0008076); Río Piribebuy basin, 17 km W of Arroyos y Esteros, (25.13°S, 57.30°W), 11 Jan 1991 (fr), *Zardini & Velazquez 25759* (ASU0008070). **Presidente Hayes**: Río Paraguay, 3 km NW of Puente Remanso between Asunción and Villa Hayes, (25.33°S, 57.67°W), 15 Dec 1995 (fl), *Landrum 8879* (ASU0008073); Pilcomayo River basin, Río Negro, (25.06°S, 57.88°W), 29 Oct 1994 (fr), *Zardini & Vera 41709* (ASU0008062).

Phenology—Flowering mainly from October to February; fruiting mainly from December to March.

Habitat and Distribution—Riparian habitats from northeastern Argentina, Paraguay, Bolivia, and Brazil (Paraná, São Paulo, and Minas Gerais).

Distinguishing Features—Riparian shrub or tree, glabrous or puberulent; leaves 1.5–6 times as long as wide; calyx closed or nearly so; seeds angular, 5–6 mm long.

Psidium kennedyanum is sometimes confused with *P. striatulum*. The species are compared directly in lead 14 of the Key 1-I and lead 15 of Key 2-C. It might also be confused with *P. acutangulum,* and the two are compared under that species.

All specimens known to me come from the Paraná River basin except for *Foster 13368*, cited above, from Yacuma, Beni, Bolivia. The leaves of this collection are not typical for *Psidium kennedyanum* (see Fig. 36). More collections would be useful in determining if this population might be described as a variety of *P. kennedyanum.*

31. *Psidium laruotteanum* Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 282. 1833. TYPE. Brazil. "Prope Alto da Varginha (prov. Minas Geraes)," *Saint-Hilaire s.n.* (HOLOTYPE: P-258429!). Fig. 37

Campomanesia suffruticosa O. Berg, in Mart., Fl. bras. 14(1): 448. 1857. TYPE. Brazil. "v. in hb. Vindob. et Mart." "in prov. Ceará," *Gardner 1611* (LECTOTYPE: W-16669! [syntype designated as lectotype by Landrum, 1986]. ISOLECTOTYPES: BR-526717!, F-64891!, K-13353? [no collection number visible, note by Gardner], G-227703!, G-227704!, HAL-89778, K-13354!, NY-386799, P-258522!, P-258524!, SP-112, W-116295!) and *Gardner 1610* (SYNTYPES: W-16668!, W-339892!, W-116293!; ISOSYNTYPES: F-64892? [no collection number visible], G-227705, K-18470!, NY-386800, P-258521!, P-258526!, P-258527!, US-117708!).

Psidium glaucescens O. Berg, in Mart., Fl. bras. 14(1): 600. 1859. TYPE. Brazil. "Serra da Chapada prov. Minarum," *Riedel* [*1171*]. (HOLOTYPE: LE-6978; ISOTYPES: F-65695, NY-686161!, P-258462!).

Psidium basanthum O. Berg, in Mart., Fl. bras. 14(1): 601. 1859. TYPE. Brazil. "prope Paracatu et Mugi prov. S. Pauli," *Riedel s.n.* (HOLOTYPE: LE, = ASU photo).

Guajava laruotteana (Cambess.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava glaucescens (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava basantha (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Myrtus bergiana Nied., in Engl. and Prantl, Naturl. Pflanzenfam. 3, Abt. 7: 66. 1893. New name for *Campomanesia suffruticosa* O. Berg.

Psidium warmingianum Kiaersk., Enum. Myrt. bras. 28. 1893. New name for *Campomanesia suffruticosa* O. Berg.

Psidium warmingianum var. ***verticillata*** Kiaersk., Enum. Myrt. bras. 28. 1893. TYPE. Brazil. "Lagoa Santa," *Lund s.n.* (SYNTYPE: C-10015970) and *Warming s.n.* (SYNTYPES: C-10015969, C-10015971, C-10015972).

Psidium savannarum Donn. Sm., Bot. Gaz.: 244. 1897. TYPE. Costa Rica. "Savana at Buenos Ayres, Comarca de Puntarenas," *Tonduz CR-4033* (HOLOTYPE: CR; ISOTYPES: BR-526720!, US-117677).

Myrtus formosa Barb. Rodr., Myrt. Paraguay 16. 1903. TYPE. Paraguay. "Ipe hu....Sierra Maracayu," *Hassler 5079* (HOLOTYPE: G!, = ASU photo).

Psidium capibaryense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 797. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Vaqueria Capibary," *Hassler 4387* (two sheets at G!, = ASU photos).

Psidium bergianum (Nied.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941.

Psidium formosum (Barb. Rodr.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941.

Psidium quinquedentatum Amshoff, Recueil Trav. Bot. Neer. 39: 164. 1942. TYPE. Surinam. "Upper Sipaliwini R. near Brazilian frontier," *H. E. Rombouts 329* (HOLOTYPE: U-8499; ISOTYPES: MO!, NY-1288079!).

Psidium bergianum var. ***verticillata*** (Kiaersk.) Mattos, Loefgrenia 124: 4. 2007.

Shrub up to ca. 1.5 m high, often less than 0.5 m high (less often a small tree to 4 m), with new shoots arising from a woody subterranean base or rhizome, densely tomentose to sparsely pubescent over most surfaces; *hairs* to ca. 1.5 mm long, grayish, yellowish white,

to rusty, usually curled and tangled; *young twigs* usually densely tomentose, remaining so for more than 1 year, the bark of older twigs becoming rough and scaly. LEAF BLADES normally opposite (rarely in whorls of 3, or spirally arranged) obovate, oblanceolate, elliptic, or oblong, 3–9(–11) cm long, 1.6–4.5(–6) cm wide, 1.6–3.2 times as long as wide, stiffly coriaceous at maturity, drying gray-green to reddish brown (under hairs), the lower surface usually densely tomentose, the upper surface usually sparsely to moderately pubescent; *apex* rounded, acute, or acuminate; *base* obtuse to cuneate; *petiole* 0–2 mm long, ca. 2 mm wide, tomentose; *venation* brochidodromous, the midvein flat or slightly raised above, prominent below, usually more densely hairy above than surrounding blade, the lateral veins 7–13 pairs, these weak to prominent, slightly raised above in mature leaves, ascending at an angle of ca. 45°, nearly straight, joining an equally prominent, shallowly arching marginal vein that runs 1–2 mm from the margin, the tertiary veins weaker, alternating with the laterals, branching, arising from the marginal vein. FLOWER BUD obovoid to pyriform, 5–12 mm long, the hypanthium obconic, 2–3.5 mm long, the distal portion of bud subglobose, 3–8.5 mm long; *indumentum pattern of buds* with all external surfaces except petals densely to moderately pubescent or tomentose, the calyx sometimes notably less densely so than the hypanthium, the calyx pubescent within, the petals and style glabrous or essentially so, the disk pubescent or glabrous centrally; *peduncles* 1(–3)-flowered, solitary in the axils of leaves or bracts, 0.2–3 cm long, 1–1.5 mm wide; *bracteoles* linear to narrowly elliptic, 5–8 mm long, 1–1.5 mm wide, caducous at about anthesis. CALYX open, bowl-like, tearing slightly between the lobes, the tubular portion prolonged ca. 1 mm beyond the ovary summit, the lobes mostly broadly triangular, less often narrowly so, 1–4 mm long, 1–3 mm wide; *petals* suborbicular to obovate, 8–10 mm long; *disk* ca. 4 mm across; *stamens* 70–200, 5–9 mm long; *anthers* suborbicular, 0.5–1 mm long, with 1–4 glands; *style* 6–8 mm long; *ovary* (2–)3(–4)-locular; *ovules* 7–19 per locule, reflexed, usually uniseriate on the margin of a peltate placenta. FRUIT subglobose, 1.2–2 cm long; *seeds* 5–20, more or less rounded, 4–7 mm long.

Representative specimens examined. BOLIVIA. **Santa Cruz**: Chiquitos, Serranía Santiago, (18.43°S, 59.62°W), 650 m, 26 Nov 1999 (yfr), *R. Guillén 4806* (ASU0053023); Velasco, Parque Nacional Noel Kempff Mercado, 3 km NW del campamento Las Gamas, (14.81°S, 60.40°W), 900 m, 1 Nov 1995 (fr), *Killeen et al. 7819* (ASU0008102); Meseta de la Serranía Santa Bárbara, (18.24°S, 59.70°W), 1096 m, 12 Nov 2007 (fl), *Wood 23889* (ASU0078688-image, USZ).

BRAZIL. **Bahia**: Palmeiras, Palmeiras, (12.57°S, 41.38°W), 6 Apr 2004 (fr), *van den Berg 1386* (ASU0015581, HUEFS). **Ceará**: Crato, Barreiro dos Banhos, (7.23°S, 39.38°W), 17 Jul 1992 (fl), *Batista 18645* (RB); Crato, roadside from Crato to Trilha do Belmonte, (7.27° S, 39.47°), 819 m, 4 Feb 2019 (fr), *Moonlight & Gagnon 1847* (HUEFS-seen as image only). **Distrito Federal**: Parque Ecológico Norte, (15.91°S, 47.76°W), 6 Oct 1994 (fl), *Proença 1239* (ASU0018543); Samambaia, Parque Boca da Mata, (15.89°S, 48.15°W), 3 Sep 1995 *Rezende 186* (ASU0008098). **Goias**: Guaraní de Goiás, Guaraní de Goiás, Rodovia entre Guaraní de Goiás e Posse, (14.01°S, 46.36°W), 829 m, 14 Nov 2011 (fl), *Faria 2182* (ASU0082737); Rod. GO-118, 5–8 km a Oeste de Alto Paraiso, (14.13°S, 47.52°W), 16 Oct 1990 (fl), *Hatschbach 54613* (ASU0008109). **Mato Grosso**: 15 km NO de Alto do Araguaia na estrada para Itiquira, (17.25°S, 53.35°W), 18 Sep 1996 (st), *Proença et al. 1526* (ASU0008078). **Mato Grosso do Sul**: Coxim. Reserva do Exercito, (18.50°S, 54.70°W), 19 Sep 1996 (st), *Proença et al. 1550* (ASU0008090); Água Clara, (20.45°S, 52.87°W), 5 Nov 1996 (st), *Ratter et al. R-7629* (ASU0008093). **Minas Gerais**: Serra do Cipó, between Veu da Noiva and Alto do Palacio, (19.25°S, 43.67°W), 1000 m, 31 Jan 1982 (fr), *Landrum 4242* (MBM); Diamantina, along road to São João da Chapada, 17 km NW of jct with rd from Curvelo to Diamantina, (18.13°S, 43.75°W), 1180 m, 23 Nov 1985 (fr), *Thomas et al. 4868* (ASU0008091). **Paraná**: Senges, Rod. PR-11, prox km 252, (24.10°S, 49.48°W), 18 Nov 1989 (fl), *Hatschbach 53638* (ASU0008095); Ponta Grossa, Parque Estadual de Vila Velha, (25.08°S, 50.15°W), 13 Feb 1997 (fr), *Ribas 1812* (ASU0008094). **São Paulo**: 18 km north of Botucatu, 14 km east of São Manuel,

along the São Manuel-Piraciacaba highway, near ex-RR station 13 de maio, (22.75°S, 48.42°W), 550 m, 14 Oct 1990 (fl), *Gottsberger 11-141090* (ASU0008108); Itararé, Ponte Verde, ponte sobre o Rio Verde, no limite does municípios de Itararé e Itapera, (23.79°S, 46.82°W), 14 Nov 2003 (fl), *Lucas 203* (ASU0057361).

COLOMBIA. Comisaria Vichada: Gaviotas, Cumaribo, (4.44°N, 69.80°W), 21 Mar 1978 (fl), *Cabrera 2802* (ASU0008097-image).

COSTA RICA. **Puntarenas**: On road to Salitre, ca. 2 km from Buenos Aires, (9.19°N, 83.31°W), 11 Sep 1989 (st), *Landrum 6560* (ASU0005029).

GUYANA. **Potaro-Siparuni**: Pakaraima Mountains, Upper Ireng River watershed, Kaatnang River, near base of Malakwalai-Tipu, (4.80°N, 60.20°W), 700 m, 9 Jul 1994 (fr), *Henkel 5522* (ASU0008110).

PARAGUAY. **Canindeyú**: Ygatimí, Reserva Natural del Bosque Mbaracayú, along road to Brazil, near edge of Reserva, Ñandurocai, (24.17°S, 55.67°W), 19 Nov 1995 (st), *Landrum & Basualdo 8860* (ASU0008096); Mbaracayú Natural Reserve, (24.19°S, 55.28°W), 15 Jan 1998 (fr), *Elsa Matilde Zardini 47997* (ASU0060397).

VENEZUELA. **Bolivar**: Gran Sabana: San Ignacio de Yuruani, (5.00°N, 61.17°W), 850 m, 4 May 1988 (fr), *Liesner 24211* (ASU0008105).

Phenology—Flowering and fruiting throughout year but flowering mainly in September to November and fruiting mainly from November to March.

Habitat and Distribution—Cerrado, campo, at elevations of 550 to 1250 m. Found in Paraguay, Bolivia, Surinam, Brazil (Paraná to Ceará and Mato Grosso), Guyana, Venezuela, Colombia, and Costa Rica.

Distinguishing Features—Shrub to 1.5 m high; calyx open, the lobes triangular or subtriangular, 1–4 mm long; indumentum grayish, yellowish, or reddish brown, usually curled and tangled, obscuring the lower surface of mature leaves; marginal veins present throughout leaf, closely following the margins.

Psidium laruotteanum is variable as to leaf size and shape. Smaller plants, especially new sprouts, tend to have small elliptic leaves and larger plants tend to have larger oblanceolate or obovate leaves. The pattern is seen throughout the range and I do not think it is of taxonomic importance. The species is reported to have medicinal qualities in Paraguay and Costa Rica at least.

32. *Psidium longipetiolatum* D. Legrand, Sellowia 13: 341. 1961. TYPE. Brazil. Santa Catarina, Braço Joaquim, Luis Alves, 4 Nov 1954(fl), *Reitz & Klein 2255* (HOLOTYPE: MVM; ISOTYPES: B-10-0279302, G-227706, NY-1288059!, UC-1240856!, US-117666). Fig. 38

Tree or shrub 1–30 m high, glabrous or essentially so except for inner surfaces of calyx-lobes and disk, or the twigs, petioles and leaves obscurely and sparsely pubescent, moderately to densely glandular; *hairs* whitish, up to ca. 0.5 mm long; *young twigs* smooth reddish brown, older twigs gray, mostly smooth, sometimes scaly. LEAF BLADES elliptic, oblong-elliptic, oblanceolate, or obovate, 4–12 cm long, 1.7–5.6 cm wide, 1.5–3 times as long as wide, subcoriaceous to stiffly coriaceous at maturity, drying gray-green to reddish brown; *apex* acuminate to obtuse, the tip often blunt; *base* acute to acuminate, gradually tapering to petiole; *petiole* channeled, 5–20 mm long, 1–2 mm thick, sparsely pubescent to glabrous; *venation* brochidodromous, the midvein prominent below, impressed proximally to nearly flat distally above, the lateral veins prominent to obscure, 8–15 pairs, straight, leaving midvein at ca. 45°, the marginals arching between the laterals, the tertiary veins dendritic, alternating with the laterals, appearing to arise from the marginals. FLOWER BUDS pyriform to obovoid, 7–13 mm long, the hypanthium funnel-form to campanulate,

2.5–4 mm long, the distal portion of bud obovoid to depressed subglobose, 4–9 mm long; *indumentum pattern of buds* with all external surfaces glabrous, the calyx lobes within minutely appressed puberulent, the disk puberulent, the style glabrous; *peduncles* (0.5–)1–5 cm long, 1–1.3 mm wide, flattened, borne in axils of leaves or at leafless nodes; *bracteoles* caducous before anthesis. CALYX open, cup-like or bowl–like, the lobes borne on the rim of the cup or bowl, broadly rounded, ca. 1 mm long, about 4–5 mm wide; *petals* obovate, 7–10 mm long, 5–7 mmm wide; *disk* within staminal ring ca. 3 mm across; *stamens* 245–300, 9–12 mm long, borne on inner surface of hypanthial tube; *anthers* ca. 1 mm long, with 1–4 glands; *style* 6–8 mm long, the stigma ca. 1 mm wide; *ovary* 3 locular; *ovules* 9–23, uniseriate, the placenta peltate. FRUIT globose to pyriform, 1.5–2 cm long; *seeds* 2–24, 4–10 mm long, smooth, not angular.

BRAZIL. **Espírito Santo**: Linhares, Reserva Natural Vale, Jureirana fação, (19.15°S, 40.07°W), 60 m, 25 Mar 2013 (fr), *Folli 7033* (CVRD).

Paraná: Guaratuba, Pedra Branca de Araraquara, (25.9°S, 48.57°W), 50 m, 10 Nov 1962 (fl), *Hatschbach 9467* (HB, MBM); Pien, Campina dos Crispim, (26.10°S, 49.43°W), 5 Dec 1962 (fl), *Hatschbach 9545* (MBM); Adrianópolis, Sitinho, (24.68°S, 48.83°W), 300 m, 8 Oct 1964 (fl), *Hatschbach 11707* (MBM); Morretes, Prainha, (25.467°S, 48.817°W), 20 m, 29 Nov 1966 (fl), *Hatschbach 15289* (MBM, MICH, MO, NY); Campina Grande do Sul, Sitio do Belizario, (25.3°S, 49.08°W), 9 Apr 1967 (fr), *Hatschbach 16276* (MBM, NY, US); Piraquara, estrada para pedreira da ACO (25.43°S, 49.07°W), 2 Dec 1995 (st), *Kawasaki 914* (ASU0008115); Curitiba, Vista Alegre, (25.47°S, 49.25°W), 28 Sep 1988 (fl), *Koczicki 318* (ASU0008113); Guaraqueçaba, Faz. Madezatti, R. Pederneiras, (25.3°S, 48.33°W), 1 Jan 1970 (fr), *Kuniyoshi 4842* (MBM); Tijucas do Sul, Ambrosio, (25.93°S, 49.18°W), 27 Mar 1990 (fr), *Silva 846* (ASU0008117). **Santa Catarina**: São Mateus do Sul, Tesouras, (25.87°S, 50.38°W), 21 Sep 1973 (st), *Hatschbach 32555* (MBM); Anitapolis, 5 Km ao N de Anitapolis, Mun. Anitapolis, (27.9°S, 49.13°W), 500 m, 15 Dec 1972 (fl), *Klein & Bresolin 10607* (MBM); Imarui, Aguas Mornas, Imarui, (28.35°S, 48.82°W), 450 m, 27 Mar 1973 (fr), *Klein & Bresolin 10946* (MBM); Vidal Ramos, Sabia, Vidal Ramos, (27.38°S, 49.37°W), 750 m, 28 Jan 1958 (fr), *Reitz & Klein 6322* (HB, NY, UC). **Rio de Janeiro**: Pico do Frade de Macaé, (22.33°S, 41.81°W), 1200-1400 m, 16 Apr 1985 (yfr), *Martinelli et al. 10686* (ASU0008116).

Phenology—Flowering mainly November and December; fruiting mainly January to March.

Habitat and Distribution—Forest, sometimes with *Araucaria*, mata pluvial, mata ciliar. Santa Catarina to Espirito Santo.

Distinguishing Features—Shub or a tree up to 20 m high; leaves elliptic, oblong-elliptic, oblanceolate, or obovate, 4–12 cm long, 1.5–3 times as long as wide, glabrous, the base usually accuminate; petioles 5–20 mm long; peduncles mainly 1–5 cm long; flower buds pyriform to obovoid, 7–13 mm long, the calyx open, cup or bowl-like, with lobes borne on rim of calyx, broadly rounded, ca. 1 mm long, about 4–5 mm wide.

33. *Psidium maribense* Prodr. 3: 233. 1828. TYPE. Brasil. "Crescit in Brasiliae prov. rio Japurá ad Maribi", *Martius 151* (HOLOTYPE: M-146870!). Fig. 39

Psidium crenatum O. Berg, Linnaea 27: 373. 1856. TYPE. "America meridionali", Humboldt & Bonpland s.n. (HOLOTYPE: B, Willdenow herbarium, B-W-09547, seen as image from B).

Myrtus salicifolia Willd. Nomen nudum; an herbarium name mentioned by Berg under *P. crenatum*. Not meant to be a new species name. Not to be confused with *Myrtus salicifolia* Kunth, *Nov. Gen. Sp. [H.B.K.] 6(25): 136 (ed. qto.), t. 541 (1823)*, the basionym of *Blepharocalyx salicifolius* (Kunth) O. Berg.

Guajava maribensis (DC.) Kuntze, Rev. Gen. 239. 1891.

Guajava crenata (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Guajava salicifolia Kuntze, Revis. Gen. Pl. 1: 240. 1891. Illegitimate name based on the same specimen as *P. crenatum* O. Berg.

Shrub or small tree 1–4 m high, the trunk smooth barked, the young growth sparsely to densely pubescent or puberulent; *hairs* soft, white, appressed or spreading, ca. 0.1–0.4 mm long; *young twigs* puberulent, gland-dotted, dark reddish brown, light gray, or dark gray, smooth, remaining smooth or the young bark becoming slightly stringy or flaky with age. LEAF BLADES elliptic, oblanceolate to oval, usually widest somewhat above the middle, 2.2–5.5 cm long, 1.4–1.7 cm wide, 1.7–3.8 times as long as wide, submembranous to subcoriaceous, drying dark reddish brown, slightly lighter below than above, often strongly dotted with glands the upper surface essentially glabrous to sparsely pubescent, or densely pubescent along the midvein, the lower surface sparsely to moderately covered with silky hairs, these appressed or sometimes spreading on the midvein, the margin usually crenulate; *apex* rounded, emarginate, to acute; *base* narrowly acute to cuneate; *petiole* usually densely pubescent, flat to scarcely channeled, 1–4 mm long, 0.5–0.8 mm thick; *venation* brochidodromous, the midvein impressed slightly above, prominent below, the lateral veins 8–16 pairs leaving the midvein at an angle of ca. 45 degrees, prominent to weak, the marginal vein broadly arcing between laterals, equaling them in prominence, the tertiary veins dendritic, usually obscure. FLOWER BUDS pyriform, 10–15 mm long, the hypanthium 3–5 mm long, narrowly campanulate, darkly colored when dry, the distal portion of bud 6–9 mm long, subglobous to ovoid, light tan when dry; *indumentum pattern of buds* with peduncles moderately pubescent, glabrescent with age, the hypanthium glabrous to sparsely pubescent, contrasting with the more densely pubescent peduncle, the calyx, petals and style glabrous, the disk pubescent, glabrescent with age; *peduncles* uniflorous, solitary, borne in axils of proximal leaves of new twigs, terete, 4–12 mm long, ca. 0.8 mm wide near middle, somewhat wider at apex, becoming glabrescent, somewhat thicker and slightly woody by fruit maturation; *bracteoles* deciduous before anthesis, not seen. CALYX closed in bud, ovoid, 6–7 mm long, tearing irregularly at anthesis, usually in 2 pieces, falling away from old flowers, strongly glandular; *petals* 15–25 mm long, obovate to elliptic; *disk* 4–5 mm across; *stamens* about 280–500, 10–25 mm long; *anthers* ca. 0.6 mm long, with a large terminal gland and 0–4 smaller glands below; *style* 15–23 mm long; *ovary* 3–4 locular; *ovules* ca. 50–80 per locule. FRUIT globose, ca. 1.5–1.7 cm in diam., green to brown; *seeds* ca. 200, angular, triangular to C-shaped, ca. 3–6 mm long, the surface dull, the seed-coat ca. 0.5–0.8 mm thick.

COLOMBIA. **Amazonas**: Río Caquetá, playa islas de Puerto Miraña, (1.42°S, 70.32°W), ca. 80 m, 3 Feb 1989 (fr), *Duivenvoorden 105* (U); La Pedrera, resguardo Curare, playa El Yarumal, ribera del río Caquetá, (1.28°S, 69.82°W), 30 Jan 2009 (fr), *Figueroa 52* (COL). **Arauca**: Cravo Norte, (6.38°N, 70.43°W), 121 m, 28 Aug 2016 (fr), *Minorta-Cely 2746* (COL). **Vichada**: Parque Nacional Natural El Tuparro, along border of Río Orinoco, ca. 1 km below mouth of Río Tuparro, (5.27°N, 67.87°W), 80 m, 25 Feb 1985 (fl, fr), *Zarucchi & Barbosa 3402* (ASU0007590).

VENEZUELA. **Anzoátegui**: Río Mapire, afluente norte del Río Orinoco medio, estación Musinaco, (7.50°N, 64.50°W), 1483 m, 13 Aug 1986 (fr), *Rosales et al. 36* (MO). **Apure**: Pedro Camejo, Banks of the Río Canaparo between caños La Pica and La Guardia, 14 km directly (in a straight line) SW of Urañon, (6.90°N, 67.30°W), 35 m, 6 May 1977 (fr), *Davidse & Gonzalez 12771* (MO, MICH); Pedro Camejo, 4 km directly (in a straight line) NE of El Betún along the banks of the Río Capanaparo, (6.97°N, 67.82°W), 55 m, 10 May 1977 (fl), *Davidse & Gonzalez 13083* (MICH); Pedro Camejo, Along the Río Meta at the junction of the Caño Siriaco, 15.4 airline km W of Buena Vista, (6.17°N, 68.75°W), 70 m, 15 Feb 1978 (fr), *Davidse & Gonzalez 14051* (MO, MICH); Pedro Camejo, Banks of the Río Meta near the Brazo La Martinera, 19.5 airline Km W of Mata de Guanabano, (6.18°N, 68.40°W), 65 m, 14 Feb 1978 (fl), *Davidse & Gonzalez 14065* (MICH); Muñoz, Caño Guaritico, Hato Matadero, 5 km W of Bruzual-San Fernando Highway, (7.75°N, 69.28°W), 70 m, 4 Mar 1978 (fr), *Davidse & Gonzalez 14795* (MO, MICH); Rómulo Gallegos, banks of the Río Canaparo in the vicinity of Hato Carabali, 36 airline km SW of Elorza, (6.78°N, 69.67°W), 85 m, 5 Mar

1979 (fr), *Davidse & Gonzalez 16056* (MO, MICH). **Bolivar**: Soledad, Ciudad Bolivar and vicinity, on the Orinoco, (7.44°N, 66.09°W), 2 Mar 2021 (fl), *Bailey et al. 1635* (NY); Caroní, Matanzas, antes de Puerto Ordaz, sitio del segundo puente sobre el Orinoco, (8.30°N, 62.72°W), 40 m, 15 May 2001 (fr), *Wilmer Diaz 5179* (ASU0018985). **Guárico**: Miranda, Calabozo, Río Orituco, sector puente, (8.77°N, 67.43°W), 100 m, 5 Dec 1975 (fl), *Castillo 336* (MO); Orinoco bank, region around Parmana, (8.00°N, 66.00°W), 3 Apr 1950 *Croizat 210* (F).

Phenology—Flowering mainly in February and March, but also in May, October, and December; fruiting from January to October, but mainly in February and March.

Habitat and Distribution—Along rivers, on sand bars, flooded forests; Orinoco river basin and upper Amazon tributaries.

Distinguishing Features Leaves elliptic, oblanceolate to oval, usually widest somewhat above the middle, 2.2–5.5 cm long, 1.7–3.8 times as long as wide, the margin usually crenulate; calyx closed, glabrous within; seeds angular.

I do not know of any modern collections of *Psidium maribense* in Brazil. Carolyn Proença suggests to me that the type locality of *Psidium maribense* is Santo Antonio do Mapiri (1°49′34″S, 66°35′56″W), near Japurá, in Amazonas. I have included a dot on the distribution map of this species at that locality.

Psidium maribense is sometimes confused with *P. striatulum*. They are distinguished in the key below.

1. Leaves oblanceolate to elliptic, usually widest above the middle, the margin irregularly crenulate, the base narrowly acute to cuneate; lateral veins 8–16 pairs, easily visible; peduncles 4–12 mm long; calyx closed ..... ***P. maribense***

1' Leaves elliptic to lanceolate, usually widest at the middle or below, the margin entire to obscurely sinuate-crenulate, the base obtuse, rounded, or subcordate; lateral veins 4–10 pairs, prominent or not; peduncles 9–23 mm long; calyx closed or with a terminal pore ..... ***P. striatulum***

34. *Psidium minutifolium* Krug & Urb., Bot. Jahrb. Syst. 19: 569. 1894. TYPE. Cuba. "in Cuba orientali prope Baracoa, in summo monte Yunque," *Wright s.n.* (HOLOTYPE B, lost; LECTOTYPE: GOET-8269, designated here , seen as image; possible isolectotypes *Wright 2464* MO!, NY-fragment!). Fig. 40

Psidium jakucsianum Borhidi, Bot. Kozlem 64(3): 214. 1977. TYPE. Cuba. "Oriente, Charrascos de la Ermita, al Este del Yunque de Baracoa," *Alain et al. 7568* (HOLOTYPE: HAC; ISOTYPES: BP, HAC!, seen as image).

Shrub or subshrub (probably less than 30 cm high), nearly glabrous except for inner surface of calyx and sometimes minutely puberulent young growth; *hairs* reddish brown to whitish, appressed or erect; *young twigs* 4-winged, reddish brown, the wings 0.1–0.3 mm wide, appearing to point in the direction of the leaf above, expanding somewhat at base of petiole into stipule-like lobes, the older bark becoming gray, falling in strips, with portions of wings falling in units, eventually scaly. LEAF BLADES elliptic to obovate, 5–15(–20) mm long, 4–15 mm wide, 1–2 times as long as wide, coriaceous, strongly glandular, somewhat lustrous above, dull below, the margins revolute; *apex* obtuse to acute; *base* cuneate; *petiole* 1–2 mm long, 0.5–1 mm wide; *venation* mainly obscure, the midvein somewhat prominent below, impressed proximally above, 4–6 lateral veins rarely scarcely visible, leaving the midvein at an angle of 45–60°. FLOWER BUDS pyriform, 5–6 mm long; hypanthium campanulate, constricted below calyx tube, 2–2.5 mm long, the distal portion of bud subglobose, 3–3.5 mm

long; *indumentum pattern of buds* with all external surfaces glabrous except for strigose petals; *peduncles* 11–18 mm long, 0.3–1 mm wide, 1-flowered, glabrous, glandular, borne in the axils of leaves or small bracts; *bracteoles* narrowly triangular, 0.5–1 mm long. CALYX closed in the bud, tearing in 4 nearly equal lobes, the tears not cutting the staminal ring, the inner calyx surface puberulent; *petals* 4, glandular, externally sparsely strigose; *disk* including staminal ring ca. 3 mm across, within staminal ring ca. 1 mm across, the staminal ring puberulent; *stamens* ca. 60, probably 3–4 mm long; *anthers* ca. 0.5 mm long, with a terminal gland and 2–9 smaller glands below; *style* ca. 3–4 mm long, glabrous; *ovary* 2–3-locular; *ovules* 10–14, borne on a peltate placenta. FRUIT globose, ca. 6–10 mm long.

Representative specimens. CUBA. **Guantánamo**: Baracoa, Quibiján, Sierra Azul, (20.35°N, 74.63°W), 400 m, 31 Jan 1968 (st), *Bisse & Kohler 5492* (JE); Baracoa, subida a la Mina Iberia [Parque Nacional Alejandro Humboldt], (20.46°N, 74.73°W), 300 m, 29 Feb 1968 (st), *Bisse & Kohler 6158* (JE); Baracoa, en la cima del Yunque de Baracoa, (20.34°N, 74.55°W), 500 m, 31 Mar 1970 (bud), *Bisse 17121* (JE). **Guantánamo**: Baracoa, orillas del Río Báez, cerca del campamento `Los Naranjos`, (20.44°N, 74.60°W), 1 Aug 1975 (old fl), *Bisse et al. 26901* (JE); Baracoa, Yunque de Baracoa, falda sureste, (20.34°N, 74.55°W), 28 Feb 1979 (st), *Bisse et al. 40109* (JE). **Holguín**: Oriente, Moa, Cayo Chico, (20.64°N, 74.94°W), 19 Nov 1945, Acuña *13261* (NY); Moa, La Melba, altiplano sur de la Sierra de Moa, (20.45°N, 74.82°W), 25 Feb 1979 (yfr), *Bisse et al. 39950* (JE); Moa, Cayo Guan Mine, (20.61°N, 74.85°W), 18 Jul 1947 (fl), *León & Clemente 23146* (NY). **Santiago de Cuba**: Mayarí, Pinares de Mayarí, mogotes y barranco de Río Piloto en su curso medio, (20.40°N, 75.78°W), 400 m, 1 Jun 1983 (st), *Arias et al. 50671* (JE).

Phenology—Poorly known: flowering in March and July and probably in other months also. Probably fruiting shortly afterward.

Habitat and distribution—Endemic to eastern Cuba; known from 200–700 m, in charrascal vegetation and humid forest, on limestone and ultrabasic rock.

Distinguishing features—Leaves mostly less than 2 cm long, elliptic to obovate; peduncles sometimes longer than the leaves.

Psidium minutifolium and *P. parvifolium* have similar distributions, mainly in eastern Cuba. Usually, they are easily distinguished by the size of their leaves and other characters included in the key below. Both are variable and occasionally problematic specimens are difficult to assign to either species. I think at least three specimens may be hybrids: Árias et al. 50300 (JE); Bisse & Rojas 3528 (JE); and Bisse & Rojas 3957 (JE). Images may be viewed on CoTRAM. Field observations on these two species are encouraged to establish if they have habitat preferences and habit or phenological characteristics that may help to distinguish them.

1. Leaf 0.5–1.5(–2) cm long, usually elliptic, less often obovate; midvein usually impressed, at least proximally above; young twigs 4-winged; flower bud 5–6 mm long; stamens ca. 60; style 3–4 mm long; ovules per locule 10–12; fruit 6–10 mm long; peduncles 11–18 mm long, 1-flowered.....***P. minutifolium***

1' Leaf (1.5–)2–4(–5) cm long, usually obovate to oblanceolate; midvein nearly flat to raised above; young twigs smooth, compressed to terete; flower bud 6–9 mm long; stamens 80–255; style 6–8 mm long; ovules per locule 14–30; fruit 7–20 mm long; peduncle 6–32 mm long, 1–3-flowered. .....***P. parvifolium***

35. *Psidium missionum* D. Legrand, Darwiniana 9: 284. 1950. TYPE. Argentina. "Misiones, Depto. Candelaria, Santa Ana," *Rodriguez 16* (HOLOTYPE: MVM; ISOTYPES: F-76388F!, K-565516, LIL-1030!, SI-3045, SI-3046, SI-3047, SI-3048).

Fig. 41

Shrub or subshrub to ca. 1 m high, with a persistent underground stem from which shorter lived above ground shoots arise, resprouting after being burnt or cut to the ground,

glabrous to moderately pubescent on young growth and flowers; *hairs* when present whitish, up to ca. 1 mm long but usually shorter; *young twigs* reddish brown, glabrous to pubescent, smooth, the older twigs at first scaly, later smooth, gray. LEAF BLADES oblanceolate, obovate, or elliptic, 2.5–8.8 cm long, 1.1–4 cm wide, 1.8–3.5 times as long as wide, coriaceous, lustrous or not above, drying olive green, gray-green, to blackish brown, nearly concolorous; *apex* abruptly acuminate to acute; *base* cuneate to acute; *petiole* 1–2 mm long, 1–1.5 mm thick, flat or channeled above; *venation* eucamptodromous proximally to brochidodromous distally, the midvein flat to slightly impressed above, prominent below, the lateral veins usually 4–6 pairs ascending and arching upwards, connecting to form a weaker marginal vein in the distal half, the smaller tertiary veins between the laterals forming a reticulate pattern. FLOWER BUDS pyriform, glabrous (southern localities) to moderately pubescent (northern localities), 6.5–9(–12) mm long, the hypanthium campanulate, 2–3.5 mm long, the distal portion of bud subglobose, 4–6 mm long; *indumentum pattern of buds* with peduncles, bracteoles, hypanthium, calyx and disk glabrous to pubescent, the petals glabrous to subglabrous, sometimes ciliate, the style usually with scattered hairs; *peduncles* 1(–3)-flowered, 1–2.3 cm long, ca. 1 mm wide, flattened; *bracteoles* linear to narrowly lanceolate, 3–8 mm long, ca. 1 mm wide, deciduous at about anthesis. CALYX open in the bud, cup-like, tearing up to ca. 1 mm between the lobes after anthesis, the lobes triangular, 2–4 mm long, 3–4 mm wide, the apex acute to acuminate; *petals* obovate to oblanceolate, ca. 9 mm long; *disk* 4–6 mm across; *stamens* 130–235, 9–11 mm long; *anthers* subglobose to oblong, ca. 0.5–1 mm long, with 3–5 glands; *style* 7–9 mm long, the stigma only slightly wider than style; *ovary* 3–4-locular; *ovules* 43–70 per locule, about 8-seriate, the placenta not peltate, hidden by ovules. FRUIT globose, ca. 1–1.5 cm long; *seeds* 14–20 in fruits seen, ca. 5 mm long, the seed coat several cells thick.

Representative specimens examined. ARGENTINA. **Misiones**: San Ignacio, alrededores de la casa de Horacio Quiroga, Dep. San Ignacio, (27.26°S, 55.54°W), 5 Nov 1993 (fl), *Krapovickas 44607* (ASU0008130, CTES); San Ignacio, ca. 3 km along road to Peña Victoria, Teyú Cuaré, (27.25°S, 55.58°W), 10 Dec 1987 (fr), *Landrum 5718* (ASU0008126, CTES); Candelaria, 4 km S of Santa Ana on ruta 12, (27.42°S, 55.67°W), 11 Dec 1987 (fl), *Landrum 5735* (ASU0008127, CTES).

PARAGUAY. **Misiones**: San Miguel, (26.48°S, 57.07°W), 30 Nov 2000, *Elsa Matilde Zardini 55373* (ASU0060390); **Caazapá**: Tavai, Destacamento Militar, (26°10'S, 55°20'W), 1 Jan 1970 (fl), *Basualdo 2076* (FCQ); **Itapua**: Capitán Miranda, 4.2 km N of entrance to Hotel Tirol, behind CONAVI project, (27°12'S, 55°45'W), 9 Nov 1995 (fl), *Landrum 8797* (ASU0008121); Capitán Miranda, road to Jesús ca. 0.6 km from main highway, (ca. 27°12'S, 55°45'W), 9 Nov 1995 (fl), *Landrum 8812* (ASU0008134). **Paraguarí**: (Costa Segunda) Palacios, (25°25'S, 57°10'W), 260 m, 6 Sep 1985 (fr), *Basualdo 862* (FCQ); road to Lago Ypoá, ca. 23 km N of Caapucú, 3.5 km W of main Asunción-Encarnación highway, (26°S, 57.25°W), 10 Nov 1995 (fl), *Landrum 8828* (ASU0008139); Estancia Lago Ypoá, Cerro Lima, (26.03°S, 57.4°W), 22 Dec 1993 (fr), *Zardini 37596* (ASU0060393); Estero del Ypoá, Lago Ypoá, Tarumá Fondo, (25.93°S, 57.43°W), 4 Jan 1994 (fr), *Zardini 37763* (ASU0060392).

Phenology—Flowering mainly from October to December; fruiting December to February.

Habitat and Distribution—Found in campos and cerrado; known only from southern Paraguay and Misiones, Argentina.

Distinguishing Features—Leaves oblanceolate, obovate, or elliptic, 2.5–8.8 cm long, 1.1–4 cm wide, 1.8–3.5 times as long as wide, glabrous to moderately pubescent; *apex* abruptly acuminate to acute; *base* cuneate to acute; without a clear lateral vein in proximal half; calyx lobes about triangular, 2–5 mm long; placenta not peltate; seeds not angular.

Psidium missionum frequently grows with *Psidium salutare* var. *cuspidatum* and may be confused with that entity. The two are contrasted in the key below.

1. Leaves 2–4.5 cm long, 0.7–2.3 cm wide, 1.5–5 times as long as wide; marginal vein distinct, closely following the margin; placenta protruding, peltate; style 5–6 mm long, glabrous. ..... ***P. salutare var. cuspidatum***

1' Leaves 2.5–8.8 cm long, 1.1–4 cm wide, 1.8–3.5 times as long as wide; marginal vein evident only in distal portion of leaf, arching broadly between laterals; placenta protruding only slightly, not peltate; style 7–9 mm long, usually with a few scattered hairs. ..... ***P. missionum***

Psidium missionum and *P. grandifolium* are both members of the *P. grandifolium* complex. The variation patterns and the distinction of these species is discussed under the latter species.

36. *Psidium montanum* Sw., Prodr. 278. 1788. TYPE. West Indies, Jamaica, *Swartz s.n.* (HOLOTYPE: S-r-9480; ISOTYPES: B-W-9476-010, MEL-2396530). Fig. 42

Psidium wrightii Lamb. ex W. Wright, Memoir W. Wright 278. 1828. TYPE. In Wright's herbarium from Jamaica, not found; description and common name of Mountain Guava leave little doubt about identity.
Guajava montana (Sw.) Kuntze Rev. Gen. 240. 1891.

Tree up to 16 m high, essentially glabrous except for inner surface of calyx and sometimes other floral surfaces and young twigs, the trunk smooth or scaly, the bark reddish or mottled; *hairs* whitish, up to ca. 0.5 mm long, mainly antrorsely appressed; *young twigs* glabrous or puberulent, quadrangular with four wings, gray to reddish brown, becoming terete in about 1 year, the older bark smooth or scaley. LEAF BLADES lanceolate, ovate, or elliptic 5–12 cm long, 2–5 cm wide, 1.8–3.3 times as long as wide, coriaceous to subcoriaceous at maturity, drying dark olive green to reddish brown; *apex* acute to acuminate, often turned downward and flattened to one side when pressed, the tip often blunt; *base* broadly rounded to acute, often oblique; *petiole* channeled to nearly flat above, (2–)3–10 mm long, 0.8–2 mm thick; *midvein* impressed above, prominent below; *venation* brochidodromous, the lateral veins 7–12 pairs, raised slightly below, sometimes impressed above, nearly straight, leaving midvein at an angle of 45–60°, alternating with weaker dendritic veins that seem to arise either from the marginal or midvein, the marginal vein arching slightly between the laterals. FLOWER BUDS pyriform to subrhomboidal, 8–15 mm long, the tip abruptly acuminate to rounded, the base obconic to tapering; *indumentum pattern of buds* glabrous to pubescent without, with calyx pubescent within, with petals glabrous to pubescent within and without; *peduncles* 5–16 mm long, up to ca. 1.5 mm thick, subterete of 4-angled, 1–3-flowered; *bracteoles* narrowly triangular, 1–4 mm long, deciduous at about anthesis. CALYX closed in bud, sometimes with a minute pore at the tip, more often with an apiculate closed tip, tearing irregularly, usually persisting, the remnants 0.3–0.5 mm thick when dry; *petals* suborbicular to obovate, ca. 1 cm long, often pubescent within and without; *hypanthium* continuous with closed calyx; *disk* 8–10 mm across, pubescent; *stamens* 0.8–1 cm long, 150–360; *anthers* ca. 1 mm long, with 3–10 glands in the connective; *style* probably about as long as stamens, the stigma peltate; *ovary* 3–4-locular, or locules poorly developed; *ovules* 10–20, or apparently none (abortive?). FRUIT globose, up to 3.5 cm in diameter; *seeds* ca. 30, ca. 5 mm long.

Representative specimens examined. JAMAICA. **Manchester**: Vicinity of Walderston, (18.13°N, 77.49°W), 9 Jan 1963 (fr), *Proctor 23127* (IJ, MICH); Green Vale, 1.5 mi W of Mandeville, (18.02°N, 77.51°W), 701 m, 27 May 1965 (fl), *Proctor 26438* (IJ, MICH); Marshalls Pen, 2.25 miles due NW of

Mandeville, (18.05°N, 77.53°W), 640 m, 16 Aug 1965 (st), *Proctor 26606* (IJ). **Portland**: Muriel's Rock, along road between Section and Hardwar Gap, (18.08°N, 76.74°W), 1036 m, 24 Nov 1971 (fl), *Proctor 32738* (IJ, NY). **St Andrew**: near Cinchona, (18.07°N, 76.66°W), 610 m, 25 Apr 1894 (st), *Harris 5156* (UWI). **St. Elizabeth**: Retirement district near Malvern, (17.98°N, 77.71°W), 12 Sep 1954, *Howard & Proctor 13680* (BM, NY). **Trelawny**: Tyre, near Troy, (18.25°N, 77.60°W), 610 m, 25 Feb 1906 (fl), *Harris 9406* (NY, UWI).

Phenology—Flowering mainly from February to August; fruiting mainly September to December.

Habitat and distribution—Woods and pastures on limestone hills, sometimes on bauxite soil at elevations of 550–1200 m.

Distinguishing features—Tree up to 16 m high; leaves lanceolate, ovate, or elliptic 5–12 cm long; flower buds mainly 1–1.5 cm long; fruit globose, up to 3.5 cm in diameter; seeds ca. 30, ca. 5 mm long.

Common name—Mountain guava.

According to Proctor (1972) the fruits taste like mangos. In only 1 of 5 specimens examined (1 bud each) were there well developed ovules. Perhaps the abortive ovules are caused by a disease. The fruits are often attacked by insect larvae.

37. *Psidium myrsinites* DC., Prodr. 3: 236. 1828. TYPE. Brazil. "desertis prov. Minarum [Rio de S. Francisco]". *Martius s.n.* (HOLOTYPE: M-146869!). Fig. 43

Psidium myrsinoides O. Berg, in Mart., Fl. bras. 14(1): 384. 1857. TYPE. Brazil. "v. in hb. Vindob. et Berol." "ad Carmo et Natividade prov. Goyazensis," *Pohl 1020* (SYNTYPES: B, lost, W-16672, W-16671; ISOSYNTYPES: F-65706, K-565280).

Psidium gardnerianum O. Berg, in Mart., Fl. bras. 14(1): 389. 1857. TYPE. Brazil. Ceará. *Gardner 1610* (SYNTYPES: W-116282!, W-16680, =F Neg. 32422; ISOSYNTYPES: BM-796822, F-76384!, G-227710!, GH-71252, K-18450, K-18451, NY-1288049!, OXF, P-258463!, S-R-9451, US117659).

Guajava myrsinites (DC.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava myrsinoides (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava gardneriana (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Psidium malmei Kausel, Lilloa 33: 108. 1972. TYPE. Brazil. Matto Grosso, Cuyaba. *Malme 1240* (SYNTYPES: S-R-9454, S08-6868).

Tree or shrub 1–5(–9) m high, sparsely to densely pubescent on young growth to subglabrous; *hairs* whitish or tinged with reddish brown, ca. 0.5(–1) mm long; *young twigs* drying gray-green to reddish brown, often pubescent, the first bark with age becoming light gray, cracking, the older twigs rough, scaly, reddish brown to gray. LEAF BLADES oblong, oblong-oblanceolate, obovate, or elliptic, 3.5–13.2 cm long, 1.5–4.6 cm wide, 1.5–4 times as long as wide, coriaceous at maturity (subcoriaceous at anthesis), about flat, lustrous above, drying chocolate brown, darker above than below, the margins not revolute subglabrous or the midvein pubescent above, especially at base; *apex* bluntly acute, obtuse, or rounded; *base* rounded, obtuse, or acute; *petiole* essentially none, or ca. 1 mm long and thick, glabrous or pubescent; *venation* brochidodromous to eucamptodromous proximally, the midvein above flat or slightly raised, longitudinally wrinkled, pubescent or glabrous, prominent below, the lateral veins 5–12 pairs, not prominent, leaving the midvein at an angle of 45–60°, the marginal vein not prominent, arching broadly between laterals, running within 0.5–6 mm of the margin, often only evident distally, the tertiary veins forming an intricate dendritic pattern between the laterals. FLOWER BUD 6–9 mm long, pyriform, the hypanthium obconic to infundibular, 2–4.5 mm long, the distal portion of bud subglobose,

sometimes wider than long, 3.5–6 mm long; *indumentum pattern of buds* with the peduncles and branches of dichasia usually sparsely to moderately covered with more or less spreading hairs, less often subglabrous, the hypanthium subglabrous to sparsely pubescent but usually less densely so than peduncle, the calyx densely pubescent within, subglabrous without, the petals pubescent without, glabrous within, the disk sparsely to moderately pubescent, the style often villous proximally; *peduncles* 1(–3)-flowered, solitary in the axils of leaves or bracts, or borne at leafless nodes, 7–45 mm long, ca. 1 mm wide, usually sparsely to moderately covered with more or less erect hairs, sometimes glabrous, longitudinally wrinkled when dry, the bracts narrowly triangular, membranous, up to ca. 5 mm long; *bracteoles* narrowly triangular, 2–3 mm long, caducous before anthesis. CALYX bowl-like, tearing between the lobes ca. 1 mm at anthesis, the lobes broadly rounded, up to ca. 1.5 mm long, ca. 2–3 mm wide, sometimes scarcely detectable before anthesis; *petals* elliptic to obovate, 5–8 mm long; *disk* ca. 5 mm across; *stamens* 160–210, 6–8 mm long; *anthers* 0.5–0.9 mm long, with a terminal gland and 0–5 smaller additional glands; *style* 6–8 mm long; *ovary* 3-locular; *ovules* 17–44 per locule, ca. 2-seriate on each lamella, the placenta slightly peltate. FRUIT subglobose, up to ca. 2 cm in diam.; *seeds* 15–22, 3–5 mm long, with rounded and flat surfaces.

Representative specimens examined. BOLIVIA. **Santa Cruz**: Chiquitos, Chochis, La Mina zona Matacuzal, (18.14°S, 60.04°W), 700 m, 18 Nov 2000 (fl), *Wood 17551* (ASU0078686).

BRAZIL. **Bahia**: Mun. de Caetité, (14.00°S, 42.50°W), 26 Nov 1992 (fl), *Guedes 2901* (ALCB, SP); Correntina, Fazenda Jatobá, (13.50°S, 46.00°W), 20 Nov 1991 (fl), *Machado & Viollati 335* (UB); Correntia, estrada entre São Manoel do Norte e Jaborandi, (13.56°S, 44.50°W), 685 m, 8 Apr 2005 (fr), *Miranda 725* (ASU0015768); Formoso do Rio Preto, Ca. de 20 km de guarita da Faz. Estrondo, (11.56°S, 46.11°W), 450 m, 2 Feb 2000 (fr), *Passos et al. 361* (HUEFS); Licínio de Almeida, (14.75°S, 42.55°W), 854 m, 21 Jan 2013 (fl), *Stadnik 101* (ASU0075035-photos). **Ceará**: Crato, alto da Serra do Araripe, inicio da estr. para Araripina, (7.23°S, 39.38°W), 2 Dec 1971 (fl), *de Andrade Lima 1133* (ASE, HRB). **Distrito Federal**: Fazenda Agua Limpa da Universidade de Brasilia, (15.95°S, 47.90°W), 7 Nov 1983 (fl), *Kirkbride 5466* (ASU0008153). **Goiás**: Goianesia, km 58, estrada que liga Goianesia a Padre Bernardo, (15.33°S, 49.12°W), 24 Oct 1994 (fl), *Alvarenga 876* (ASU0007595); Niquelândia, Fazenda Engenho ca. de 11 km de Niquelândia/Dois Irmãos, cabeceira do Rio Trairas, area do Ditinho, (14.69°S, 48.44°W), 735 m, 20 Sep 1997 (fr), *Azevedo 1157* (ASU0008156); Formoso, Parque Nacional Grande Sertão; estrada em direção a Fazenda Diamante, (15.33°S, 45.95°W), 29 Nov 1997 (fr), *Azevedo 1217* (ASU0008155); Água Fria de Goiás, Estação Repetidora da Telebrasilia de Roncador, Água Fria de Goias, (14.99°S, 47.79°W), 8 Feb 1994 (fr), *Hatschbach 60043* (ASU0008157); Serra Dourada, 20 km SE of Goiás Velho, (14.00°S, 50.00°W), 800 m, 19 Jan 1966 (fr), *Irwin et al. 11781* (MICH, MO, NY, UB); Chapada dos Veadeiros, ca. 7 km W of Veadeiros, (14.00°S, 47.00°W), 950 m, 15 Feb 1966 (fr), *Irwin et al. 12874* (F, MICH, MO, NY); Parque Estadual. Serra do Pireneus, (15.85°S, 48.96°W), 2 Nov 2005 (fl), *Faria 147* (ASU0018555); Alto Horizonte, (14.19°S, 49.33°W), 29 Dec 2005 (fr), *Faria 202* (ASU0018554); Mun. de Goiás, (15.90°S, 50.30°W), 22 Feb 1983 (fr), *Souza Lima 194* (HRB); Niquelândia, Fazenda Traíras, km 8 da rodivia Niquelândia/Uruaçu, (14.49°S, 48.56°W), 12 Dec 1995 (fr), *Oliveira et al. 457* (ASU0008146); Crixas, próximo a Serra do Acampamento, (14.93°S, 50.18°W), 470 m, 22 Oct 1996 *Sebastião de Souza e Silva 90* (ASU0008149); Niquelândia, Serra da Mesa, trecho final do Rio Tocantinzinho, (13.93°S, 48.28°W), 29 Nov 1996 (fr), *Walter et al. 3612* (ASU0008158). **Maranhão**: Tasso Fragoso, próximo ao Ribeirão Marcelino, (8.45°S, 45.77°W), 230 m, 20 Mar 1984 (fr), *Andrade & Santos 1* (HRB, RB); Barra do Corda, Canela Indian village & vicinity, ca. 50 km SW of Barra do Corda, (5.50°S, 45.25°W), 500 m, 26 Jan 1977 (fr), *Eiten 416* (MICH); road between Estreito de Goias and Carolina, 17 km S of Estreito, (6.75°S, 47.33°W), 1 Dec 1981 (fl), *Jangoux 1756* (ASU0007596); Santa Quiteria, (3.52°S, 42.53°W), 9 Dec 1991 *Elias de Paula 3327* (UB); Balsas, Projeto de colonização agrícola BATAVO/Campo, córrego Tem Medo, (8.63°S, 46.72°W), 9 Nov 1996 (fr), *Walter et al. 3549* (ASU0008148). **Mato Grosso**: Cuiaba, (15.60°S, 56.09°W), 18 Dec 1893, *Malme 1240-B* (ASU0007594-photos, S). **Mato Grosso do Sul**: 25 km from Bodoquena on the road to Miranda (MS 339), (20.38°S, 56.52°W), 12 Sep 1996 *Ratter et al. R-7675* (ASU0008160). **Minas Gerais**: Formoso, P. N. Grande Sertão Vereda de Limoeiro, ca. 11 km da sede, (15.36°S, 45.96°W), 16 Oct 1997 (fl), *Mendonça 3170* (ASU0008143); Formoso, P. N. Grande Sertão

Veredas, Faz. Mato Grande, (15.35°S, 45.00°W), 29 Nov 1997 (fr), *Aparecida da Silva 3622* (ASU0008150); Delfinópolis. Serra da Gurita, próximo á estrada Delfinópolis, Sacramento, (20.35°S, 46.84°W), 900 m, 9 Jan 1996, *Souza 9949* (ASU0008151). **Piauí**: Bom Jesus da Gurguéia, estrada para Caraíbas, (9.20°S, 44.37°W), 27 Sep 1980 (fl), *Sarmento 626* (HRB, RB). **Roraima**: BR 174, km 98 N de Boa Vista, (3.63°N, 60.97°W), 9 Sep 1993 (st), *Sanaiotti 239* (UB). **Tocantins**: Posto Indigena São José, ca. 20 km W of Tocantinópolis, (6.50°S, 47.50°W), 8 Sep 1983 (fr), *Ballick et al. 1576* (CAS, SP); Presidente Kennedy, road from highway BR-153 to Itaporã, 12 km west of village of Presidente Kennedy. Fazenda Primavera along Ribeirão Feínho, (8.50°S, 48.60°W), 400 m, 2 Feb 1980 (fr), *Plowman 8297* (HRB, MO, NY); 5 km ao S de Gurupi, (11.72°S, 49.12°W), 11 Nov 1997 *Proença et al. 1800* (ASU0008159); Area entre Palma e Taquaral próximo do Posto da policia rod, (10.43°S, 48.30°W), 246 m, 1 Nov 1997 *Ratter et al. 29* (ASU0007591); Fazenda Bragança, near Darcinópolis, (6.55°S, 47.80°W), 8 Jul 1993 (fl), *Ratter et al. 6777* (UB).

GUYANA. Rupununi Northern Savanna, (3.50°N, 59.00°W), 107 m, without date (fr), *Goodland 836* (NY).

SURINAME. Sapaliwimi savanna area on Brazilian frontier, 5 km W of Morro Grande, (2.00°N, 56.50°W), 365 m, 6 Nov 1968 (fl), *Oldenburger et al. 459* (MICH).

Phenology—Flowering from March to December but mainly in October and November; fruiting mainly from November to February.

Habitat and Distribution—Cerrado, campo rupestre at elevations of 230 to 1500 m. Found mainly in Brazil from Maranhão to Goias and Minas Gerais but collected as far north as Roraima and Surinam.

Distinguishing Features—Calyx bowl-like, the lobes broadly rounded; hypanthium subglabrous to sparsely pubescent but usually less densely so than peduncle; marginal vein not prominent, arching broadly between laterals, running within 0.5–6 mm of the margin, often only evident distally; blades drying a chocolate color; petiole to ca. 1 mm long.

Psidium myrsinites can be confused with *P. salutare*, which has a marginal vein that closely parallels the margin and scarcely arches (broadly arching between laterals in *P. myrsinites*).

38. *Psidium myrtoides* O. Berg, in Mart. Fl. bras. 14(1): 384. 1857. TYPE. Brazil. "ad vicum Ypanema prov. S. Pauli." *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: BR-848971!, designated by Tuler et al. [2019b]; ISOLECTOTYPES: BM-796871, , F-65707, F-65708, LE-6987, P-258406!, P-258407!, SGO!, W-48040!). Fig. 44

Guajava myrtoides (O. Berg) Kuntze Rev. Gen. 239. 1891.

Myrtus corynantha Kiaersk., Enum. Myrt. bras. 18. 1893. TYPE. Syntype collections four. Brazil. "Rio." 1—*Glaziou 12721* (SYNTYPE: C-10015601 [includes drawing; = F neg. 21053], designated here as LECTOTYPE; ISOLECTOTYPES: F-76370!, G-227807!, K-276993, P-258341!, P-258343!, US-810756!), 2—*Glaziou 13887* (SYNTYPE: C-10015602; ISOSYNTYPES: K-566535, P-258340!, P-258342!), 3—*Glaziou 13892* (SYNTYPES: C-10015604, C-10015605; ISOSYNTYPES: BR-528024, F-76371!, G-227808!, NY-405529, P-258344!, R-8962!), and 4—*Glaziou 19352* (SYNTYPE: C-10015603; ISOSYNTYPES: K-566534, P-258345!).

Psidium corynanthum (Kiaersk.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941.

Pseudocaryophyllus uniflorus Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 515. 1941. TYPE. Brazil. "São Paulo, Indaituba, Mun. Campinas." *C. Novaes 881* (HOLOTYPE: B, lost; ISOTYPE: SP-1390!, designated here as LECTOTYPE, = ASU photo).

Corynemyrtus corynantha (Kiaersk.) Mattos, Loefgrenia no. 10: [1]. 1963.

Psidium giganteum Mattos, Loefgrenia No. 28: 2. 1969. TYPE. Brazil. São Paulo, Salesópolis, Est. Biol. De Boracéia, *Mattos 15305* (HOLOTYPE: HB; ISOTYPE: SP-115864, barcode SP-1392, seen as image, designated LECTOTYPE by Tuler et al. [2019b]).

?***Psidium imaruinense*** Mattos, Loefgrenia 66 ["65"]: 1." 1975. TYPE. Brazil. Santa Catarina, Imarui, Alto Dio D'Uha, 100 m, 10 May 1973. *Bresolin 747* (HOLOTYPE: FLOR; ISOTYPE: MBM-fragments [= ASU photo]).

Psidium turbinatum Mattos, Loefgrenia 94: 12. 1989. TYPE. Brazil. "Goiás, Serra do Espinhaco." *Irwin, Harley & Onishi 29043* (HOLOTYPE: IPRN; ISOTYPE: NY-1365090!).

Psidium hagelundianum Mattos, Loefgrenia 94: 11. 1989. TYPE. Brazil. "São Paulo, Salesópolis, Estação Biológica de Boracéia, perto do Rio Coruja." *Mattos 14251* (HOLOTYPE: IPRN; ISOTYPE: SP! [see http://cotram.org/collections/individual/index.php?occid=2909812&clid=0].

?***Psidium canum*** Mattos, Loefgrenia 94: 11. 1989. Brazil. Distrito Federal, Parque Guará, 19 Feb 1971. *Heringer 11209* (HOLOTYPE: IPRN not found).

?***Psidium involutisepalum*** Tuler, Carrijo & Peixoto, Syst. Bot. 45(1): 137. 2020. TYPE. Brazil. Rio de Janeiro, Resende, Visconde Maua', rancho pavao, propriedade de Beatrice Hanstein, 22.342347, 44.568536, 3 May 2018, *Tuler et al. 628* (HOLOTYPE: RB-764596; ISOTYPES: K, UB-136394, seen as image on specieslink).

Psidium riobonito A. Maruy. & Tuler, Phytotaxa 653(2): 156. 2024. TYPE. Brazil. São Paulo: Cunha, Serra do Mar State Park-Núcleo Cunha, Rio Bonito Trail, 23°15'10.86"S, 45°0'43.35"W, December 2021, *A. Maruyama 8121* (HOLOTYPE: SORO; ISOTYPE: ESA).

Tree or shrub 1–8 m high, essentially glabrous except for inner surfaces of some floral structures, or sparsely puberulent on twigs, and sometimes leaf bases and petioles; *hairs* whitish, up to ca. 0.2 mm long; *young twigs* yellow-brown to light reddish brown, smooth, the first bark eventually becoming gray, splitting in longitudinal flakes, the new inner bark reddish brown. LEAF BLADES elliptic, narrowly elliptic, or lanceolate, sometimes slightly oblique, 3.9–13.2 cm long, 1.4–5.5 cm wide, 1.7–3.4 times as long as wide, coriaceous at maturity, drying gray-green to reddish brown; *apex* usually acuminate; *base* acuminate to acute; *petiole* channeled, 3–13 mm long, 1–2.5 mm thick; venation brochidodromous, the midvein prominent below, impressed proximally to nearly flat distally above, the lateral veins prominent to obscure, 10–17 pairs, straight, leaving midvein at 45–60°, the marginal veins arching between between laterals, running more or less parallel to the margin, mostly 0.5–3 mm from the margin, the tertiary veins dendritic, alternating with the laterals, appearing to arise from the marginal veins. FLOWER BUDS broadly to narrowly pyriform, 4–8 mm long, the hypanthium obconic, subcylindrical, campanulate or infundibular, 1.5–3 mm long, the distal portion of bud subglobose 2–5 mm long; *indumentum pattern of buds* with all surfaces glabrous or essentially so except for the pubescent inner surface of calyx lobes and sometimes disk; *peduncles* 2–9 mm long, 0.5–1 mm thick, borne in axils of leaves or bracts or at leafless nodes, often clustered in bracteate shoots, these sometimes terminating in leaves; *bracteoles* narrowly triangular to narrowly lanceolate, 1–2(–4) mm long, caducous at about anthesis. CALYX bowl-like or bowl-like, open, the lobes broadly triangular or rounded, 0.5–1 mm long, borne along the edge of the bowl, the staminal ring borne on inner surface, the tears between calyx lobes scarcely penetrating the staminal ring if at all; *petals* elliptic, 6–7 mm long; *disk* within staminal ring ca. 1–2 mm across; *stamens* 125–200, ca. 5 mm long; *anthers* 0.4–0.6 mm long, with a terminal gland and sometimes 1–3 smaller glands in the connective below; *style* 5–7 mm long, the stigma scarcely wider than the style; *ovary* 2–3-locular, the locules glabrous to pubescent within; *ovules* 7–21, usually uniseriate on each lamella of a slightly to clearly peltate placenta. FRUIT globose to pyriform, up 2.3 cm long, the wall 0.5–1.5 mm thick; *seeds* 2–10, 5–8 mm long, smooth, with rounded and flat surfaces.

Representative specimens examined. BRAZIL. **Bahia**: Porto Seguro, Monte Pascual, (16.45°S, 39.06°W), 10 Mar 1966, *Belem & Pinheiro 2691* (CEPEC); 7 km SW de Maracás na estrada para Contendas do Sicorá, (13.50°S, 40.50°W), 23 Mar 1988 (fr), *Ginzbarg et al. 850* (ASU0009506); Maracás, ca. 5 km da

cidade, (13.45°S, 40.46°W), 890 m, 1 Mar 1999 (fr), *E. Melo 2625* (ASU0059724); Rio de Contas, mata da base do pico do Itabira, (13.60°S, 41.80°W), 1700 m, 10 Feb 1999 (fr), *Nascimento 124* (HUEFS). **Distrito Federal**: Parque do Guará, (15.81°S, 47.97°W), 15 Oct 1975 (fl), *E. P. Heringer 14856* (ASU0009503). **Espírito Santo**: Santa Teresa, estrada para Goiapabaçu, (19.91°S, 40.53°W), 850 m, 28 Mar 2012 (fr), *Faria 2492* (ASU0082969); Linhares, próximo a Lagoa Juparanã, na Praia Floresta, (19.39°S, 40.06°W), 3 Aug 1993 (fr), *FoIli 1829* (ASU0053022); Marechal Floriano, Bom Jesus, (20.42°S, 40.67°W), 21 Oct 2000 (fl), *Hatschbach 71498* (ASU0009504). **Minas Gerais**: Carmo do Rio Claro, Fazenda Corrego Bonito, (20.97°S, 46.12°W), 7 Sep 1961 (fl), *Andrade et al. 1093* (HB); estrada Diamantina-Biribiri, a 14 km de Diamantina, (18.25°S, 43.60°W), 31 Oct 1981 (yfr), *Giulietti et al. CFCR 2488* (ASU0009500); Datas, Rodovia Datas-Serra, Morro de Coco, (18.43°S, 43.68°W), 8 Jan 1988 (fr), *Pirani et al. CFCR 11739* (ASU0009490); Santana do Riacho, Serra do Cipó, estrada da Usina Dr. Pacífico Mascarenhas, (19.20°S, 43.70°W), 5 Oct 1981 (fl), *Furlan et al. CFSC 7512* (ASU0009499); ca. 10 km W of Barão de Cocais, (19.93°S, 43.47°W), 1500 m, 24 Jan 1971 (fr), *Irwin et al. 29043* (MICH, NY); Santa Bárbara, Serra do Caraça, (19.93°S, 43.40°W), 11 Oct 1995 (fl), *Kawasaki 866* (ASU0009489); Itambé do Mato Adentro, 2 km de Itambé, estrada para Serra Cabeça de Boi, (19.40°S, 43.32°W), 12 Oct 1995 (fl), *Kawasaki 874* (ASU0009501); Caeté, Serra da Piedade, (19.82°S, 43.69°W), 1520 m, 11 Jan 1996 (fl), *Souza et al. 10084* (ASU0009505). **Paraná**: Tomazinha, Cerradinho, (23.77°S, 49.97°W), 24 Nov 1987 (fl), *Hatschbach 51987* (ASU0009507). **Rio de Janeiro**: Novo Friburgo, (22.27°S, 42.53°W), 11 Dec 1918 (fl), *Curran 681* (NY). **São Paulo**: São Paulo, Bairro de Interlagos, SESC Interlagos, fragmento de mata ombrofila, (23.53°S, 46.62°W), 10 Jan 1996 (fl), *Cordeiro 1624* (ASU0009492); Salesópolis, Boracea, margem do Rio Claro, (23.53°S, 45.85°W), 15 Mar 1958 *Kuhlmann 4337* (ASU0009493); Bauru, Parque Ecológico do Bauru, (22.31°S, 49.06°W), 26 May 1994 *Tamashiro et al. 186* (ASU0010483).

COLOMBIA. **Norte de Santander**: La Playa de Belén, Área Única Natural Los Estoraques, vereda Piritama, finca La Esperanza, margen derecho de la quebrada Piritama, (8.24°N, 73.25°W), 1650 m, 23 Oct 2015 (fl, fr), *Henao s.n.* (COL-seen as image).

Phenology—Flowering from September to January; fruiting January to May.

Habitat and Distribution—Forests and campo rupestre at 850 to 1700 m; from Bahia and Goiás to Paraná. Rarely cultivated.

Distinguishing Features—Plant nearly glabrous; leaves elliptic, narrowly elliptic, or lanceolate, 4–13 cm long, 1.7–3.4 times as long as wide; calyx bowl-like, open, the lobes broadly triangular or rounded, the tears between lobes not penetrating the staminal ring significantly; peduncles often at leafless nodes in bracteate shoots, these sometimes terminating in leaves; petiole channeled, 3–13 mm long; marginal veins running more or less parallel to the margin, mostly 0.5–3 mm from the margin.

As I understand *Psidium myrtoides*, it is variable species, with a wide range of leaf and flower sizes. My colleagues recognize the group as a complex of a few species, which I find difficult to distinguish. An in-depth study of the group is needed.

39. *Psidium nannophyllum* Alain, Phytologia 25: 270. 1973. TYPE. Dominican Republic. Bonao, Loma Peguera, 300–400 m, 8 Aug 1970, *Alain H. Liogier 17378* (HOLOTYPE: NY-1288064!; ISOTYPES: F-76378f!, JBSD!, MICH-1210409!, MO!, US!).

Fig. 45

Shrub 1–1.5 m high, with spreading branches, glabrous or minutely puberulent on some young growth; *hairs* reddish brown, less than 0.1 mm long, somewhat curled; *young twigs* more or less 4-winged, reddish brown, the older twigs becoming gray, eventually becoming terete. LEAF BLADES ovate to suborbicular, 5–10 mm long, 4–9 mm wide, 0.7–1.2 times as long as wide, coriaceous, more or less flat, or folding upward (at least when drying), densely glandular, frequently overlapping, the internodes 1–4 mm long, shorter than the leaves; *apex* rounded, acute, acuminate, or abruptly acuminate; *base* rounded to subcordate; *petiole* 0.5–1.5

mm long, 0.5–1 mm wide; *venation* obscure except for midvein, rarely with a few lateral veins scarcely visible, these leaving the midvein at an angle of less than 45 degrees. FLOWER BUDS pyriform, 3.5–4 mm long; *hypanthium* obconic, ca. 1.5 mm long; *indumentum pattern of buds* with all external surfaces glabrous, the inner surface of calyx and staminal ring puberulent; *peduncles* uniflorous, 2.5–5 mm long, ca. 0.5 mm wide, compressed at anthesis, subterete at fruiting; *bracteoles* narrowly triangular, ca. 0.5–1.5 mm long. CALYX closed in bud, tearing irregularly in 2–3 parts, persisting or falling by time fruit is mature; *petals* elliptic, 3–4 mm long, strongly glandular, minutely strigose externally; *disk* within staminal ring glabrous, 1.5–2 mm across; *stamens* 25–30, 3–4 mm long; *anthers* subglobose, 0.3–0.5 mm long, with a terminal gland and 2–6 smaller glands below; *style* glabrous, ca. 2.5–3.5 mm long; *ovary* 2-locular; *ovules* 10–12, reflexed, borne on the edge of aa peltate placenta, mainly uniseriate on each lamella. FRUIT subglobose, 7–10 mm long; fruit wall mostly 0.8–1 mm thick; *seeds* ca. 8, 3–3.5 mm long, with rounded and flat sides.

Additional specimen examined. DOMINICAN REPUBLIC. Mons Nouel, SE of Bonao, Falconbridge Dominicana mine property, Loma la Peguera area (18°54'N, 70°20'W), 1700 m, 23 Apr 1981 (fl), *Zanoni 12917* (ASU0316587-photos, JBSD).

Phenology—Poorly known, flowering in April and August; fruiting in August.

Habitat and distribution—Hills and canyons; known from two collections in an area of mining; in great need of an environmental assessment.

Distinguishing features—Small shrub with wand-like branches, with the leaves overlapping on the stems; leaves ovate to suborbicular, 5–10 mm long; apex rounded, acute, acuminate, or abruptly acuminate; base rounded to subcordate.

This is one of the rarest species of *Psidium* and may be on the verge of extinction. Field studies are greatly encouraged.

40. *Psidium nummularia* (C.Wright ex Griseb.) C.Wright, Anales Acad. Ci. Med. Habana 5: 433. 1869. Fig. 46

Eugenia nummularia C.Wright ex Griseb., Cat. Pl. Cub. 86. 1866. TYPE. Cuba. "Guajarba," [Guaijabon], (ca. 22.79°N, 83.36°W), *C. Wright 2458* (HOLOTYPE: GOET-8270; ISOTYPES: BM-616947, G-227832!, GH-69309, K-2458, MO-313488, NY-1288065!, US-118076!, YU-1606).

Psidium celastroides Urb., Symb. Ant. 9: 463. 1928. TYPE. Cuba. "Prov. Santa Clara in montibus Siguanea-Trinidad in valli Hanabanilla ad Finca Playitas in collibus calcareis 600 m," *Ekman 18471* (HOLOTYPE: B, lost; ISOTYPES: A-71237, NY-1288038!, S-R-9443 (2 sheets) [sheet annotated in 2000 as lectotype by A. J. Urquiola, formally designated here as LECTOTYPE].

Psidium scopulorum Ekman & Urb., Symb. Ant. 9: 465. 1928. TYPE. Cuba. "Prov. Pinar del Rio....Sierra de Vinales," (ca. 22.59°N, 83.72°W), 6 Jun 1923 (fl bud), *Ekman 16564* (SYNTYPE; B, lost; ISOSYNTYPES: F-76380f, G-227667!, NY-1288090!, S-R-8380 [annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE], "in Sierra de Guacamayas in cacumine Mogote de la Baliz," (ca. 22.71°N, 83.59°W), *Ekman 17980* (SYNTYPE: B, lost; ISOSYNTYPE NY!), and "prope Sumidero pro omnibus formationibus Mogote dictus," (ca. 22.74°N,-83.30°W), *Ekman 18219* (SYNTYPE: B, lost; ISOSYNTYPE NY!).

Psidium tomasianum Urb. & Ekman, Symb. Antill. (Urban). 9(4): 465. 1928. TYPE. Cuba. Prov. Pinar del Río, "prope Viñales in cacumine Sierra del Sitio Santo Tomás," *Ekman 18025* (HOLOTYPE: B, lost; ISOTYPE: NY-1288094!).

Psidium acunae Borhidi, Acta Bot. Acad. Sci. Hung. 17:17. "1971" 1972. TYPE. Prov. Pinar del Río, Sierra de los Órganos, Pan de Guajaibón, [Type locality of *Eugenia nummularia*], 750 m, 2 May 1959 (fl, fr), *Alain 6782* (HAC, = ASU photo).

Shrub or small tree glabrous, hirtellous, or puberulent on young twigs, calyx within, and

staminal ring; *hairs* reddish brown to whitish, less than 0.1 mm long; *young twigs* reddish brown, becoming whitish with age, often bifurcating, the bark of older twigs falling as thin flakes. LEAF BLADES suborbicular to oblong ovate, 7–17 mm long, 8–13 mm wide, 0.9–1.2 times as long as wide, coriaceous, densely glandular, drying dark gray-green, the margins somewhat revolute; *apex* rounded to barely emarginate; *base* subcordate, rounded, broadly cuneate, or abruptly acuminate; *petiole* 0.5–1 mm long and wide; *venation* obscure, or ca. 4 pairs of lateral veins faintly visible, these leaving the midvein at 60° or more, the marginal veins arching broadly between the laterals, 1–2 mm from margin. FLOWER BUDS narrowly pyriform, ca. 5 mm long, the apex sometimes apiculate; *hypanthium* narrowly campanulate; *indumentum pattern of buds* glabrous without, the inner surface of calyx and staminal ring puberulent; *peduncles* 4–10 mm long, 0.4–0.8 mm wide, 1-flowered; *bracteoles* narrowly triangular, ca. 0.5 mm long. CALYX closed or with 4 minute lobes, tearing in 3 or 4 parts, puberulent-strigose within, persisting until fruit matures; *petals* not seen; *disk* within staminal ring ca. 2 mm wide in fruit; *stamens* ca. 86, 2–3.5 mm long; *anthers* ca. 0.5 mm long, with a terminal gland and 2–4 smaller glands below; *style* 3–4 mm long; *ovary* 2–3-locular; *ovules* per locule 7–26. FRUIT subglobose, 5–7 mm long; *seeds* ca. 3, 3–4 mm long, with flat and rounded sides.

Representative specimens examined. CUBA. **Pinar del Río**: Sierra de Quemado, El Moneada, Viñales, (22.52°N, 83.86°W), 20 May 1988 (fl), *Luis 4571* (ASU0069452); Sierra de la Guira, Los Palacios, (22.71°N, 83.37°W), 2 Jul 1988 (fl, yfr), *Luis 4693* (ASU); cultivated in Jardín Botánico del Pinar del Río, procedente de Mogotes, Viñales, 19 May 2018 (fl), *Oviedo* (FTG); Sierra de Mesa (Mogotes), Sumidero, Minas de Matahambre, (22.42°N, 84°W), 14 Jul 1990 (st), *Urquiola 6477* (ASU0069453).

Phenology—Flowering in May and June; probably fruiting soon after flowering.

Habitat and distribution—Found in vegetation associated with "mogotes" [isolated steep hills of calcareous rocks], sometimes on the walls of the mogotes.

Distinguishing features—Leaves suborbicular to oblong ovate, 7–17 mm long; apex rounded to barely emarginate; base subcordate, rounded, broadly cuneate, or abruptly acuminate; young twigs not winged, more or terete; western Cuba.

This species might be confused with *Psidium rotundatum*. It is compared with that species in the key below.

1. Leaves 0.7–1.7 cm long, 0.8–1.3 cm wide; lateral veins not visible or scarcely so; seeds ca. 3 mm long; style 3–4 mm long; peduncles 1-flowered ..... ***P. nummularia***
1' Leaves 1.7–5.5 cm long, 1.5–4.5 cm wide; lateral veins normally easily visible; seeds ca. 4–5 mm long; style 5–6 mm long; peduncles 1–3-flowered ..... ***P. rotundatum***

41. *Psidium nutans* O. Berg, in Mart., Fl. bras. 14(1): 394. 1857. TYPE. Brazil. "in prov. Piauhiensi," *Gardner 2592* [=*2598* on some specimens] (SYNTYPES: W-16673, W-116302!; ISOSYNTYPES: BM-796904, F-76389!, G-227721!, NY-1288066!, P-258405!, US-7838). Fig. 47

?Psidium oblongifolium O. Berg, in Mart., Fl. bras. 14(1): 602. 1859. TYPE. Brazil. São Paulo. "In locis humidiusculis graminosis prope Batataës", *Riedel s. n.* (HOLOTYPE: LE-6988, seen as photo and online).

Guajava nutans (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

?Guajava oblongifolia (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Psidium campicolum Barb. Rodr., Myrt. Paraguay 11. 1903. TYPE. Paraguay. "in regiones fluminis Corrientes," *Hassler 4522* (HOLOTYPE: G-194283).

Psidium mattogrossense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Valenzuela," *Hassler 7135* (G [two sheets, = ASU photos]).

Psidium verrucosum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Tobaty," *Hassler 6384* (G [= ASU photo]).

?Psidium popenoei Standl., Ceiba 1: 41. 1950. TYPE. Honduras. Comayagua, Siguatepeque, *Standley & Chacón 6369* (HOLOTYPE: F-76375!).

Tree or shrub 1–5 m high, glabrous or sparsely appressed antrorsely pubescent on distal inner surface of calyx (rarely puberulent on young growth); *hairs* if present colorless, to ca. 0.5 mm long; *young twigs* reddish brown to blackish brown when dry, smooth with numerous darker glands, the bark of older twigs lighter brown or tan, falling as flakes. LEAF BLADES elliptic to obovate, 5–17 cm long, 3–12 cm wide, 1.4–2.6 times as long as wide, coriaceous, often lustrous above and below, drying reddish to blackish brown, often mottled above with lighter spots when dry, the margin sometimes crenulate in part; *apex* acute, acuminate, obtuse to rounded, often with a cuspidate tip; *base* cuneate, obtuse, rounded, oblique, or subcordate; *petiole* shallowly channeled, 3–10 mm long, 1–2.5 mm thick; *venation* eucamptodromous proximally, brochidodromous distally, the midvein impressed proximally to nearly flat above, prominent below, the lateral veins 4–8(–10) pairs, leaving the midvein at an angle of 30–60°, nearly straight near midvein, arching distally towards apex, the marginal vein usually evident distally, arching mostly between 1–3 mm from the margin, the tertiary veins dendritic to ladder-like in pattern. FLOWER BUDS pyriform, moderately to strongly constricted at ovary summit, 7–12(–14) mm long, the hypanthium ellipsoid to campanulate, 3–6 mm long, the distal portion of bud ovoid to subglobose, 4–6.5(–9.5) mm long; *indumentum pattern of buds* with all surfaces glabrous or essentially so; *peduncles* 1–3(–7)-flowered, 0.4–3(–5) cm long, flattened, 1–2 mm wide, the branches of the dichasia 0.4–2 cm long; *bracteoles* narrowly triangular, ca. 2 mm long, caducous at or before anthesis. CALYX closed, or with a small apical pore-like opening, with 5 minute lobes on the margin of the opening, tearing irregularly at anthesis, usually in 4–5 persistent pieces 4–8 mm long, the tears not cutting the staminal ring, glabrous to sparsely pubescent distally within; *petals* elliptic to obovate, 0.8–1.4 cm long; *disk* ca. 3.5 mm across; *stamens* 110–240, 6–10 mm long; *anthers* 1.2–2(–3) mm long, with a few to several glands in the connective; *style* 9–13 mm long, the stigma peltate, 0.5–0.8 mm across; *ovary* 3–5-locular; *ovules* 50–105 per locule, the placenta protruding, sometimes somewhat peltate. FRUIT globose, to subpyriform, 0.7–2 cm long; *seeds* numerous (50 in one fruit), subtriangular with rounded edges, 3–4 mm long.

Representative specimens examined. ARGENTINA. **Corrientes**: Ituzaingó, Ea. San Pedro, (27.75°S, 56.87°W), 10 Nov 1976 (fl), *Arbo et al. 1505* (CTES); San Cosme, Ensenada Grande, Ruta 1, (27.30°S, 58.40°W), 6 Oct 1971 (fl), *Krapovickas et al. 20026* (CTES); Berón de Astrada, Campo Yagua-Cuá, (27.55°S, 57.53°W), 19 Jan 1957 (fl), *Pedersen 4449* (CTES, MO, NY).

BOLIVIA. **La Paz**: Iturralde, Luisita, W del Río Beni, (13.08°S, 67.25°W), 180 m, 26 Feb 1984 (fl), *Beck 10046* (ASU0078685). **Santa Cruz**: Velasco, campamento La Toledo, a 1000 m al E de la casa, (14.70°S, 61.15°W), 21 Oct 1994 (yfl), *Guillén & Choré 2426* (ASU0008008); Velasco, Parque Nacional Noel Kempff M., Flor de Oro, (13.54°S, 61.02°W), 18 Nov 1993 (yfr), *Gutierrez et al. 509* (ASU0008004); Velasco, Parque Nacional Noel Kempff M., Los Fierros 1, (14.61°S, 60.86°W), 14 Oct 1994 (ofl), *Killeen 6757* (ASU0008009).

BRAZIL. **Amazonas**: Humaitá, Igarapé de Mangabal, BR 230 Km 4.5 (7.52°S, 63.17°W), 21 Nov 1980 (fl), *Janssen 204* (ASU0008002). **Bahia:** Conde, Barra do Itariri, (11.97°S, 37.62°W), 26 Apr 1996 (fl, fr), *Costa 18* (ASU0008006); Mucuri, Rodovia Mucuri/Nova Viçosa (BA 001), km 8, (18.02°S, 39.66°W), 5 Oct 2000 (fl, fr), *Mattos et al. 4212* (HUEFS); Palmeiras, Campo São João, leito do rio sem nome, completamente seco, (12.45°S, 41.49°W), 756 m, 23 Oct 2000 (fl), *Nunes et al. 193* (ASU0008007). **Goias**: Rio Bezerra,

Mun. Campos Belos, (13.04°S, 46.76°W), 17 Oct 1990 (fl), *Hatschbach 54720* (ASU0069725); 2 km da entrada sul do canteiro de obras, estrada da UHE Serra da Mesa/Colinas do Sul, (14.15°S, 48.08°W), 410 m, 9 Dec 1991 (yfr), *Walter 956* (ASU0069732). **Maranhão**: 35 km S of Loreto, S of main house of Fazenda Morros (7.38°S, 45.07°W), 300 m, 25 Feb 1970 (fr), *Eiten & Eiten 10774* (UB). **Mato Grosso**: Fazenda Salina, Pantanal do Rio Negro, (19.50°S, 56.17°W), 24 Sep 1987 (fl), *Dubs 373* (ASU0008001); 35 km SE de Corumba, Baia Negra, (19.23° S, 57.47° W), 1 Jul 1977 (fr), *Krapovickas 32854* (CTES). **Minas Gerais**: Januária, distrito de Fabião, (14.96°S, 44.49°W), 24 Oct 1997 (fl), *Lombardi 2052* (ASU0008003). **Pará**: Marapanim, ca. 1 km east of Matipaquara, 73 km NNE of Castanhal by road (0.93°S, 47.65°W), 50 m, 5 Apr 1980 (fr), *Davidse 17909* (F, MO). **Paraná**: Guaira, Sete Quedas, in crevices near rapid, (23.96°S, 55.05°W), 17 Nov 1966 (fl), *Lindeman & Haas 3268* (MBM). **Piauí**: Rodovia Bom Jesus-Gilbues 23 km oeste da cidade de Bom Jesus (9.08°S, 44.36°W), 360 m, 20 Jun 1983 (fl, yfr), *Coradin 5893* (ASU0069727).

FRENCH GUIANA. **Cayenne**: Riviere grand Inini, Saut Equerre, (3.62°N, 53.81°W), 17 Sep 1985 (fl), *de Granville 7286* (ASU0008050).

GUYANA. Chaakoitou, near Mountain Point, just S of Kanuku Mts., (2.93°N, 59.67°W), 27 Oct 1979, *Maas et al. 4064* (MO); Upper Takutu-Upper Essequibo, basin of Rupununi River, Isherton, (2.31°N, 59.40°W), 9 Nov 1937, *Smith 2500* (F).

PARAGUAY. **Misiones**: between San Juan Bautista and road San Ignacio-Pilar. Lafuente cue, 20 km SE of San Juan Bautista, (26.70°S, 57.27°W), 23 Feb 1994 (fr), *Zardini 38496* (ASU0060409). **Canindeyú**: Ygatimí, Reserva Natural del Bosque Mbaracayú, Valinotti Cué, (24.17°S, 55.67°W), 18 Nov 1995 (yfl), *Landrum 8841* (ASU0008012). **Cordillera**: Piribebuy, Salto Amambay, (25.47°S, 56.99°W), 720 m, 13 Feb 1991, *Degen 1791* (NY). **Ñeembucú**: 4 km before entrance to Estancia Redondo, (26.61°S, 58.07°W), 27 Jan 2005 (fl), *Peña-Chocarro 2366* (ASU0060333).

VENEZUELA. **Anzoategui**: Simón Rodríguez, Rio Caris, cerca El Tigre (8.78°N, 64.27°W), 230 m, 23 Mar 1940 (fl, fr), *Pittier 14317* (US, VEN).

Phenology—Flowering mainly from October to January; fruiting mainly January to February.

Habitat and Distribution—Apparently humid grasslands or riparian habitats at elevations of 150 to 750 m. Found in Pará, Amazonas, Piauí, Bahia and Minas Gerais in Brazil, in Corrientes, Argentina, Paraguay, Bolivia, and Venezuela. Perhaps extending into Central America as well.

Distinguishing Features—Usually glabrous or nearly so; calyx closed, or with a small apical pore-like opening, with 5 minute lobes on the margin of the opening, tearing in 4 or 5 lobes at anthesis; anthers 1.2–2(–3) mm long; tertiary veins dendritic to ladder-like in pattern.

Psidium nutans is quite similar to *P. guineense*, except that it generally lacks abundant indumentum of that species. There seems to be a habitat difference: *P. guineense* usually in drier habitats and *P. nutans* often growing along streams or in wet grasslands. This is a species that requires further study, but it is provisionally accepted here because it seems to be ecologically distinct from *P. guineense*. *Psidium popenoei* from a savanna in Honduras is included as a possible synonym for this species. It is widely disjunct from South American populations. More collections and field studies should be made throughout the range of *P. nutans*.

42. *Psidium oblongatum* O. Berg, in Mart., Fl. bras. 14(1): 392. 1857. TYPE. Brazil. Minas Gerais. "Arrayal Tapanhuacanga", *Sellow s.n.* (HOLOTYPE: B, lost; ISOTYPE: K-276095). Fig. 48

Guajava oblongata (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Tree or shrub up to 7(–15) m high, essentially glabrous, except for puberulent disk, inner surface of calyx, ovary locules within and sometimes petals; *hairs* reddish brown to whitish, up to ca. 0.3 mm long; *young twigs* glabrous, smooth reddish brown to grayish, the older twig bark becoming only slightly rough. LEAF BLADES elliptic to lanceolate, 5–17.5 cm long, 1.7–5.9 cm wide, 2.5–3.6 times as long as wide, subcoriaceous, drying reddish brown, to gray-green; *apex* acute to acuminate; *base* acute to attenuate; *petiole* channeled, 2–8 mm long, 1–2 mm wide; *venation* brochidodromous, the midvein impressed above, prominent below, the lateral veins 10–18 pairs, moderately prominent, leaving midvein at an angle of greater than 45 degrees, the marginal vein arching between the laterals, about equaling laterals in prominence, the tertiary veins usually weak, appearing to arise from the laterals, branching dendritically towards midvein. FLOWER BUDS pyriform, 5–10 mm long, the hypanthium obconic, 2–4 mm long, the distal portion of bud subglobose 3–6 mm long; *indumentum pattern of buds* with all external surfaces except bracteoles glabrous, the bracteoles puberulent, the calyx puberulent within, the disk puberulent, the petals puberulent or not, sometimes with ciliate margins; *peduncles* 1-flowered, 1–11 mm long, ca. 0.8 mm wide, borne in axils of leaves or bracts, or at leafless nodes, often clustered on bracteate shoots; *bracteoles* ovate to narrowly triangular, 1–1.5 mm long, caducous before anthesis. CALYX closed in bud (sometimes with an apiculate tip) or with an apical pore up to 3 mm wide, tearing irregularly at anthesis; *petals* presumed to be suborbicular, ca. 8 mm long; *hypanthium* obconic to campanulate, 2–3 mm long; *disk* 5–6 mm across; *stamens* 180–300, ca. 5 mm long; *anthers* 0.5–0.6 mm long, with a terminal gland and 3–6 small glands below; *style* ca. 5 mm long; *ovary* 3–4-locular, the locules puberulent within; *ovules* 25–51 per locule, biseriate on each lamella of a peltate placenta. FRUIT globose to pyriform, 2.5–6 cm long; *seeds* ca. 22 in fruit seen, reniform to subovoid, up to ca. 7–10 mm long.

Representative specimens examined. BRAZIL. **Espírito Santo**: Reserva Biológica Córrego do Veado-Pinheiros, (18.42°S, 40.22°W), 78 m, 12 Sep 2009 (fl), *FolIi 6505* (ASU0053020); Cariacica, Res. Biol. Duas Bocas, Alegre, triha do Pau Oco, (20.27°S, 41.52°W), 525 m, 22 Jul 2008 (fr), *Fraga et al. 2177* (MBML); Linhares, Reserva Florestal da CVRD, Est. Bicuiba, ant, 162, km 1,405, lado esquerdo, (19.42°S, 40.07°W), 15 Jan 1981 (fl), *Silva 230* (ASU0008163); Linhares, Reserva Natural Vale, (19.15°S, 40.05°W), 6 Jul 2012 (fr), *Siqueira 756* (CVRD). **BRAZIL**. **Minas Gerais**: Mun. de Marlieria, Parque Florestal Estadual do Rio Doce, ponto 290, (19.78°S, 42.60°W), 200 m, 19 May 1982 (fl) *Almeida 204* (ALCB, F, HRB, RB); Caratinga, Faz. Macedonea/Cenibra–Ipaba, Trilha do Triangulo, (19.42°S, 42.41°W), 22 Nov 1991, *Braga*, *19437* (SP); Parque Estadual do Rio Doce, Marlieria, trilha da Campolina, (19.70°S, 42.52°W), 6 Dec 1996 (fl), *Lombardi 1510* (SP); Caratinga Estação Biológica de, (19.78°S, 42.13°W), 8 May 1986 (fr), *Lopes 899* (ASU0007599); Marlieria, Parque Estadual do Rio Doce, caminho para a Lagoa do Meio, (19.71°S, 42.73°W), 24 Mar 2002 (fr), *Stehmann et al. 3035* (ASU0007598). **Rio de Janeiro**: Varre-Sai, estrada de Varre-Sai para Guaçui, próximo a ponte da cachoeira, (20.90°S, 41.80°W), 634 m, 23 Aug 2005 (yfr), *Marquete et al. 3677* (ALCB).

Phenology—Apparently flowering throughout year, but mainly in February; fruiting from May to August.

Habitat and Distribution—Wet Forest, Mata Atlantica, Mata de Tabuleiro (coastal flat regions), montane forests; known from Espirito Santo, eastern Minas Gerais, and Rio de Janeiro.

Distinguishing Features—Leaves elliptic to lanceolate, 5–17.5 cm long, 2.5–3.6 times as long as wide; flower buds pyriform, 5–10 mm long; calyx closed in bud (sometimes with an apiculate tip) or with an apical pore up to 3 mm wide, tearing irregularly at anthesis; fruit 2.5–6 cm long.

43. ***Psidium occidentale*** Landrum & C. Parra O., Brittonia 66(4): 312. 2014. TYPE. Ecuador. Esmeraldas: San Lorenzo Cantón, 10 km al suroeste de Lita, subiendo al sector El Cristal, 78°30' W, 00°48'N, 800 m, 10 Sep 1990, *D. Rubio & C. Quelal 659* (HOLOTYPE: QCNE!; ISOTYPES: F-361134!, ASU0074800!, MO!).

Figs. 49, 76C

Tree 10–30 m high, the trunk smooth (fide *Tipaz et al. 1275*0), yellowish (fide *Ortiz 207*), the young growth strigose, short pubescent, or subglabrous; *hairs* yellowish brown to whitish, up to ca. 0.3 mm long; *young twigs* subglabrous to densely pubescent or strigose, drying dark to light reddish brown, the bark of older twigs becoming flaky, rough. LEAF BLADES elliptic, obovate or oblanceolate, (4–)6–20 cm long, 2–7.5 cm wide, 1.6–2.9 times as long as wide, coriaceous to submembranous, drying reddish brown (nearly black) to gray-green or light reddish brown, when young moderately to sparsely pubescent or strigose (especially along veins below), or subglabrous, with age glabrescent; *apex* acute, acuminate, or rounded; *base* acute to rounded, sometimes oblique; *petiole* 3–6 mm long, 1–1.5 mm thick, strigose to glabrous, sometimes channeled; *venation* brochidodromous, the midvein flat to slightly raised above (or sulcate above, perhaps upon drying), prominent below, strigose to glabrous, the lateral veins 5–10 more or less prominent pairs, leaving the midvein at an angle of ca. 45 degree, arching towards apex, the marginal vein broadly arching between the laterals, 2–15 mm from the margin, the tertiary veins connecting the larger veins in an irregular dendritic pattern. FLOWER BUDS pyriform, 4–6 mm long, the hypanthium obconic, 1–2 mm long, the distal portion of bud subglobose, 2.5–4 mm long; *indumentum pattern of buds* with all external surfaces glabrous, or the peduncles, inflorescence branches and bracteoles (and rarely hypanthium) puberulent to strigose, the petals and style glabrous, the staminal ring glabrous or often puberulent; *peduncles* 1–3 flowered, 10–35 mm long, 0.5–1 mm wide, borne in the leaf axils or at leafless nodes, sometimes aggregated on bracteate shoots in a panicle-like inflorescence up to 6 cm long, the lateral arms of the dichasia up to ca. 10 mm long; *bracteoles* ovate, 0.8–1 mm long, strigose, caducous at about anthesis. CALYX open in bud, cup-like, with lobes broadly rounded and up to ca. 1 mm long before anthesis, tearing between lobes about 1–1.5 mm to staminal ring at anthesis; *petals* suborbicular, 3–5 mm long; *hypanthium* obconic to campanulate, flaring outward at summit of ovary, 1–2 mm long from bracteoles to summit of ovary; *disk* 4 mm across; *stamens* 130–220, 3–5 mm long; *anthers* up to ca. 0.5 mm long, eglandular or less often with a terminal gland; *style* ca. 5 mm long; *ovary* (2–?) 3–4-locular; *ovules* 20–32 per locule. FRUIT subglobose, 1–1.5 cm wide, turning purple (ex Clavijo); *seeds* 2–24 in fruits seen, 4–7 mm long, with rounded and flat sides.

Representative specimens examined. COLOMBIA. **Narino**: Ricaurte, Cordillera Occidental, Res. Natural La Planada, (1.21°N, 77.99°W), 1800 m, 8 Feb 1989 (fl), *Beltrán 10* (ASU0074785); Ricuarte, Resguardo Indígena Pialapi-Pueblo Viejo, Reserva Natural La Planada, Sendero Natural El Tejón, (1.16°N, 77.98°W), 1700–1850 m, 19 Jul 2011 (fr), *Clavijo 1586* (ASU0085553).

ECUADOR. **Azuay**: Canton Cuenca, Par. Molleturo, San Lucas (campamento), (2.85°S, 79.62°W), 325 m, without date (fl) *Ortiz 207* (ASU0074783, QCNE). **Carchi**: Tulcán Canton, Parroquia Tobar Donoso, sector Sabalera, Reserva Indígena Awá, (1.00°N, 78.40°W), 650 m, 19 Jun 1992 (fl), *Tipaz 1275* (ASU0074784, F). **Esmeraldas**: San Lorenzo, Parroq. Alto Tambo, Sect. El Cristal, carretera de bosque secundario, (0.83°N, 78.50°W), 600 m, 13 Apr 1992 (fr), *Quelal et al. 443* (ASU0074782, QCNE). **Imbabura**: Cotacachi, Parroquia García Moreno, sector Charguayacu Alto, (0.29°N, 78.71°W), 1500 m, 26 Apr 2017 (fr), *Pérez et al. 10897* (QCA). **Pichincha**: Canton Quito, Parroquia Nanegal, Reserva Maquipucuna, above Hacienda Espárragos, (0.12°N, 78.63°W), 1450 m, 10 Jan 1995 (fl), *Webster 31112*

(ASU0074786). **Santo Domingo de Los Tsáchilas**: Centinela, respaldo del Bimbe, (0.67°S, 79.31°W), 575 m, 14 Nov 2021 (fl), *Cornejo 10002* (GUAY).

Phenology—Not clear; perhaps flowering and fruiting throughout year.

Habitat and Distribution—Mountain forests of western Ecuador and Colombia at elevations of 575–1800 m.

Distinguishing Features—Leaves elliptic, obovate or oblanceolate, (4–)6–20 cm long, 2–7.5 cm wide, 1.6–2.9 times as long as wide; flower buds pyriform, 4–6 mm long, aggregated on bracteate shoots in a panicle-like inflorescence up to 6 cm long, the lateral arms of the dichasia up to ca. 10 mm long; calyx open in bud, cup-like, with lobes broadly rounded and up to ca. 1 mm long before anthesis.

44. ***Psidium oligospermum*** DC., Prodr. 3: 236. 1828. TYPE. Brazil. "prov. Bahiensis," *Martius* [*2203*]. (HOLOTYPE: M-146868! [specimen annotated by de Candolle with description by Martius]; ISOTYPE: M-146867). Figs. 50, 77B

Calyptranthes eugenioides Cambess., Fl. Bras. Merid. (A. St.-Hil.). 2: 370. 1833. TYPE. Brazil. Bahia, "prope Bom Jardim…provinciae Minas Geraes," *St. Hilaire* s.n. (SYNTYPES: P-801004 ["Type", could be considered holotype because of "+" annotation], P-801005, P-801006["Isotype"]; ISOSYNTYPE: MPU-10976).

Psidium galapagaeum Hook. f., Trans. Linn. Soc. 20: 224. 1847. TYPE. Ecuador. Galapagos, "James Island" [=Isla Santiago]. [*Scouler s.n.*] (LECTOTYPE: K-565485, designated by Porter [1969]).

Mitranthes eugenioides (Cambess.) O. Berg, Linnaea 27: 317. 1856.

Mitranthes eugenioides var. ***oblongifolia*** O. Berg, in Mart. Fl. Bras. 14(1): 355. 1857. Inadmissable name to be replaced by autonym *Mitranthes eugenioides* var. *eugenioides*.

Mitranthes eugenioides var. ***ovata*** O. Berg, in Mart. Fl. Bras. 14(1): 355. 1857. TYPE. Brazil. Bahia. *Salzmann*, Sonder herbarium (Type specimens: G-222535 designated here as LECTOTYPE; ISOLECTOTYPES: BR-523700, MEL-1007476-fragments)

Mitranthes gardneriana O. Berg, in Mart., Fl. bras. 14(1): 354. 1857. TYPE. Brazil. "prov. Alagoas," *Gardner 1311* (HOLOTYPE: W; ISOTYPES: F-65402, F-76367!, K-18789, K-18790, NY-405343, NY-405344, P-258499!, P-258500!, P-258501!).

Mitranthes sartoriana O. Berg, Linnaea 29: 248. 1858. TYPE. Mexico, Vera Cruz, "prope Mirador," *C. Sartorius* (HOLOTYPE: location not stated, B? ISOTYPE: G-227668!).

Calycorectes protractus Griseb., Cat. Pl. Cub. 284. 1866. TYPE. Cuba. "Cuba Occ., pr. Hanabana," *Wright* [*3557*]. (HOLOTYPE: GOET; ISOTYPES: GH-68862, K-170083, US-118238!).

Calyptropsidium sintenisii Kiaersk., Bot. Tidsskr. 17: 280, f. 10, t. 13B. 1890. TYPE. Puerto Rico. "In sylvis primaeval, alt 4000 [ft]"; "Sierra de Lugillo, Mt Yunke" [vide label at LD], Jul 1885, *Sintenis 1347* (HOLOTYPE C?, not found; ISOTYPES: K-331064, K-565282, LD-1805089, LD-1818114, NY!).

Guajava oligosperma (DC.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Chytraculia eugenioides (Cambess.) Kuntze, Revis. Gen. Pl. 1: 238. 1891.

Chytraculia gardneriana (O. Berg) Kuntze, Revis. Gen. Pl. 1: 238. 1891.

Chytraculia sartoriana (O. Berg) Kuntze, Revis. Gen. Pl. 1: 238. 1891.

Psidium sartorianum (O. Berg) Niedenzu, in Engler and Prantl, Nat. Pflanzenfam. 3(7): 69. 1893.

Psidium eugenioides (Cambess.) Niedenzu, in Engler and Prantl, Nat. Pflanzenfam. 3(7): 69. 1893. A later homonym of *Psidium eugenioides* Cambess. 1833. ≡ *Campomanesia eugenioides* (Cambess.) D. Legrand ex Landrum

Calyptranthes tonduzii Donn. Smith, Bot. Gaz. 23: 245. 1897. TYPE. Costa Rica. San José, Río Virilla. *Tonduz CR-9822* (HOLOTYPE: CR; ISOTYPES: BM-796882, BR-530471, BR-530438, G-227669!, K-330940, M-137148, MO-187176, NY-386754, US-117854 [annotated as holotype], US-731227!, US-117855).

Psidium claraense Urb., Symb. Ant. 9: 466. 1928. TYPE. Cuba. Prov. Santa Clara prope Casilda. *Ekman 18887* (HOLOTYPE: B, lost; ISOTYPES: A-71238, G-227690!, NY-1288040!, S-r-8385 (two sheets) [sheet annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE]).

Psidium microphyllum Britton, Botany of Puerto Rico and the Virgin Islands, 555. 1930. TYPE. Puerto Rico. Mayaguez Experiment Station, July 1930, *T. B. McClelland s.n.* (HOLOTYPE: NY-1365088!).

Psidium socorrense I. M. Johnst., Proc. Calif. Acad. Sci. 20: 81. 1931. TYPE. Mexico. Revillagigedo Islands, on east slope of Socorro Island. *Mason 1639* (HOLOTYPE: CAS-4159; ISOTYPES: GH-71233, K-565290).

Mitropsidium oligospermum (DC.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 486. 1941.

Mitropsidium eugenioides (Cambess.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 486. 1941.

Mitropsidium oblanceolatum Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 487. 1941. TYPE. Colombia. Santa Marta, *H. H. Smith 403* (HOLOTYPE: B, lost; LECTOTYPE: US-731229!, designated here; ISOLECTOTYPES: CM-1521, F-65406, GH-71039, K-565517!, LL-208130, MICH-1109446, NY-1365084!, NY-1365085!, P-258374!, P-258375!, S-7-8339, S-5-3134, TEX-372173, U-5187, WIS-255103, US-117681).

Mitropsidium sartorianum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 487. 1941.

Mitropsidium gardnerianum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 487. 1941.

Mitropsidium pittieri Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 488. 1941. TYPE. Venezuela. La Guairita, bei Petare, Miranda, am Wegrand," *H. Pittier 9277* (HOLOTYPE: B, lost; ISOTYPE: NY-405350, VEN!).

Mitropsidium sintenisii (Kiaersk.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 489. 1941.

Psidium yucatanense Lundell Contr. Univ. Michigan Herb. 7: 35. 1942. TYPE. Belize. Belize Dist., Belize-Sibun Road. *Gentle 9* (HOLOTYPE: MICH-1210419!; ISOTYPES: F-65684, K-565289, NY-1365092!, US-117680!).

Psidium solisii Standl., Field Mus. Nat. Hist., Bot. Ser. 23: 133. 1944. TYPE. Costa Rica. "Hatillo, Finca de J. F. Rojas, 1100 m, 26 Dec 1936," *Solís 509* (HOLOTYPE: F-76376!).

Psidium minutiflorum Amshoff, Rec. Trav. Bot. Néerl. 42: 19. 1950. TYPE. Guyana. "Roraima." Rob. *Schomburgk 952* (LECTOTYPE: W-48037, designated by McVaugh [1969]; ISOLECTOTYPES: BM-796853, F-76387!, G-227830!, P-258419!, W-18890116242!). Guyana. "Pirara,&c." 1841–2, Rob. *Schomburgk 388* [*322*] (SYNTYPES: W-48038!, W-18890116238!; ISOSYNTYPES: G-227831!, K-170072, P-258420!,

Psidium molinae Amshoff, Acta Bot. Neerland. 5: 277. 1956. TYPE. Honduras. Dept. Morazán: trail from La Quince, El Zamorano, to El Jicarito, 800-900 m, 15 Jul 1949. *P. C. Standley 21255*. (HOLOTYPE: F-76374!).

Psidium sartorianum var. ***yucatanense*** (Lundell) McVaugh, Fieldiana, Bot. 29: 527. 1963.

Psidium galapageium var. ***howellii*** D. M. Porter, Ann. Missouri Bot. Gard. 55: 370. 1969. TYPE. Ecuador. Galapagos Islands, Isla San Cristóbal (Chatham Island), 3.5 km above Puerto Bacque, along road to El Progreso, 8 Feb 1967, *Wiggins and Porter 398* (HOLOTYPE: MO; ISOTYPES: CAS-4158, GH-71251, NY-1288048!).

Psidium sintenisii (Kiaersk.) Alain, Mem. New York Bot. Gard. 21(2): 138. 1971.

Psidium protractum (Griseb.) Lundell, Wrightia 5(3): 70. 1974.

Myrtus claraensis (Urb.) Bisse, Ciencias (Havana), Ser. 10 12: 10. 1977.

Psidium calyptranthoides Alain, Phytologia 54: 109. 1983. TYPE. Puerto Rico, Monte del Estado Forest, Maricao, 2800 ft, 8 Jul 1970 (fl), *Woodbury 20506* (HOLOTYPE: UPR; ISOTYPES: MICH!, NY!).

Shrubs about 2 m high to trees up to ca. 30 m high, glabrous or sparsely to moderately pubescent on young growth; *hairs* simple, whitish, yellowish or reddish brown, minute or up to ca. 0.2(–0.4) mm long, curly, suberect or antrorse; *young twigs* reddish brown to light yellow-green, glabrous to moderately pubescent, in age becoming glabrescent, gray, smooth, or slightly striate. LEAF BLADES lanceolate to elliptic, 1.6–7.5(–8.3) cm long, 0.4–3.3 cm wide, 1.7–4(–5) times as long as wide, coriaceous to subcoriaceous, drying dark olive-green, reddish brown, or nearly black, often mottled with lighter spots above when dry, or sometimes the whole upper surface grayish, glabrous, or often sparsely pubescent along the margin and midvein above, the margin entire; *apex* sharply or obtusely acuminate,

acute, or less often obtuse; *base* rounded, cuneate, acuminate; *petiole* channeled or not, 1–6 mm long, 0.3–1 mm wide, glabrous or pubescent; venation brochidodromous, the midvein about flat or less often slightly impressed proximally above, prominent below, the lateral veins weak, 4–10 pairs, leaving the midvein at an angle of ca. 45°, united near the margin by a broadly arching marginal vein; tertiary veins usually obscure, dendritic, appearing to arise mainly from the marginal vein. FLOWER BUD pyriform to subfusiform, 3–9 mm long, the hypanthium obconic to campanulate, 1–4 mm long, the distal portion of bud ovoid to subglobose, 2.5–6 mm long; *indumentum pattern of buds* with all external surfaces glabrous to sparsely puberulent or pubescent (rarely moderately so), the hypanthium and calyx often with less indumentum than peduncle, the calyx glabrous to puberulent within, often with an apical tuft of hairs, the petals glabrous or ciliate, or sometimes pubescent if exposed in the bud; disk within the staminal ring usually glabrous, the staminal ring sparsely puberulent, the style glabrous or sparsely puberulent proximally; *peduncles* 6–25 mm long, 0.5–1 mm wide, solitary, uniflorous, or less often triflorous, the branches of the dichasium up to ca. 7 mm long; *bracteoles* narrowly triangular to linear, 1–5 mm long, caducous before anthesis. CALYX completely closed, sometimes with an apiculate apex, or scarcely open with a sinuate margin, or with 4 or 5 short verrucose protuberances at the apical tip, thus appearing puckered at the apex, circumscissile above the staminal disk or tearing in 5 lobes or irregularly at anthesis, persisting briefly as a disk-shaped or conical calyptra or calyx pieces, the remains of the calyx usually falling before the fruit matures, the staminal disk borne on inner surface of the bowl-like calyx tube, the tube tearing as the fruit matures, the calyx (including tube with stamens) sometimes evident only as a circular scar in mature fruits; *petals* suborbicular, 2.5–6 mm long (perhaps sometimes falling with the calyptra); *disk* 1–5 mm across; *stamens* 4–12 mm long, 80–220; *anthers* 0.3–0.5 mm long, with a terminal gland and up to 4 smaller glands below; *style* 4–5 mm long; *ovary* 2–3-locular; *ovules* (4–)10–34 per locule, uniseriate or biseriate on each lamella, the placenta slightly peltate. FRUIT subglobose to pyriform, 5–25 mm long, the terminal scar usually with little evidence of the androecium visible; *seeds* 1–15 per fruit, 3–7 mm long, sublenticular to hemispheric, usually with somewhat angular edges and at least one nearly flat surface.

Representative specimens examined. ARGENTINA. **Jujuy**: Ledesma, Sierra de Calilegua, (23.78°S, 64.78°W), 700 m, 10 Sep 1927 (fr), *Venturi 5197* (US).

BOLIVIA. Beni: Prov. Moxos, Concesión Forestal de Monte Grande en la Reserva Forestal Chimanes, parcela permanete de estudio de Río Chocolatón y Chirisi, (15°30'S, 66°30'W), 250 m, 8–12 Sept 1991 (st), *Killeen 3463* (ASU0015598). **La Paz**: Prov. Franz Tamayo, Parque Nacional Madidi, NW de Apolo, senda Azariamas-San Fermín, (14°9'26''S, 68°43'23''W), 1093 m, 11 Jun 2006 (st), *Loza et al. 475*, (ASU0057548); Prov. Sud Yungas, Alto Beni, Colonia Tauro, (ca. 15.8°S, 67.2°W), 495 m, 18 May 1995 (st), *Rodríguez 13* (ASU0057581). **Santa Cruz**: Prov. Ñuflo de Chávez, 110 km al W de Concepción, 3 km W de Monteverde, camino al Salitral Colorado, (15°22'S, 62°22'W), 9 Nov 1992 (fl), *Arroyo et al. 125* (ASU0015597); Prov. Velasco, Parque Nacional Noel Kempff Mercado, Campamento Huanchaca-2 (14°31'16" S, 60°44'14"W), 700 m, 25 Jun 1996 (fr), *Arroyo et al. 1281* (ASU0015588); Prov. Velasco, Res. Ecológica El Refúgio puesto La Toledo, (14°42'18"S, 61°09'37"W), 200 m, 21 Jan 1997 (fr), *Castro et al. 16* (ASU0015599); Prov. Velasco, Hacienda Acuario a 24 km de San José de Campamento, (15°14'46"S, 61°14'34"W), 300 m, 29 Apr 96 (fr), *Guillén et al. 4* (ASU0015603); Prov. Velasco, San José de Campamento, a 3 km sobre camino hacia San Roque, (15°09'20"S, 60°59'29"W), 230 m, 9 May 1996 (fr), *Guillén & Lazo 4340* (ASU0015601); Prov. Chiquitos, Bocamina, Serranía de Sunsas, Tucavaca, cerca el campamento de Emicruz/RTZ, (ca. 18.6°S, 58.92°W), 3 Jul 1995 (st), *Jardím et al. 2125* (ASU0015594); Prov. Ñuflo de Chávez, Cabañas Selváticas Motacú, a 53 km NW del pueblo de San Javier, (15°56'55"S, 62°22' 45"W), 11 Dec 1994 (fl), *Ortiz 81* (ASU0053036); Prov. Ichilo, Buenavista, (ca.16.93°S, 63.63°W), 10 Nov 1924 (fr), *Steinbach 6675* (K).

BRAZIL. **Acre**: Mun. Xapuri, Rio Acre, 3 hrs by boat downstream, 1 hour walking inland, (10.75°S, 68.33°W), 6 Nov 1991 (fl), *Daly et al. 7194* (MO); Mun. Sena Madureira, Rio Purus basin, Rio Macauã, Colocação Cachorra Macho, (9.67°S, 69.03°W), 2 Apr 1994 (fr), *Daly et al. 8149* (ASU0014400). **Bahia**: Conde, Fazenda do Bu, (12.03°S, 41.7°W), 28 Apr 1995 (fl), *Bautista & Jost 1710*; Barreiras, Estrada São Desidério, (12.13°S, 45°W), 23 Dec 1954, *Black 17703* (MICH); Tucano, Kms 7 a 10 na estrada de Tucana para Ribeira do Pombal, (10.97°S, 38.8°W), 21 Mar 1992 (fr), *Carvalho et al. 3914* (ASU0014355); Jacobina, Monte Tambor, Hotel Serra do Ouro, (11.161°S, 40.466°W), 500 m, 20 Feb 1993 (fr), *Carvalho 4191* (ASU0069341); Entre Rios, area de poços da Petrobras, (11.89°S, 37.95°W), 90 m, 25 Feb 2005 (fr), *Carvalho-Sobrinho et al. 361* (ASU0015762); Salvador, Estrada do Cia, (12.85°S, 38.367°W), 13 Mar 2005 (fr), *Carvalho-Sobrinho et al. 392* (ASU0015764); Ipuaçu, Cachoeira/Bahia Vale dos rios Paraguaçu e Jacuípe, (12.53°S, 39.08°W), 120 m, 1 Jan 1970 (fl), *Grupo Pedro do Cavalo 732* (ALCB, NY, RB); 17 km NW. *1330* (ASU0014323, HUEFS); Coração de Maria, estrada para Retiro, ca. 10 km SE de Feira de Santana, (12.23°S, 38.75°W), 235 m, 22 Sep 1995 (fr), *França et al. 1336* (ASU0014347, HUEFS); Jacobina, Bairro Grotinha, (11.2°S, 40.51°W), 525 m, 23 Jun 1999 (fl, fr), *França et al. 3061* (ASU0015765); Campo Formoso, Tuiutiba (Socotó), (10.4°S, 40.25°W), 845 m, 17 Feb 2006 *França 5431* (ASU0014393); Alagoinhas, Campus II/UNEB, Rodovia Alagoinhas-Salvador, (12.17°S, 38.4°W), 1 Oct 2001 (fr), *Jesus et al. 1378* (HUEFS); Esplanada, Caminho para Sítio do Conde, Fazenda Chapada, (11.76°S, 37.85°W), 526 m, 9 May 2000 (fr), *Lima 71* (ASU0014321); Jeremoabo, Fazenda Natureza, do Sr. Otávio Farias, ca. 20 km NO do município caminho para o Saco dos Cavalos, (10°S, 38.43°W), 427 m, 12 Aug 2005 (fr), *Miranda 894* (fr), (ASU0057470); Campo Formoso, Lagoa Grande, Poços, (10.59°S, 40.42°W), 828 m, 29 Oct 2005 (fr), *Moraes 62* (ASU0057333); Conceição do Jacuípe, (12.300°S, 38.767°W), 1 Nov 2001, *Moraes 481* (HUEFS); São Sebastião do Passé, Lamarão do Passé, (12.52°S, 38.4°W), 21 Sep 1984 (fr), *Noblick & Lemos 3381* (ALCB, ASU0015769, CEPEC, HUEFS); Biritinga, (11.63°S, 38.8°W), 19 Feb 1978 (fr), *Orlandi 165* (HRB); Camaçari, na rodovia que liga a BA-099 (estrada do coco) a via Parafuso, (12.77°S, 38.33°W), 14 Jul 1983 (fr), *Pinto & Bautista 330* (ALCB, CEPEC, HRB, NY); Água Fria, estrada para Cia de Celulose da Bahia, (11.83°S, 38.7°W), 20 Aug 1984 (fr), *Santos & Lima 176* (CEPEC, HRB, RB); Mata de São João, estrada para as Duna do Diogo, (12.46°S, 37.95°W), 21 Jan 2004 (fr), *Souza, E.R. de 453* (ASU0014390, HUEFS). **Ceará**: Caucaia, `Sargento Mor`, (3.685°S, 38.912°W), 19 Nov 2006 (fl, fr), *Antonio Sergio Farias Castro 1718 (*ASU0085966-photo specimen). **Distrito Federal**: Brasília, ao lado do morro de Pedreira, (15.52°S, 47.96°W), 773 m, 2 Dec 2011 (fl bud), *J.E.Q. Faria 2195* (ASU0078792); Area de Proteção Ambiental (APA) de Cafuringa, Fazenda Palestina, parcela 1, (15.52°S, 48.17°W), 6 Jul 1995 (fr), *Mecenas & Leite 73* (ASU0014402). **Espírito Santo**: Linhares, Reserva Florestal da Sooretama, (19.02°S, 40.11°W), 20 Sep 1989 (fl), *Hatschbach 53505* (ASU0075040, MBM); Linhares, Linhares, Reserva Florestal da CVRD, Jacarandá, ant. 232, km 4.060, (19.115°S, 39.939°W), 9 Dec 1981 (fl), *Silva 279* (ASU0014396). **Goiás**: Monte Alegre, Faz. Nica, Propr. Sr. Corderinho, (13.14°S, 46.66°W), 515 m, 25 Apr 2001 (fr), *Fonseca et al. 2584* (ASU0015586, IBGE); São Domingo, Gruta Angélica, (13.40°S, 46.33°W), 16 May 2000 (fr), *Hatschbach* et al. *71188* (ASU0014405); km 1 da estrada Buritinópolis/Alvorada do Norte, (15.58°S, 46.08°W), 9 May 1997 (fl, fr), *Pereira & Alvarenga 3378* (ASU0014358); 18 km from Alto Paraiso de Goias on the rd. to Nova Roma, (14.12°S, 47.33°W), 31 May 1994 (fr), *Ratter et al. 7306* (UB); Ipameri, 300 m ajustante da Ponte São Bento, Rio Corumbá, (17.72°S, 48.48°W), 19 Mar 1996 (fr), *Pereira da Silva et al. 3518* (ASU0014398); Colinas do Sul, Res. Serra da Mesa, antigo vale do rio Tocantinzinho, (14.19°S, 48.1°W), 2 Jun 1998 (fr), *Walter et al. 4173* (ASU0014399). **Maranhão**: Mun. de Balsas, (7.54°S, 46.02°W), 31 Mar 1984 (fr), *Orlandi 624* (HRB). **Minas Gerais**: Sta Maria do Itabira a Passabem, (19.45°S, 43.1°W), 11 Jun 2003 (fr), *da Luz 126* (ASU0053035); Turmalina, UHE Irapé, Rio Jequitinhonha, (17.33°S, 42.67°W), 16 Mar 2001 (fr), *Tameirão 3302* (ASU0014342). **Pará**: Conceição do Araguaia, range of low hills ca. 20 km W of Redenção, (8.05°S, 50.17°W), 350 m, 11 Feb 1980 (fr), *Plowman et al. 8730* (F, MICH, MO, NY, US); Lageira, airstrip on Rio Maicuru, (0.92°S, 54.43°W), 18 Jul 1981 (fr), *Strudwick et al. 3122* (ASU0014354); Macau airstrip, 1.5 hrs upstream from Lageira airstrip on Rio Maicuru, (0.9°S, 54.43°W), 244 m, 23 Jul 1981 (yfr), *Strudwick et al. 3420* (CAS, NY); Sete Varas airstrip on Rio Curua, (1°S, 54.9°W), 9 Aug 1981 (yfr), *Strudwick et al. 4422* (CAS, MICH, MO, NY). **Paraíba**: Santa Rita, Santa Rita, Usina Miriri, (6.945°S, 35.120°W), 28 Feb 2013 (fr), *Silva et al. 168* (NY, JPB). **Pernambuco**: Buíque, Catimbau, (8.92°S, 36.67°W), 10 Jul 1997 (fr), *Frazão s.n.* (SP); Buíque, estrada para Catimbau, (8.62°S, 37.15°W), 11 Jul 1997, *Miranda 2751* (SP). **Piauí**: Matias Olimpio, entre Piaba e Barrinha, (3.72°S, 42.56°W), 27 Jun 1972 (fr), *Sucre & da Silva 9425* (ASU0014395). **Rondônia**: Mun. Ariquemes, Mineração Mibrasa, Setor Alto Candeias, km 128, SW de Ariquemes, (10.58°S, 63.58°W), 19 May 1982 (fr), *Teixeira et al. 616* (ASU0014397). **São Paulo**: Piracicaba, Parque ESALQ/USP, (22.72°S, 47.63°W), 7 Apr 1994 (fr), *Ivanauskas 140* (ASU0014329); Teodoro Sampaio, Res. Morro do

Diablo, a 10 km da sede, para oeste, (22.65°S, 52.22°W), 23 May 1986 (fr), *Leite & Klein 55* (HRB, RB, MBM). **Sergipe**: Santa Luzia do Itanhy, RPPN Mata do Crasto, (11.42°S, 37.44°W), 17 May 2011 (yfr), *Gomes, L.A. 131a* (ASU0090661); Capela, RVS Mata do Junco, Rio Seco, (10.54°S, 37.05°W), 29 Mar 2011 (fr), *Gomes 98* (ASU0090603); Indiaroba, 2–3 km N na rodovia para Estancia, (11.53°S, 37.52°W), 18 Aug 1995, *Hatschbach 63184* (MBM); Japaratuba, Mata do PA Ivan Ribeiro (Incra), (10.6°S, 36.94°W), 6 Jan 1997 (fl), *Landim 1115* (ASU0014357); Santa Luzia do Itanhy, Estancia Santa Luzia a 6 km da cidade na estrada para o Pontal, (11.3°S, 37.5°W), 23 Jan 1993 (fl, fr), *Pirani & Kallunki 2664* (ASU0014403).

COLOMBIA. **Atlántico**: entre Molinero y Arroyo de Piedras, (10.65°N, 75.08°W), 27 Jul 1943, *Dugand et al. 3296* (US). **Cauca**: Patía, trayecto entre el río Guachicono y El Alto, (2.05°N, 77.01°W), 600 m, 14 Mar 2014 (fr), *Ramírez 23279* (COL). **Magdalena**: Santa Marta, 4 miles east of Bonda, dry forest below 1500 feet, (11.24°N, 74.08°W), 3 Aug 1898 (fl), *Smith 403* (GH). **San Andrés, Providencia y Santa Catalina:** Providencia, near summit of island, (13.35 N, 81.37W), 300–310 m, 5 Jun 1993 (yfl), *Gentry 79699* (ASU, MO). **Santander**: Piedecuesta, vereda San Isidro (7.03°N, 72.95°W), 13 Jul 2004 (fr), *Galván 1632* (CDMB).

COSTA RICA. **Alajuela**: San Miguel Oeste, Naranjo, Cerro Espiritu Santo, Finca Napoleon Perez, (10°05'14`N, 84°26'30”W), 17 Oct 1986 (fr), *Herrera 8* (ASU0005022). **Guanacaste**: Santa Rosa National Park, 30 km NW of Liberia (ca. 10°50'N, 85°35'W), 10 Mar 1983 (st), *Janzen 12317* (MO). **San José**: Puriscal, Barbacoas (9°51'15”N, 84°21'W), 12 Jan 1989 (fr), *Jimenez 639* (ASU0005021).

CUBA. Isla de la Juventud: afluente del rio Los Indios, (21.71°N, 82.95°W), 19 Oct 1991 (fr), *Urquiola 7498* (ASU0062227). **Matanzas**: Jaguey Grande, (22.53°S, 81.13°W), 2 Aug 1923 (fr), *Ekman 16957* (ASU0005047-photos). **Pinar del Río**: San Juan y Martinez, Sabanalamar, (22.15°S, 83.98°W), 25 Sep 1999 (st), *Urquiola 528* (FR).

ECUADOR. **Galapagos**: SW part of Narborough Island (Isla Fernandina), (0.38°S, 91.54°W), 1000 m, 5 Feb 1964, *Hendrickson H-61* (DS); Isla Santa Cruz, Los Gemelos (0.626°S, 90.39°W), 6 Mar 2015 (st), *Landrum sn* (ASU084380-photos); James (Santiago) Island (0.27°S, 90.72°W), 853 m, 1 Jan 1970 (fr), *Stewart 3029* (CAS); Abingdon (Pinta) Island, SW side (0.59°S, 90.76°W), 305 m, 21 Sep 1905 (fl), *Stewart 3030* (CAS); Isla Isabela, NE slope of Volcán Alcedo (0.43°S, 91.12°W), 671 m, 19 Apr 1974 (fl), *van der Werff 1072* (CAS, QCA); San Salvador (James Island), near NE end of Bahia James (0.27°S, 90.7°W), 355 m, 1 Feb 1967 (fr), *Wiggins & Porter 273* (CAS, MO, NY). **Loja**: Cantón Paltas, Palomontón (4°3’40” S, 79°40’40”W), 1490 m, 27 Sep 1994 (fr), *Van den Eynden 192* (ASU0014408).

FRENCH GUIANA. Camp no. 3 - Roche no. 2 Akouba Booka Soula - Bassin du Ha Roches 2 et 3, (2°36'N, 54°1'W), 160 m, 27 Aug 1987 (fr), *Granville et al. 9762* (MO); Camp no. 3 - Roche no. 2 Akouba Booka Soula - Bassin du Ha Roches 2 et 3, (2°37'N, 54°2'W), 180 m, 29 Aug 1987 (fr), *Granville et al. 9831* (MO); Camp no. 4 - Roche no. 2 Akouba Booka Soula -Bassin du Haut-Marouini 5 km a l'Ouest, (2°39'N, 54°4'W), 31 Aug 1987 (fr), *Granville et al. 9900* (ASU0014330); Inselbergs de la haute Wanapi, zone du dome central, lisiere orientale de l'inselberg, (2°31’N, 53°49’20”W), 250 m, 15 Apr 2004 (fr), *Granville 15924* (ASU0014391).

GUATEMALA. **Chiquimula**: Montaña Castilla, 3 mi SE of Quezaltepeque, Río Lucia Saso, (14.63°N, 89.43°W), 1200 m, 6 Nov 1939 (fr), *Steyermark 31257* (US). **Petén**: Tikal National Park, Bajo de Santa Fe, W of Isla de los Pavos, (17.23°N, 89.62°W), 20 Jul 1960 (fl), *Contreras 1340* (MICH, MO, US).

GUYANA. southern Pakaraima Mts., 17 km NW of Karasabai, mouth of Tipuru R. (4°9'N, 59°38'W), 25 Feb 1992 (fl), *Hoffman 1029* (ASU0014372); NW Kanuku Mts., 12 km ESE Nappi Village in foothills, (3°23'N, 59°29'W), 10 Feb 1993 (fr), *Hoffman 3645* (ASU0014370); Rupununi River, Karanambo, (3°45'N, 59°20'W), 1 Sep 1988 (fr), *Maas et al. 32447* (ASU).

HONDURAS. **El Paraiso**: Yuscaran, Quebrada del Loro, (13.93°N, 86.85°W), 26 Aug 1978 (fr), *Zalaya 106* (ASU0005056). **Francisco Morazán**: Km 32 of old road from Tegucigalpa to Olancho at Puente Hernando Lopez, ca 10 km of Cofradia post office, ca. 0.5 km N of puente, (14.219°N, 87.188°W), 28 Aug 1989 (fr), *Landrum 6518* (ASU0005026); Río Yaguaré (ca. 14°N, 87°W), 792 m, 14 Jul 1948, *Glassmann 1890* (EAP).

MEXICO. **Chiapas**: Mun. Cintalapa, 23 km W of Las Cruces along road to La Mina Microwave Station, (16.7°N, 93.62°W), 14 Sep 1981 (fr), *Breedlove 52781* (ASU0005060); Mun. Ococingo, 24 km SE de el Crucero Corozal, camino Palenque Boca Lacantúm, (16.8°N, 91.1°W), 7 Dec 1984 (fr), *Martinez 9147* (ASU0005059). **Colima**: Socorro Island, Braithwaite Bay, (18.792°N, 110.975°W), 26 Mar 1932 (fl), *Howell 8398* (CAS, NY); Comala, Rancho El Jabalí, 22 km (airline) NNW of Colima, (19°26.9'N, 103°42.7'W), 18 Mar 1991 (fr), *Sanders 10673* (ASU0014360). **Durango**: Pueblo Nuevo, 2 km al SE de Zapote, (23.5°N, 105.75°W), 27 Sep 1982 (fr), *Fernandez 1247* (ASU0005055). **Guerrero**: Acapulco, Parque Nacional El Veladero, (16.84°N, 99.83°W), 2 Sep 1984 (fr), *Noriega Acosta 128* (ASU0005058); Zirándaro. 25 km al Este

de Guayameo, (18.2°N, 101.32°W), 7 Sep 1973 (fr), *González Medrano 6182* (ASU0018662); Chilpancingo, 5.2 km al W de Ocotito, camino a Jaleaca, (17.23°N, 99.57°W), 10 Nov 1982 (fr), *Torres 1842* (ASU0005065). **Jalisco**: El Tuito, 9.8 km al NW por el camino a Ixtlahuahuey, Cerca del poblado Las Guacimas, (20.28°N, 103.64°W), 14 Feb 1986 (fr), *Ayala 613* (ASU0060134); ca. 6 km al NO de El Tuito, camino a Chacala, (20.32°N, 105.33°W), 29 Nov 1979 (fr), *Magallanes 2160* (ASU0005068); 2 km N of Pihuamo, (19.27°N, 103.39°W), 750 m, 4 Dec 1959 (fr), *McVaugh & Koelz 1379* (MICH, US). **México**: 1 km N of Temascaltepec on the road to Valle de Bravo, (19.042°N, 100.050°W), 1660 m, 12 Oct 1985 (st), *Bartholomew 2947* (ASU0005046). **Michoacán**: 12 km al SE de Arteaga, carretera a Playa Azul, (18.36°N, 102.3°W), 720 m, 25 Dec 1981 (fr), *Soto Núñez 3726* (ASU0018661). **Nayarit**: Mun. Ruiz, 8.5–9.5 km E of Ruiz, (21.955°N, 105.151°W), 3 Oct 1985 (fr), *Bartholomew 2596* (ASU0005051); Islas Marias, parte E de la Isla Ma. Magdalena, (21°27'N, 106°27'W), 23 Nov 1986 (fr), *Chiang 992* (MO); Nayar km 2–5 por el camino del Cangrejo a la Mesa del Nayar, (22°14'N, 114°39'W), 1100 m, 17 Sep 1989 (fr), *Tellez et al. 12172* (MO). **Oaxaca**: San Miguel del Puerto, Distrito Pochutla, Portillo el Guayabal, camino a Oreja de León, (16.977°N, 96.122°W), 1382 m, 9 Jun 1996 (fl), *José Pascual 1897* (ASU0018627); San Miguel del Puerto, Pochutia, Casa de Goyo Mendoza, 125 m en línea recta al N de la Finca Montecarlo, (15.994°N, 96.106°W), 940 m, 9 Dec 2002 (fr), *Salas 4832* (ASU0018619); Tehuantepec, de El Limón al Carrizal, en la Cañada de Sta. Lucia, El Limón, esta 25 km al O de Tehuantepec, entrando por Hierba Santa, (16.356°N, 95.369°W), 730 m, 2 Sep 1986 (fr), *Torres 8966* (ASU0018620). **Quintana Roo**: 39 km N of Felipe Carrillo Puerto on hwy 307 towards Cancun, (19.91°N, 87.83°W), 6 Aug 1989 (st), *Landrum 6448* (ASU0005067). **Sinaloa**: Escuinapa, Las Tinajas, 5 km al NE de el Rincón de Verde, (22.85°N, 105.8°W), 3 Dec 1982 (fr), *Aguilar 85* (ASU0005066); Concordia, Transecto del Rancho Coyotes a El Pirame, Comunidad La Guásima, (23.39°N, 105.99°W), 125 m, 19 Nov 2009 (fr), *Marcela Ruiz 2009-351* (ASU0297542); San Ignacio, 2 km al N de San Jerónimo, Brecha a El Guayabo, (23.917°N, 106.417°W), 19 Mar 1985 (fr), *Tenorio* et al. *8460*, (ASU0005071). **Veracruz**: Xalapa, 11 km carretera Xalapa, (19.53°N, 96.92°W), 2 Oct 1976 (fr), *Baez 845* (ASU0005069); Puente Nacional, Conejos-Totutla highway, 6 km SW of Conejos junction, (19°17'N, 96°32'W), 250 m, 13 Nov 1981 (fr), *Nee 23062* (MO, NY); Totutla, El Encinal, (19.21°N, 96.83°W), 23 Nov 1971 (fr), *Ventura 4554* (ASU0005070). **Yucatán**: 3 km al NE de Yalcobá, (20.82°N, 88.07°W), 22 May 1983 (fl), *Cabrera 4681* (ASU0005063); Tizimín, Yucatán, (21.15°N, 88.15W), 14 Jul 1932, *Swallen 2502* (MICH).

NICARAGUA. **Boaco**: 1 km N of San José de Los Remates, (12°36'N, 85°46'W), 650 m, 27 Jul 1983 (fl), *Stevens 22300* (MO). **Chontales**: Hda. Veracruz, (12°11'N, 85°22'W), 120 m, 19 Dec 1984 (fr), *Stevens 23521* (MO). **Estelí**: La Estanzuela, 6.5 km al S de Estelí, (13°01'N, 86°21'W), 1000 m, 8 Aug 1984 (fl), *Moreno 24393* (MO). **León**: San Nicolás, El Portillo, (12°56'N, 86°19'W), 1200 m, 12 Jan 1984 (fl), *Moreno 22700* (MO). **Matagalpa**: N de Ciudad Matagalpa, carretera San Ramón-Pancasán, (12°55'N, 85°49'W), 700 m, 16 Jul 1982 (fl), *Sandino & Sáenz 3081* (MO). **Nueva Segovia**: El Jícaro, El Quebracho al Sur, (13°44'N, 86°06'W), 580 m, 27 Dec 1981 (fr), *Moreno 13857* (MO).

PANAMÁ. Perlas archipélago, San José Island, mouth of Mata Puerco, 55 mi SSE of Balboa (8.25°N, 79.13°W), 13 Nov 1944 (fr), *Johnston 486* (MO, US).

PARAGUAY. **Boquerón**: Gran Chaco, ad ripam occidentalum flum. latit. S, 23°20'-23°30', 30 Nov 1902 (bud), *Hassler 2896* (G).

PERU. **Cuzco**: La Convención, Distrito Echarate, Palma Real, (12.94°S, 72.78°W), 850 m, 28 Mar 2007 (fr), *Huamantupa 8786* (ASU0061814); La Convención, Dist. Huayopata, Chimpamayu, (13.01°S, 72.57°W), 1500 m, 26 Feb 2008 (fr), *Suclli 3107* (ASU0060314); La Convención, Dist. Quellouno, Yanatilde, (12.62°S, 72.4°W), 1010 m, 27 Jan 2003 (fr), *Valenzuela et al. 1424* (ASU0014409). **Madre de Dios**: Tambopata, Las Piedras, Cusco Amazónico, Inventario Permanente, trocha B, (12°29'S, 69°3'W), 11 Nov 1991 (fl), *Timaná & Jaramillo 3117* (ASU0014406). **Pasco**: Oxapampa, Chacos, (10.62°S, 75.28°W), 2500 m, 22 Jun 2003 (fr), *van der Werff et al. 17687* (MO-5779505).

PUERTO RICO. Mpio. de Maricao. Barrio Maricao Afuera, Maricao Forest Reserve, Rte 120, ca. 0.1 km before entrance to Monte del Estado, km 15.2, (18.14°N, 66.97°W), 810 m, 15 Aug 2001 (fr), *Salywon 1276* (ASU0010481); El Yunque, Dos Picachos, (18.310°N, 65.790°W), 31 Aug 1959, *Woodbury* (NY);

SAINT LUCIA. Soufriere, Gros Piton, flat area near summit, (13.81°N, 61.06°W), 800 m, 26 Jul 2006 (fl), *Graveson 2188* (ASU0005054).

VENEZUELA. Aragua: Cerro Zamuro, 29 km S of Cua, 6.5 km NE of carretera, along Río Negrito, near Miranda border, (10°N, 66.87°W), 875 m, 26 Oct 1963 (fr), *Steyermark 91804* (MICH, NY); 7 km (by air) SE of Colonia Tovar, (10°21'30`N, 67°14'30`W), 950 m, 24 Mar 1980 (st), *Steyermark & Liesner 121817* (MO). **Bolivar**: Piar, 15 km E de la Presa R. Leoni (ca. 7°40'N, 62°51'W), 1 Jan 1970 (fr), *Aymard 8816* (ASU0014344). **Distrito Capital**: P. N. El Avila, (10°32.8'N, 66°53.3'W), carretera en la fila a San Isidro de

Galipán, (10.547°N, 66.888°W), 14 Aug 1992 (fr), *Meier 2619* (ASU0014345). **Lara**: Moran, camino Hunucaro (9.77°N, 69.81°W), 14 May 1983 (fl), 1300 m, *Smith 9729* (ASU0014343). **Miranda**: La Guairita, Petare and vicinity, near Caracas, (10.47°N, 66.69°W), 800 m, 1 Jan 1970, *Pittier 9277* (VEN). **Nueva Esparta**: Isla Margarita, Cerro Macanao, (11°N, 64.23°W), 650 m, 8 Aug 1981 (fr), *Sugden 707* (CAS, MO). **Tachira**: Sector Cazadero, en Fila de Potrero Grande, entre las quebradas Cazadero y las Flores, Cuenca del Lago de Maracaibo (7.88°N, 72.3°W), 1600 m, 26 Jun 1997 (fr), *Trujillo et al. 24403* (F).

Phenology—In northern temperate and subtropical region flowering is mainly from May to July and fruiting mainly September to December. In Central and South America flowering and fruiting occur throughout year.

Habitat and distribution—Forests to shrubby vegetation; growing from Mexico to Argentina.

Distinguishing features—Calyx completely closed, sometimes with an apiculate apex, or scarcely open with a sinuate margin, smooth or with 4 or 5 short verrucose protuberances at the apical tip, thus appearing puckered at the apex; leaves lanceolate to elliptic, mostly 2–4 times as long as wide; apex obtuse, acute, to acuminate; base acute to acuminate; petiole mostly 3–4 mm long; seeds usually 1–13 per fruit, 3–7 mm long; calyx scarcely evident in the mature fruit.

Psidium oligospermum is a widespread and variable species; it is found on some isolated oceanic islands (e.g., Galapagos, Saint Lucia) and so has probably reached the Greater Antilles by long distance dispersal. The name *P. sintenisii* has been used for Puerto Rican populations and molecular evidence (Salywon 2003) indicates that it may have hybridized there with a species of the *P. amplexicaule* complex.

45. *Psidium ovale* (Spreng.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941.
Fig. 51

Myrtus ovalis Spreng., Syst. Veg., ed. 16 [Sprengel] 2: 479. 1825. TYPE. Brazil. Without locality. "*Sello*" *s.n.* (HOLOTYPE: Sprengel herbarium at B, lost. NEOTYPE: designated by Soares-Silva & Proença [2006]: *Sellow s.n.* G-227726 [=F neg. 23478] collection annotated as *Myrcianthes brunnea*, "hb, reg. Berol. 1860." Additional specimens listed below under *Myrcianthes brunnea* var. *parvifolia* at BR, K, and MICH are similar to neotype and may be isoneotypes.

Myrcianthes brunnea O. Berg, Linnaea 27: 315. 1856. Illegitimate new name for *Myrtus ovalis* Spreng.

Myrcianthes brunnea var. ***grandifolia*** O. Berg, in Mart., Fl. bras. 14(1): 352. 1857. TYPE. Probably Brazil. *Sellow* specimen (HOLOTYPE: B, lost; LECTOTYPE: P-258349!, designated here; ISOLECTOTYPES: BR-523872, K-565487, P-128332!).

Myrcianthes brunnea var. ***parvifolia*** O. Berg, in Mart., Fl. bras. 14(1): 352. 1857. TYPE. Based in part on type of *Myrtus ovalis* in herbarium of Sprengel and other collections at B. (SYNTYPES: *Sellow* in Sprengel Herbarium at B, see above under *Myrtus ovalis*, lost. Additional specimens at B "ad Fazenda do Funil prov. S. Pauli, floret Decembri", lost. ISOSYNTYPES: BR-533870, G-227726 [neotype of *Myrtus ovalis*], K-565488?, MICH-1109539?, U-1445653?).

Eugenia brunnea Nied., Nat. Pflanzenfam. [Engler & Prantl] 3, Abt. 7: 81. 1893. Replacement name for *Myrcianthes brunnea*.

Psidium spathulatum Mattos, Loefgrenia no. 22: 1. 1965. TYPE. Brazil. São Paulo, Campo Grande, Estação Biológica, Via Férrea São Paulo-Santos, 6 Nov 1964 (fl), *Mattos 8684* (HOLOTYPE: SP-1393!).

Psidium hatschbachii D. Legrand, Bol. Univ. Paraná No. 25: [1]. 1971. TYPE. Brazil. Paraná, São Jose dos Pinhais, Rio Pequeno, 15 Nov 1961 (fl), *Hatschbach 8546* (HOLOTYPE: MVM; ISOTYPES: MBM!, SI-3042).

Tree or shrub 1–4 m high, glabrous or twigs and young growth sparsely to moderately pubescent, moderately to densely glandular; *hairs* whitish to reddish brown, up to ca. 0.6

mm long; *young twigs* glabrous to moderately pubescent, reddish brown, the older bark reddish brown to yellowish brown, smooth or flaky. LEAF BLADES oblanceolate, obovate, elliptic, suborbicular, occasionally obcordate, 7–36 mm long, 4–22 mm wide, 1.3–2.4 times as long as wide, coriaceous at maturity, drying gray-green to reddish brown; *apex* obtuse to slightly emarginate, rounded, or acute; *base* acute to acuminate; *petiole* channeled, 1–4 mm long, 0.5–1 mm thick, sparsely pubescent to glabrous; venation brochidodromous, the midvein prominent to obscure below, impressed proximally to nearly flat distally above, the lateral veins usually obscure, 5–10 pairs, nearly straight, leaving midvein at ca. 45 degrees, the marginals arching slightly between the laterals, nearly paralleling and usually within 1 mm of the margin, the tertiary veins dendritic veins, usually obscure, appearing to arise from the marginals. FLOWER BUDS pyriform to obovoid, 2–6 mm long, the hypanthium obconic to campanulate, 1.5–2 mm long, the distal portion of bud subglobose, 1.5–3 mm long; *indumentum pattern of buds* with with all surfaces glabrous or peduncles, bracteoles, disk and/or calyx within puberulent; *peduncles* 2–7 mm long, 0.3–0.5 mm wide, flattened, borne in axils of leaves, bracts or at leafless nodes, the bracts to 3 mm long, probably soon caducous; *bracteoles* filiform to narrowly triangular, up to ca. 1.5 mm long, caducous at about anthesis. CALYX cup-like, the lobes broadly rounded, 0.3–0.5 mm long, up to ca. 1.5 mm wide, usually puberulent within, glabrous without, borne along the edge of the cup; *petals* ca. 4 mm long, glabrous; *disk* within staminal ring ca. 1.5 mm across, glabrous to subglabrous; *stamens* 60–120, 3–4 mm long; *anthers* ca. 0.6 mm long, with a single terminal gland; *style* ca. 4 mm long, the stigma ca. 0.3 mm wide; *ovary* 2–3-locular; *ovules* 5–10, uniseriate, the placenta scarcely peltate. FRUIT subglobose, 7–12 mm in diameter; *seeds* 3–10, 3–4 mm long, reniform, with rounded sides.

BRAZIL. **Espírito Santo**: Santa Teresa, cabeceira do Rio Bonito, Radar, (19.90° S, 40.60° W), 1000 m, 15 Aug 2001(yfl), *Kollmann 4352* (MBML); Alegre, Parque Nacional do Caparaó, mata ciliar do Rio Norte, (20.45° S, 41.74° W), 1110 m, 22 Feb 2000 (yfl), *Souza et al. 23736* (CESJ). **Paraná**: Piraquara, Mananciais da Serra, (25.51° S, 49.03° W), 26 Feb 1996 (fl), *Caxambú 29493* (NY); Campina Gde. Sul, Serra do Capivary, (25.30° S, 49.08° W), 2 Dec 1962 (fl), *Hatschbach 9534* (MBM); São José dos Pinhais, Rio Pequeno, (25.52° S, 49.22° W), 4 Apr 1972 (fr), *Hatschbach 29642* (MBM, UC); São José dos Pinhais, rd. to Guaricana, (25.67° S, 49° W), 1 Nov 1977 (fl), *Landrum 2298* (ASU0015606). **Rio de Janeiro**: Petrópolis, P. N. Serra dos Orgãos, (22.48° S, 43.08° W), 1813 m, 25 Mar 2018 (fl), *Gonçalves 496* (RB). **Santa Catarina**: São Bento do Sul, minas de caulim, (26.25° S, 49.38° W), 1005 m, 15 Jan 2008 (fl), *Verdi 149* (FURB). **São Paulo**: Parque Estadual da Serra do Mar, Núcleo Curucutu, Dist. de Marsilac, (23.99° S, 46.74° W), 28 Mar 1996 (fr), *Ferreira et al. 62* (ASU0015608); Paranapiacaba, Est. Biológica, (23.78° S, 46.30° W), 10 May 1970 (fr), *Handro 2138* (ASU0015610).

Phenology—Flowering October to December; fruiting March to June.

Habitat and Distribution—Wet forest, mata ciliar, cloud forest, or campos; 1000–1800 m. Espírito Santo to Santa Catarina.

Distinguishing Features—Leaves mainly oblanceolate, obovate, 7–36 mm long, 1.3–2.4 times as long as wide; flower buds pyriform to obovoid, 3–5 mm long, the corolla clearly visible in closed flower bud; calyx cup-like, not encircling or clasping the closed corolla, the lobes broadly rounded, 0.3–0.5 mm long, up to ca. 1.5 mm wide.

Soares-Silva and Proença (2006) have suggested that *Myrtus ovalis* Sprengel is the earliest name for this species. Their evidence is that Berg considered *Myrtus ovalis* Spreng. (not *Myrtus ovalis* O. Berg) to be a synonym of *Myrcianthes brunnea* O. Berg, a species now considered to be a *Psidium* conspecific with *P. spathulatum* and *P. hatschbachii*. Berg would have seen the type of *Myrtus ovalis* Speng. at B before that herbarium was destroyed in World War II. Nomenclature did not necessarily follow priority in Berg's Day, so

changing the name of a species was considered acceptable. Sprengel's description of *Myrtus ovalis* is "M. foliis ovalibus venosis glabris, ramulis sulco-villosis, pedunculis folia excedentibus," or in English "Myrtus with oval veined leaves, twigs furrowed-villose, peduncles exceeding the leaves." This description fits the neotype fairly well so its choice as a new type should be accepted.

The habitat of *Psidium ovale* varies from cloud forest to campo and the plants from these two habitats are not quite the same. Those from campo seem more robust than those from wet forests. Comparison of these habitats and their *P. ovale* populations would be useful.

46. *Psidium parvifolium* Griseb., Cat. Pl. Cub. [Griseb.] 91. 1866. TYPE. Cuba. "Cuba occ. pr. Mayari abayo" *Wright 2438* (probable SYNTYPE: GOET-8371; ISOSYNTYPES: G-227724!, K-170082, S-R-9444 [lower portion of mixed sheet], P-258513!) and "Cuba or[iental]." *Wright 2463* (SYNTYPES: GOET-8273 [annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE], GOET-8272; ISOSYNTYPES: BM-616948, G-227723!, K-565285, P-258514!). Fig. 52

Psidium nitidum C. Wright, Anales Acad. Ci. Med. Habana 5: 433. 1869. TYPE. Cuba. "En los pinares de la loma de Cajarbana y en San Mardos, ambos jurisdicción de Bahia Honda," *Wright 743* [NY specimen has 743 and 3556 on one label of "Plantae Cubenses Wrightianae"] (HOLOTYPE: GH-71246; ISOTYPES: K-262640, NY-1288073!, NY-1288074!, US-117669!).

Psidium parvifolium var. ***planifolium*** Krug et Urb., Bot. Jahrb. Syst. 19(4): 569. 1894. TYPE: Cuba. *Wright 3556* (HOLOTYPE: B, lost; ISOTYPES: GH-71246, K-262640, NY-1288073!, NY-1288074!, P-258516!, S-R-9444 [upper portion of mixed sheet], US-117669!)

Psidium paucinerve Urb., Symb. Ant. 9: 82.1923. TYPE. Cuba. "prov. Oriente: prope Rio Piloto in Sierra de Nipa," *Ekman 2505* (HOLOTYPE: B, lost; ISOTYPES: G-227722!, NY-1288076!, S-R-9441 [annotated as lectotype by A. J. Urquiola, 2000, formally designated here as LECTOTYPE].

Psidium tenuirame Urb., Symb. Ant. 9: 83. 1923. TYPE. Cuba. "Prov. Oriente prope Papayo in collibus Mandinga dictis," *Ekman 9296* (HOLOTYPE: B, lost; ISOTYPES: NY-1288091!, S-R-8387 [annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE].

Psidium balium Urb., Symb. Ant, 9: 84. 1923. TYPE. Cuba. "Prov. Oriente in Sierra Maestra non procul ad Rio Yara in Collibus siccis cr. 600 m alt." *Ekman 5612*. (HOLOTYPE: B, lost; ISOTYPES: G-227824!, NY-1288034!, S-R-8386 [annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE]).

Psidium leonis Urb., Symb. Ant. 9: 464. 1928. TYPE. Cuba. "Prov. Oriente....Baracoa australi prope Yauco in Mesa de Prada, 400-500 m alt." *León 12028* (HOLOTYPE: B, lost; ISOTYPES: GH-71244; NY-1288058!).

Tree or shrub up to ca. 4 m high, glabrous except for some floral structures, or in one population minutely hispid on young twigs and peduncles; *hairs* minute (less than 0.1 mm long), whitish to reddish brown; *young twigs* gray, smooth, compressed, with age becoming terete, remaining smooth or becoming cracked and rougher, the bark becoming light reddish brown to light gray. LEAVES obovate, less often elliptic to oblanceolate, (1.5–)2–4(–5) cm long, 0.7–2.5 cm wide, 1.1–2.2 times as long as wide; *apex* rounded, obtuse, or emarginate; *base* cuneate to acuminate; *petiole* 1–3 mm long, 0.8–1.2 mm thick, slightly channeled above; *venation* brochidodromous, often obscure, the midvein nearly flat to raised above, prominent below, the lateral veins more visible above than below, 4–6 pairs, usually leaving the midvein at an angle of 30–45 degrees, the marginal vein when visible arching slightly between the laterals, usually within 2 mm the margin, closely following the margin, the weaker tertiary veins between the laterals dendritic, appearing to arise from the marginal

vein; *blades* coriaceous, drying dark brown or gray, lustrous or not above, densely glandular on both surfaces, the margin somewhat revolute. FLOWER BUDS pyriform, restricted at junction of calyx and hypanthium, 6–9 mm long, the hypanthium obconic to infundibular, 2.5–4 mm long, the distal portion of bud ovoid to subglobose, 4–5 mm long; *indumentum pattern of buds* with all external and internal surfaces glabrous except for strigose inner surface of calyx, outer surface of petals, and staminal ring of disk, the peduncle sometimes minutely hispid; *peduncles* 6–32 mm long, ca. 1 mm wide, uniflorous, or less often bearing dichasia, borne in the axils of leaves or at leafless nodes, slightly compressed at anthesis, terete at fruiting, the arms of the dichasia 5–20 mm long; *bracteoles* narrowly triangular, ca. 0.8 mm long, caducous before anthesis. CALYX closed or open by a small apical pore through which reddish brown hairs protrude, sometimes with weak longitudinal grooves along which calyx tears into 2–4(–5?) parts at anthesis, the tears sometimes cutting the staminal ring, the calyx parts persisting after anthesis but mainly deciduous before fruiting; *petals* 4–5, suborbicular, ca. 7 mm long, densely covered with minute hairs without, the margin ciliate; *disk* with staminal ring 4–5 mm across, glabrous; *stamens* borne on inner surface of calyx tube, 80–255, ca. 5 mm long; *anthers* subglobose, ca. 0.5 mm long, with a terminal gland and 2–13 smaller glands below; *style* 6–8 mm long, sometimes with scattered hairs; *ovary* 2–4-locular, the walls sometime not completely sealed, the placenta peltate; *ovules* per locule 14–30, 1–2-seriate along edge of lamellae. FRUIT ovoid to subglobose, 7–20 mm long and wide, the fruit wall 1–5 mm wide; *seeds* to 4–34, 4–5 mm long, ovaloid to reniform, with rounded and flat sides.

Representative specimens examined. CUBA. Granma: Bartolomé Masó, Santo Domingo, P. N. Turquino, Cima Pico Mella, Alto del Naranjo, (20.02°N, 76.90°W), 985 m, 7 Aug 2016 (st), *Flickinger 25* (ASU0322688). **Guantánamo**: Baracoa, valle del Río Maraví, (20.42°N, 74.58°W), 31 Mar 1970 (st), *Bisse 16987* (JE); Yateras, Felicidad de Yateras, zona de Monte Cristi, (20.39°N, 74.92°W), 500 m, 23 Aug 1971 (fr), *Bisse 20212* (JE). **Holguín**: Palenque, Cuchillos de Toa, Cayo Fortuna, Rio Toa, (20.52°N, 74.88°W), 31 Mar 1970 (fl), *Bisse 16764* (JE); Moa, Playa de la Vaca, (20.69°N, 74.98°W), 12 Aug 1970 (fr), *Bisse & Lippold 17691* (JE); Sierra del Cristal, entre Los Milos y La Corea, (20.55°N, 75.52°W), 640 m, 27 Aug 1909, *Figueiras 230* (US); Sierra de Nipe, Loma la Mensura, (20.48°N, 75.81°W), 22 Apr 1940 *Carabia 3750* (NY); Mayarí, Loma de Bandera, Sierra de Nipe, (20.60°N, 75.72°W), 348 m, 11 Aug 2016 (st), *Flickinger et al.* (FTG); Mayarí, La Cueva, Sierra de Nipe, (20.51°N, 75.70°W), 392 m, 9 Aug 2016 (fr), *Flickinger et al. 35* (FTG); Mayarí, Loma de Bandera, Sierra de Nipe, (20.60°N, 75.72°W), 348 m, 11 Aug 2016 (st), *Flickinger et al. 50* (FTG); Moa, near Punta Gorda, (20.63°N, 74.86°W), 14 Jul 1947 (ofl), *León & Clemente 23020* (NY); Plancha Trail, Mensura to Woodfred, (20.55°N, 75.74°W), 4 Feb 1910 (fr), *Shafer 3878* (NY, US); Moa region, near port of Moa, (20.62°N, 74.95°W), 19 Jul 1951 (fr), *Webster 3827* (MICH). **Las Tunas**: Arroyo Corojo, Nagua, (20.84°N, 77.27°W), 20 Aug 1922 (fr), *Ekman 14909* (NY). **Pinar del Rio**: Cajálbana, cuabales en la ladera sur, por el sendero del cuabal, (22.78°N, 83.45°W), 1 Jul 2000 (fl), *Urquiola 9180* (ASU0069456). **Santa Clara**: Manajanabo, Sierra Alta de Agabama, (22.30°N, 79.90°W), 26 Mar 1924 (fl), *Ekman 18861* (NY); 10 Km of Santa Clara, (22.31°N, 79.96°W), 30 Jun 1950 (yfr), *Howard 94* (MICH). **Santiago de Cuba**: Pinares de Mícara, Mayarí, (20.41°N, 75.54°W), 27 Dec 1955 *Alain & Lopez Figueiras 4631* (US); Sierra Maestra, Cobre range, Loma del Gato vicinity, (20.12°N, 75.68°W), 900 m, 30 Nov 1920 (ofl), *León, Clemente, & Roca 10211* (NY); Sierra de Nipe, Charrascales de Arroyo Potrero, Cayo Rey, (20.45°N, 75.92°W), 2 Oct 1956, *Lopez 2825* (US).

Phenology—Flowering mainly in April and May; fruiting mainly in July and August.

Habitat and distribution—Endemic to Cuba. Growing in charrasco, pine woodlands, savannas, and rainforests, on serpentine, ultrabasic, laterite, limestone rocks and soils, from near sea level to 900 m.

Distinguishing features—Leaves oblanceolate to obovate, generally over 2 cm long, 1–2.2 times as long as wide, the base acute, acuminate, or cuneate; peduncle 6–32 mm long;

fruit ovoid to subglobose, 7–20 mm long and wide; seeds 4–5 mm long.

Psidium parvifolium may hybridize with, and may be confused with, *P. minutifolium*. See discussion under that species.

47. *Psidium pedicellatum* McVaugh, Fieldiana, Bot. 29: 227 (1956). TYPE. Ecuador. Prov. Santiago-Zamora, along Quebrada Honda, vicinity of Rancho Achupallas, 2500–2700 m, 10 Oct 1943(fl), *J. A. Steyermark 54571* (HOLOTYPE: F-65710; ISOTYPE: MICH-1210417!). Fig. 53

Tree or shrub up to ca. 12 m high, subglabrous or obscurely strigose to puberulent on young grow and inflorescences; *hairs* whitish, up to ca. 0.3 mm long, usually appressed; *young twigs* subquadrangular, ridged or subterete, moderately to sparsely strigose or puberulent, drying dark or light reddish brown, the older twigs gray to reddish brown, the bark wrinkled or cracked but usually not scaly. LEAF BLADES elliptic, ovate, lanceolate, 1.5–9 cm long (usually less than 4 cm), 1.3–6 cm wide, 1.4–2.7 times as long as wide, submembranous to coriaceous at anthesis, drying dark reddish brown to gray-green, sometimes mottled with lighter gray spots, often densely glandular below, glabrous to sparsely pubescent or strigose (sometimes densely so along veins); *apex* acute to rounded (rarely slightly acuminate); *base* acute to attenuate; *petiole* puberulent to subglabrous, channeled or not, 2–7(–10) mm long, 0.8–1.2 mm wide; *venation* brochidodromous, the midvein prominent below, about flat or impressed above, sometime densely strigose above, the lateral veins 8–10 pairs leaving midvein at angle at more than 45 degrees, obscure to prominent, the marginal vein arching slightly between laterals, obscure to prominent, running 0.5–3(–4) mm from the margin, the tertiary veins usually appearing to arise from the marginal vein, branching in a dendritic pattern towards midvein or irregularly. FLOWER BUDS pyriform, 4–7 mm long, the hypanthium obconic, 1.5–2.5 mm long, the distal portion of bud subglobose, 2–4.5 mm long; *indumentum pattern of buds* with peduncles, dichasium branches, bracteoles, hypanthium and calyx glabrous to sparsely puberulent or strigose, the indumentum often more dense on the peduncles, the petals, disk and style glabrous, the calyx usually puberulent within; *peduncles* 1–3-flowered, 2–17 mm long, 0.5–1.2 mm wide, borne in the leaf axils or at leafless nodes, the lateral arms of the dichasia up to ca. 9 mm long; *bracteoles* narrowly triangular, up to ca. 1.5 mm long, usually caducous before anthesis. CALYX open in bud, cup-like, with lobes usually distinguishable as undulations along margin, explanate after anthesis, tearing up to ca. 1 mm between the lobes or not at all, the lobes up to ca. 0.5(–1) mm long before anthesis; *petals* suborbicular, subglabrous, 3–6 mm long; *hypanthium* obconic to campanulate, 2–2.5 mm long from bracteoles to summit of ovary; *disk* after anthesis ca. 3 mm across, glabrous or nearly so; *stamens* ca. 5 mm long, 160–200; *anthers* up to ca. 0.5 mm long, the thecae divergent, with a single terminal gland; *style* 3–6 mm long, the stigma scarcely wider than the style; *ovary* 2–3-locular, the ovules 9–21 per locule, usually uniseriate on edge of each lamella of the peltate placenta. FRUIT subglobose, 0.5–2 cm long; *seeds* subglobose to reniform, with round and flat sides,1–8, 4–8 mm long.

Psidium raimondii Burret, Repert. Spec. Nov. Regni Veg. 50: 56. 1941. [TYPE. PERU. Hualgayóc, Montana de Nancho, 2300–2600 m, Jul-Aug 1874, *A. Raimondi 4752*; PARATYPES: *A. Raimondi 3473, 3920, 6589*)], could be an earlier name but no type has

been found. The holotype and paratypes would have been at B and now are destroyed. Isotypes or isoparatypes might be found at USM, P, or K.

Representative specimens examined. COLOMBIA. **Antioquia**: Medellín, La Ceja, cuenca del Río Piedras, El Mocho, (5.93°N, 75.42°W), 2300 m, 16 Jun 1995 (fr), *Arias 377* (HUA); Medellín, Corregimiento San Cristóbal, 5 km Alto de Boquerón a Medellín, (6.33°N, 75.67°W), 2100 m, 24 Mar 1990 (fl), *Betancur 1792* (ASU0009526); Rionegro, Vereda Yarumales, 20–30 km SE de Medellín en la via a Rionegro, (6.25°N, 75.47°W), 2140 m, 12 Nov 1990 (fr), *Callejas 9639* (ASU0009525); Carmen del Viboral, Vereda La Milagrosa, vía El Canadá, Finca La Soledad, (6.08°N, 75.42°W), 2400 m, 27 Oct 1987 (fl), *Luteyn 11782* (ASU0009520); Sonson, West flank of Cerros de La Vieja, ca. 10 km NE of Sonson, (5.78°N, 75.25°W), 2600 m,7 Dec 1986 (fr), *Zarucchi 4467* (ASU0009524). **Cundinamarca**: ca. 35–40 km from Bogotá, between Zipacón and La Alto de Escalara (5.03°N, 74.03°W), 2140 m, 27 May 1988 (fl), *Grifo 1133* (ASU0009522); Road Facatativá-Alban, al leftside of the road, 11 km after passing Alto de La Tribuna, (5.03°N, 74.03°W), 2600 m, 15 Nov 1990 (fr), *Wijninga 594* (ASU0009521). **Quindio**: Salento, Reserva del Alto Quindío Acaime, Cordillera Central (4.62°N, 75.53°W), 2450 m, 18 Mar 1990 (fl, fr), *Renjifo 110* (MO).

ECUADOR. **Napo**: Quijos. Sierra Azul (agrícola Industrial Rio Aragón). Campamento San Fernando (0.68°S, 77.92°W), 2250 m, 3 May 1992 (fr), *Álvarez 436* (ASU0009527). **Santiago-Zamora**: along Quebrada Honda, vicinity of Rancho Achupallas, (4.50°S, 79.08°W), 2500 m, 10 Oct 1943 (fl), *Steyermark 54571*, (MICH).

PERU. **Cajamarca**: Cutervo, Carretera entre Llama y Huambos, Tunaspampa, (6.38°S, 78.82°W), 2600 m, 21 Apr 1988 (fl), *Diaz*, *2888* (ASU0009511); Contumaza, Cascas - Contumaza, (7.48°S, 78.82°W), 24 Jun 1982 (fr), *Lopez*, *9039* (ASU0009514); Contumaza, Bosque Cachil, (7.34°S, 78.97°W), 29 Jul 1993 (fl), *Sagástegui 15020* (ASU0009528). **Pasco**: Oxapampa, Huancabamba, Parque N. Chanachaga-Chemillén, Parcela Permanente Osa Playa, (10.30°S, 75.61°W), 2200 m, 9 Nov 2006, *Monteagudo et al. 13311* (MO-6042660); Oxapampa, Chacos, (10.63°S, 75.29°W), 2412 m, 20 Aug 2007 (fl, yfr), *R. Vásquez*, *32811* (ASU0061809).

VENEZUELA. **Trujillo**: Carache, between Carache and Agua de Obispo, 20–25 km NE of Carache (9.63°N, 70.08°W), 2350 m, 10 May 1988 (fr), *Dorr 5076* (ASU0009515).

Phenology—Flowering and fruiting throughout the year.

Habitat and distribution—Primary wet forest and apparently sometimes persisting after disturbance; 1350–3000 m; Andes mountains from Peru to Venezuela.

Distinguishing features—Leaves elliptic, ovate or lanceolate, 1.5-9.5 cm long; lateral veins nearly straight, usually leaving the midvein at an angle of more than 45 degrees; flower buds pyriform, 4–7 mm long; calyx open in bud, cup-like, with lobes usually distinguishable as undulations along margin, explanate after anthesis, tearing up to ca. 1 mm between the lobes or not at all, the lobes up to ca. 0.5(–1) mm long before anthesis; peduncles 1–3-flowered.

48. *Psidium pulcherrimum* Tuler & C. M. Costa, Brittonia 72(1): 58. 2019. TYPE. Brazil. Bahia, Lagoa Real, comunidade de Lagoa Grande, próximo a estrada do Bomfim, (13.9438°S, 42.3062°W), 11 Jun 2018(fr), *C. M. Costa 20* (HOLOTYPE: RB-771974; ISOTYPES: HUEFS, K, NY?). Fig. 54

Shrub ca. 2.5 m tall, sometimes forming dense thickets, puberulent on young twigs and disk, sparsely puberulent to glabrous otherwise; *hairs* less than 0.1 mm long, erect whitish; *young twigs* yellowish brown, puberulent, more or less terete between nodes, compressed at nodes and protruding around the attachment of the leaves, ca. 2 mm wide at nodes, the leaves and protrusions decussate, the older twigs gray, the bark slightly rough with cracks, the axillary buds prominent, short conical, ca. 0.5 mm long, covered by two reddish brown scales. LEAF BLADES linear to narrowly oblanceolate, 0.8–1.5 cm long, 2–3 mm wide, ca. 7–9 times as long as wide, coriaceous, densely glandular, the margin revolute; *apex*

obtuse, often ending in a small cusp; base acute to narrowly cuneate; *petiole* 1–1.5 mm long, ca. 0.5 mm wide, sparsely puberulent, unchanneled; venation probably brochidodromous, the midvein barely visible, the other veins not visible. FLOWER BUD 3–4.5 mm long; *peduncles* solitary, uniflorous, glabrous, to ca. 1.5 cm long, ca. 0.5 mm wide. CALYX closed in bud, falling as a calyptra; *disk* puberulent; *stamens* between 100 and 200 (estimated by scars). FRUIT globose, ca. 0.5–1 cm in diameter, yellow when mature; seeds 1–4 per fruit, somewhat lustrous.

Specimen examined. Bahia: Tanque Novo, 28 Apr 1995(fr), *Andrade & Cavada s.n* (PARATYPE: SPF-99192!).

Habitat and distribution—Caatinga to cerrado; known from only two localities in Bahia and thus apparently quite rare and meriting more study to assess its conservation status.

Phenology—Flowering in December to January; fruiting in April to June.

Distinguishing Features—Narrow leaves; flowers buds 3–4.5 mm long with a closed calyx, the calyx falling as calyptra; fruits small, ca. 0.5–1 cm in diameter, with only 1–4 seeds.

This species was originally described from a specimen (SPF-99192) with a single young fruit as "species A" in Landrum (2017). Specimens were later collected with abundant flowers and fruits by C. M. Costa and the species was formally named and described by Tuler et al. (2019d). See their paper for excellent photographs and illustrations.

49. *Psidium ratterianum* Proença & Soares-Silva, Kew Bull. 65(3): 466. 2011. TYPE. Brazil. Distrito Federal, Brasilia, 7 Dec. 2005, *C. Proença, M. B. S. Campos & P. I. T. Silva 3068* (HOLOTYPE: UB). Fig. 55

Shrubs to 0.3 m tall, the stems erect, clustered, with most surfaces subglabrous to sparsely appressed pubescent, more densely so on young growth; *hairs* whitish to colorless, mainly antrorsely appressed, mainly less than 0.2 mm long; *young twigs* quadrangular to 4-winged, conspicuously glandular, with sparse hairs when young, the first bark reddish brown, becoming gray with age, shredding in fibrous strips with age, the older twigs terete, reddish brown to gray. LEAF BLADES elliptic, narrowly elliptic to oblanceolate or obovate, 3–9 cm long, 1–3.2 cm wide, 1.6–4.6 times as long as wide, ascending at an angle of ca. 30° from the stem, drying reddish brown, darker above than below, subcoriaceous, subglabrous to sparsely appressed pubescent on lower surface, especially along the veins; *apex* obtuse, acute, to acuminate; *base* acute to obtuse; *petiole* essentially none or about 1 mm long, the midvein thicker at base; *venation* prominent, raised below, impressed above, eucamptodromous proximally (first 2 laterals) to brochidodromous distally, or entirely brochidodromous, the laterals leaving the midvein at an angle of 20 to 45 degrees, the marginal vein where present arching between the laterals, running about 1–2 mm from the margin, the tertiary veins often prominent, forming a reticulate pattern between the laterals. FLOWER BUD pyriform to obovoid, ca. 7 mm long, the hypanthium campanulate to obconic, ca. 2 mm long, the distal portion of bud subglobose, ca. 5 mm long; *indumentum pattern of buds* with all parts essentially glabrous, sparsely to moderately appressed pubescent, or with scattered hairs; *peduncles* 1-flowered (rarely 3-flowered), 1–3 cm long, ca. 1 mm wide, the arms of the dichasia up to ca. 1 cm long; *bracteoles* narrow-oblong,

narrow-elliptic, subnavicular, with an acute to acuminate apex, 3–4 mm long, ca. 1.5 mm wide, persistent in old flowers and sometimes until fruiting. CALYX broadly open and bowl-like, with deltoid lobes along the edge of the tube, the lobes before anthesis to ca. 1 mm long, to ca. 2.5 mm wide, densely appressed pubescent within; *petals* obovate to suborbicular, elliptic, oblanceolate, 7–10 mm long, glabrous; disk 5–10 mm across; *stamens* ca. 318, 4–7.5 mm long; *anthers* oblong, ca. 0.5–1 mm long; *style* ca. 7.5–10 mm, glabrous, glandular; *ovary* 3-locular; *ovules* 31–34 per locule, 2-seriate. FRUIT poorly known, probably similar to *P. australe* or *P. suffruticosum* (i.e., subglobose to subpyriform, 1.5–5 cm long); *seeds* unknown (probably 3–5 mm long, rounded, 6–50 in *P. australe* and 6–11 in *P. suffruticosum*).

This description based in part on the original description of Proença et al. (2011).

Representative specimens examined. BRAZIL. **Distrito Federal**: Brasília, P. N. Brasília, (15.63°S, 47.99°W), 1220 m, 25 Nov 2011 (fl), *Faria 2191* (ASU0082970); Brasília, Parque Ecológico Burle Marx, (15.74°S, 47.91°W), 1052 m, 28 Nov 2021 (fl, yfr), *Schindler 327* (CEN). **Goiás**: Alto Paraíso, arredores de estação de tratamento de água, ca. 3 km da entrada ao posto, GO-118, (14.14°S, 47.54°W), 1050 m, 17 Oct 2006 (fl), *Paula-Souza 8631* (SPF).

Phenology—Flowering in October and November; probably fruiting in January to March.

Habitat and Distribution—Cerrado, campo sujo; resistance to fire has been noted (Proença et al. 2011); most specimens are from the Distrito Federal or adjacent Goias in Brazil. On SpeciesLink a specimen is reported from Minas Gerais (estrada de terra para Conselheiro Mata, Diamantina, 18.27°S, 43.69°W), but I have not seen a specimen or photo myself.

Distinguishing Features—The generally narrow leaves with conspicuous venation impressed above and raised below is unusual in *Psidium*. The persistent large bracteoles are also unusual. Together these characters easily distinguish this species. Proença et al. (2011) found that the leaves are amphistomatic, which has not been reported in any other species of *Psidium*.

50. *Psidium rhombeum* O. Berg, in Mart., Fl. bras. 14(1): 383. 1857. TYPE. Brazil. "v. in hb. Berol. et Mart.," "in montibus Serra d' Açurua [ca. 11.5 S, 42.5W] prov. Bahiensis." *Blanchet 2815* (SYNTYPES: B, lost, BR-843780; ISOSYNTYPES: BM-796890, E-167673, F-76392!, F-76393!, G-227662, HAL-89786, K-18449, K-18703, LE-7000. MICH-1210407!, P-258386!, W-48296). Fig. 56

Guajava rhombea (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Tree or shrub to ca. 3 m high, the young growth puberulent and densely glandular on young twigs, leaves, and flowers; *hairs* yellowish or whitish, 0.5–1 mm long, erect to antrorse, straight to somewhat curled; *young twigs* reddish brown, pubescent, glandular, the older twigs grayish, slightly rough. LEAF BLADES elliptic to suborbicular, to obovate, 2.2–6 cm long, 1.5–4 cm wide, 1.3–2 times as long as wide, with 12–20 glands per mm², membranous at anthesis, submembranous to chartaceous at maturity, the leaves subtending proximal peduncles sometimes reduced, ca. 1 cm long; *apex* acuminate to rounded; *base* acuminate, gradually merging with petiole; *petiole* 3–7 mm long, 0.8–1 mm wide, slightly channeled or flat, the leaf blade sometimes narrowly decurrent along the petiole; *venation*

brochidodromous distally, eucamptodromous proximally, weak to scarcely distinguishable in young leaves, prominent in older leaves, the midvein prominent or not below, flat to slightly recessed above, the lateral veins 6–10 pairs, sometimes sigmoidal, leaving the midvein at an angle of 30–45º, the marginal vein connecting laterals in broad arcs, 1–2 mm from the margin, the tertiary veins dendritic. FLOWER BUDS pyriform, 4–5 mm long, the hypanthium obconic to campanulate, ca. 1.5 mm long, the distal portion of bud subglobose, 2.5–3.5 mm long, sometimes wider than long; *indumentum pattern of buds* with all external surfaces and style glabrous, the inner surface of calyx and staminal ring pubescent, the petals ciliate, the bracteoles ciliate; *peduncles* uniflorous, axillary or at leafless nodes, 3–14 mm long, 0.4–0.5 mm wide; *bracteoles* linear, ca. 3 mm long, ca. 0.3 mm wide, caducous at or before anthesis, ca. 1.5 mm long. CALYX open, bowl-like, 2–3.5 mm long, with a sinuate margin or triangular lobes distally, tearing between the lobes (or in part irregularly) at anthesis, the lobes after anthesis somewhat irregularly oblong, ca. 3 mm long; *petals* suborbicular, 2–5 mm long, unequal, glandular; *disk* 2–3 mm across; *stamens* 50–111, ca. 3–4 mm long; *anthers* ca. 0.5 mm long, oblong, with a solitary terminal gland; *style* ca. 3.5 mm long, the stigma slightly wider than style; *ovary* 2–3-locular; *ovules* 3–10 per locule, the placenta peltate. FRUIT subglobose, probably ca. 10 mm long at maturity; *seeds* 1–5 seen in developing fruits.

Representative specimens examined. BRAZIL. Bahia: Glória: Brejo do Brugo-Baixa de Fontana, (9.33°S, 38.30°W), 9 Mar 2004 (fr), *Moraes 626* (ASU0008243, HUEFS); Glória, Raso da Catarina, (9.33°S, 38.48°W), 6 Jun 2004 (fr), *Oliveira 709* (HUEFS); Casa Nova, dunas interiores do São Francisco, (9.41°S, 41.15°W), 414 m, 30 Nov 2003 (fl), *Queiroz et al. 8075* (ASU0057058, HUEFS); Morro do Chapéu, ca. 200 m W of Ba-052 road at km 287, (11.48°S, 41.32°W), 927m, 5 Mar 2017 (yfr), *Sarkinen 5241* (HUEFS); Pilao, Limoeiro, (10.14°S, 42.91°W), 19 Mar 2006, (yfr) *Souza et al. 1599*, (HUEFS). **Pernambuco**: Tacaratu, estrada de Tacaratu, (9.06°S, 38.22°W), 362 m, 15 Jan 2009 (yfr), *Carvalho-Sobrinho et al. 1808* (HVASF); Buíque, Vale do Catimbau, Trilha das Torres, (8.59°S, 37.25°W), 18 Jun 2008 (fr), *Pereira et al. 2757* (HUEFS).

Phenology—Flowering in November; fruiting in March to June.

Habitat and Distribution—Dunes and probably other well drained soils at elevations of ca. 400 m. Known to me only from Bahia and Pernambuco.

Distinguishing Features—Young growth puberulent and densely glandular on young twigs, leaves, and flowers; calyx in flower open, bowl-like; lateral veins connecting to a marginal vein only in distal half of leaf; leaves mainly less than 5 cm long; petals 2–5 mm long; flower buds 4–5 mm long; petiole 3–7 mm long; seeds 1–5. *Psidium rhombeum* may be confused with *P. glaziovianum* because they have similar membranous to submembranous leaves at anthesis. But *P. glaziovianum* has narrower leaves and a nearly closed calyx. *Psidium brevipedunculatum* is similar but is covered with yellowish tomentum on young growth and lower leaf surfaces. *Psidium guedesianum* is similar but has a closed calyx and leaves obovate to oblanceolate, with short petioles.

51. *Psidium riparium* DC., Prodr. 3: 235. 1828. TYPE. Brazil. "in Brasilia." *Martius s.n.* (2 specimens at M, one annotated by de Candolle taken as HOLOTYPE: M-32380. Additional specimen perhaps an ISOTYPE: M-32381). Fig. 57

Psidium mengahiense Cambess., in Saint-Hilaire, Fl. Bras. merid. 2: 286. 1833. TYPE. Brazil. “Prope Mengahi in provincia Minas Geraes.” *Laruotte s.n.* (SYNTYPES: P-258422! marked “type,” P-258423! marked “isotype,” P-258424! marked “isotype”).

Psidium maranhense O. Berg, in Mart., Fl. bras. 14(1): 386. 1857. TYPE. Brazil. "v. in hb. Mart. et Vindob." "ad flumen Rio Maranhao in prov. Goyazensi," *Pohl s.n.* (SYNTYPES: BR-843784!, W-16670. Possible ISOSYNTYPE: OXF, = ASU photo).

Psidium paraense O. Berg, in Mart., Fl. bras. 14(1): 386. 1857. TYPE. Brazil. "in vicinia urbis Santarem prov. Paraensis." *Spruce 316* (HOLOTYPE: M-146863!; ISOTYPES: MICH-1210410!, NY-1288082!).

Psidium sieberianum O. Berg, in Mart., Fl. bras. 14(1): 387. 1857. TYPE. Brazil. "v. in hb. Mart." "in prov. Paraensi." *Sieber s.n.* (SYNTYPES: BR-843787!, BR-843786!, the types of varieties listed below).

Psidium sieberianum var. ***gracile*** O. Berg, in Mart., Fl. bras. 14(1): 387. 1857. TYPE. Brazil. "v. in hb. Mart." "in prov. Paraensi." *Sieber s.n.* (HOLOTYPE: BR-843787!).

Psidium sieberianum var. ***robustum*** O. Berg, in Mart., Fl. bras. 14(1): 387. 1857. TYPE. Brazil. "v. in hb. Mart." "in prov. Paraensi." *Sieber s.n.* (specimen annotated by Berg taken as HOLOTYPE: BR-843786!. Possible ISOTYPE: M-32384).

Guajava maranhensis (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Guajava mengahiensis (Cambess.) Kuntze, Rev. Gen. 239. 1891.

Guajava paraensis (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Guajava riparia (DC.) Kuntze, Rev. Gen. 239. 1891.

Guajava sieberiana (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Psidium insulincola S. Moore, Trans. Linn. Soc. ser. 2, 4: 353. 1895. Brazil. Mato Grosso, "inter Santa Cruz et Diamantino," *S. Moore 624* (HOLOTYPE: BM-796880!; ISOTYPE: NY-1288081!).

Myrtus thyrsodea O. Kuntze, Rev. Gen. 3(2): 92. 1898. Brazil. "Matto-grosso: Cuyaba," *Kuntze s.n.* (HOLOTYPE: NY-405541; ISOTYPE: US-810757!).

Psidium thyrsoideum (O. Kuntze) K. Schum. Just's Bot. Jahresber. 26(1): 359. "1898" 1900.

One syntype collection of *Aulomyrcia goyazensis* O. Berg (Mart. Fl. bras. 14[1]: 85. 1857) is *Gardner 3184*. Specimens at G and K with the label *Gardner 3184* are *Psidium riparium*. There seems to be a confusion of labels because other specimens with the same collector and number at K, P, NY, and W (the only collection cited by Berg) are *Myrcia* (which now includes *Aulomyrcia*). The description of Berg of *Aulomyrcia goyazensis* matches *Myrcia* (e.g., 4-ovulate ovary). So, this name is not considered a synonym for *Psidium riparium*.

Tree or shrub 1.5–6 m high, essentially glabrous except for calyx and bracteoles within, or more commonly sparsely to densely villous to pubescent on young growth and inflorescences; *hairs* whitish or yellowish, mainly erect, up to ca. 1 mm long; *young twigs* gray, light reddish brown to yellowish brown, usually pubescent or villose, the first bark darkening and flaking off to reveal smooth, light reddish brown inner bark. LEAF BLADES lanceolate, usually narrowly so, or narrowly elliptic (rarely ovate), often slightly falcate, (4.5–)5.4–16.5 cm long, 1.5–4.6 cm wide, 2.2–6.9 times as long as wide, subcoriaceous, drying dark reddish brown to gray-green, subglabrous to moderately or sparsely pubescent (especially along midvein), glabrous to sparsely pubescent above; *apex* acute, or less often obtuse or acuminate; *base* rounded or cordate, less often acute; *petiole* shallowly channeled or unchanneled, glabrous to densely pubescent or villous, 1–13 mm long, 1–2 mm wide; *venation* principally brochidodromous, but sometimes partially eucamptodromous, the midvein prominent below, about flat above, the lateral veins 10–17 pairs, weak to moderately prominent, leaving midvein at an angle greater than 45°, the marginal vein arching between the laterals, within 0.5–7 mm from the margin, the tertiary veins weak or strong, connecting the larger veins in an irregular dendritic pattern. FLOWER BUDS pyriform, sometimes narrowly so, 7–15 mm long, the hypanthium obconic to subcylindrical, 3–5(–7) mm long, the distal portion of bud subglobose to ovoid, 4–10 mm long; *indumentum pattern of buds* with all external surfaces glabrous or more commonly with peduncles, bracteoles, hypanthium, and calyx densely to moderately covered with spreading hairs, the petals glabrous, ciliate, or sparsely pubescence, the style glabrous or nearly so, the disk

usually pubescent; *peduncles* 1–3-florous, 0.5–4 cm long, 1–2 mm wide, usually clustered on leafless or bracteate terminal or lateral shoots, or borne in the axils of leaves, the lateral arms of the dichasia 5–14 mm long; *bracteoles* narrowly triangular, ca. 2 mm long, caducous before anthesis. CALYX open in bud, bowl-like, with lobes scarcely distinguishable as undulations along the margin, tearing between the lobes ca. 2 mm at anthesis, the lobes prior to anthesis up to ca. 1 mm long; *petals* suborbicular, obovate, or oblanceolate-elliptic, 10–22 mm long, subglabrous within and without or sparsely pubescent without; *disk* 5–9 mm across; *stamens* 150–240, 5–17 mm long; *anthers* 0.7–1 mm long, with a terminal gland and 1–4 smaller glands below; *style* 12–17 mm long, the stigma ca. 0.5 mm across; ovary 2–3-locular, often pubescent within; *ovules* 37–52 per locule, about 2-seriate on each lamella of the peltate placenta. FRUIT subglobose to pyriform, 1–3.5 cm long; *seeds* 29–45 in fruits seen, subtriangular to C-shaped, angular, 5–10 mm long.

Representative specimens examined. **BRAZIL. Bahia**: Lagoa de Sento Sé (9.67°S, 41.30°W), 15 Aug 1912 (fl), *Zehntner 232* (RB). **Goiás**: Niquelândia, margem esquerda do rio Tocantinzinho, (14.46°S, 48.47°W), 16 Jul 1998 (fl), *Santos 133* (ASU0008248); Flores de Goiás, margem do rio Paraná, junto a parte antiga da cidade de Flores de Goiás, (14.44°S, 47.05°W), 500 m, 9 Sep 1994 (fl), *Pereira 2610* (ASU0008247); São Miguel de Araguaia, Liuz Alves, (13.27°S, 50.15°W), 26 Aug 1996 (fl), *Souza et al. 43* (ASU0008252). **Mato Grosso**: Mun. Sinop, Estr. para Porto dos Gaúchos a 25 km da BR 163, Faz. Missionária, (11.67°S, 55.75°W), 25 Sep 1985 (yfr), *Cid et al. 6231* (ASU0008246); Nova Ubiratã, Cachoeira do rio Teles, (13.58°S, 55.27°W), 4 May 1997 (yfr), *Nave et al. 1395* (ASU0008250); margem do Rio Xingó (Cachoeira das Pirararas (9.67°S, 52.60°W), 22 Jan 1979 (fr), *Passos et al. 1081* (HRB, RB); Road Chavantina to Garapú, (ca. 14.22°S, 52.45°W), 27 Sep 1964 (fr), *Prance 59145* (UB); Xaventina, Rio da Mortes, (14.73°S, 52.33°W), 500 m, 25 Aug 1967 (fl), *Ratter et al. 481* (NY). **Minas Gerais**: Pirapora, (17.35°S, 44.93°W), 27 Jun 1932 (fl), *Porto 2548* (RB). **Pará**: Tucuruí, praia Niterói, (3.70°S, 49.70°W), 10 Jul 1949 (fl), *Black 49-8035* (MICH, UB); Igarapé Remansinho, Rio Tocantins, (4.43°S, 49.57°W), 8 Sep 1948 (fl), *Froes 23417* (UB); Reserva Forestal de Gorotire (Kayapo-Indian Reservation) Surroundings of Garotire, Rio Fresco, (6.65°S, 51.98°W), 15 Jan 1983, *Gottsberger et al. 14-15183* (CAS); Tocantins river between Marabá and Tucuruí, 1.5 hours down stream from Itupiranga (5.00°S, 49.33°W), without date (fr), *Jangoux 1692* (ASU0008245); Santarém, enseada de Alter do Chão, (2.43°S, 54.70°W), 13 Dec 1978 (fr), *Maciel & Cordeiro 316* (NY); São João do Araguaia, (5.36°S, 48.79°W), 14 Jun 1976 (yfl), *de Paula 1105* (UB); Rio Xingó, Praia de Parati, below Altamira, (3.20°S, 52.20°W), 18 Nov 1980 (yfr), *Prance et al. 26345* (NY); P. N. do Tapajós, Ilha do Pacú no Tapajós, (7.58°S, 57.58°W), 30 Nov 1978 (fr), *Silva & Rosario 4026* (NY, SP); Conceição do Araguaia, (8.27°S, 49.28°W), 7 Aug 1978 (fl), *Silva 4765* (MO, NY, RB, SP). **Piauí**: beira do Parnaíba, Região de Carrasco, Piauí, (6.25°S, 42.26°W), 30 Aug 1909 (fl, fr), *2361* (RB); Buriti dos Lopes, Rio Pratigi perto da rodovia BR 343, (3.16°S, 41.82°W), 1 Aug 2004 (fl), *França et al. 5043*, (ASU0008244). **Tocantins**: Ilha do Bananal, Santa Isabel, direção norte, Prainha, (11.58°S, 50.67°W), 17 Sep 1960 (fl, fr), *Andrade & Emmerich 533* (HB); Porto Nacional, margens do Rio Tocantins, (10.71°S, 48.31°W), 27 Jul 1955 (fl), *Macedo 3931* (RB); Rio Araguaia, região de Araguatins, (5.35°S, 48.68°W), 18 Aug 1961 (fl), *Oliveira 1775* (UB); Rio Javaés, (10.64°S, 49.96°W), 110 m, 27 Jul 1978 (fl), *Pires & Santos 16238* (NY); Parque Nacional do Araguaia, Pium, próximo a Ponta da Ilha, Fazenda Velha do rio Mercês, Ilha do Bananal, (9.88°S, 50.19°W), 180 m, 28 Mar 1999 (fr), *Aparecida da Silva 4200* (ASU0008253).

Phenology—Flowering from June to October; fruiting mainly in November and December.

Habitat and Distribution—Riparian habitats, sometimes forested at 100 to 500 m. Brazilian endemic from Pará and Piauí south to Mato Grosso and Minas Gerais.

Distinguishing Features—Leaves lanceolate, usually narrowly so, or narrowly elliptic (rarely ovate), often slightly falcate, (4.5–)5.4–16.5 cm long, 2.2–6.9 times as long as wide; calyx open in bud, bowl-like, with lobes scarcely distinguishable as undulations along the margin.

52. *Psidium rostratum* McVaugh, Fieldiana: Bot. 29: 227. 1956. TYPE. Peru. Prov. Tumbes, Dept. Tumbes, mountains E of Hacienda Chicama, 16 Feb 1927 (fl), *Weberbauer 7648* (HOLOTYPE: F-76394!; ISOTYPES: BM-796872, F-76395!, GH-717259, NY-1288083!, US-117675, W-19670008063!, WIS-255106). Fig. 58

Tree or shrub 1.8–15 m high, densely to moderately appressed pubescent to strigose on young growth and some floral structures, glabrescent with age, the trunk smooth, tannish or reddish; *hairs* whitish to tawny yellow, ca. 0.5 mm long; *young twigs* subterete, compressed or obscurely quadrangular, without clear wings, densely appressed pubescent to glabrous, drying dark reddish black to tan, dotted with small glands, the bark of older twigs scaly to smooth, generally light reddish brown. LEAF BLADES elliptic, ovate, or oblong, 2.6–13.5 cm long, 2–4.8 cm wide, 1.3–2.6 times as long as wide, submembranous to subcoriaceous, drying gray-green to blackish green or reddish brown, often covered with numerous amber colored protruding glands, with these largest along the midvein, moderately strigose-pubescent to glabrous below, sparsely pubescent to glabrous above; *apex* rounded, acute, or acuminate, the tip sometimes apiculate; *base* rounded, acute, or acuminate; *petiole* channeled or not, 2–5 mm long, 1–1.5 mm thick, sparsely strigose to glabrous; *venation* brochidodromous (sometimes eucamptodromous proximally), the midvein impressed or sulcate proximally above, prominent below, the lateral veins 7–13 pairs, usually leaving the midvein at an angle greater than 45 degrees, arcing slightly upwards, up to ca. 0.25 mm wide, the marginal vein arching between the laterals, 1–10 mm from the margin, the tertiary veins forming a dendritic to ladder-like pattern between the laterals. FLOWER BUDS often with a rostrate tip (rostrum), discounting the rostrum, broadly pyriform, 10–12 mm long, the rostrate tip 1–5 mm long when present, the hypanthium obconic, 3–4 mm long, the distal portion of bud globose, 7–8 mm long; *indumentum pattern of buds* with external surfaces sparsely pubescent to glabrous, or calyx and hypanthium densely puberulent without, the calyx sparsely to densely pubescent within, the petals glabrous or ciliate, sometimes densely glandular, the disc entirely glabrous or puberulent on staminal ring, the style glabrous; *peduncles* uniflorous, 0.2–4.5 cm long, ca. 1 mm wide, subterete; *bracteoles* caducous before anthesis, unknown. CALYX closed in bud, often prolonged as a rostrum 1–5 mm long, or open only as a small pore at the apex, tearing irregularly at anthesis, the tears sometimes cutting the staminal ring; *petals* obovate to suborbicular, ca. 1 cm long; *disk* within staminal ring 2–10 mm across; *stamens* ca. 600 or perhaps more, ca. 1 cm long; *anthers* ca. 1 mm long, with 0 or 1 gland in the connective, the gland reddish; *style* ca. 1 cm long; *ovary* 3–4-locular in flower seen; *ovules* 15–26, radiating from an elongate, slightly peltate placenta. FRUIT subpyriform to subglobose, 1.5–4 cm long, the wall 2–6 mm thick; *seeds* 4–12 (or perhaps more), 8–12 mm long, blackish or brown, smooth, with rounded with flat sides.

Representative specimens examined. **ECUADOR**. **El Oro**: Quebrada de Arena, San Vicente, Arenillas, (3.55°S, 80.02°W), 100 m, 20 Mar 1997 (fl), *Eynden & Cueva*, *955* (QCA). **Guayas**: Capeira, km 21, Guayaquil to Daule, (2.00°S, 80.00°W), 20 m, 11 Feb 1982 (fl), *Dodson & Gentry 12334* (MO); Isla Puná, path from Puná Nueva to Santa Teresa, Recinto Zapote, (2.73°S, 79.92°W), near sea level, 1 Jul 1987 (fr), *Madsen 63748* (AAU, QCA, QCNE); Guayaquil, Bosque Protector Cerro Blanco near visitor center, (2.17°S, 80.02°W), 60 m, 27 Jul 2016 (fr), *Cornejo 8829* (ASU0108259). **Loja**: Bosque Petrificada Puyango, sur, (3.87°S, 80.03°W), 350 m, 30 May 1995 (fr), *Cornejo et al. 3936* (ASU0077646); road Celica to El Empalme, ca. 12 Km from Celica, (4.12°S, 79.95°W), 1800 m, 24 Feb 1985 (fl), *Harling & Anderson 22491* (QCA); at crest above Macará on road to Loja, (4.33°S, 79.92°W), 1200 m, 26 Feb 1985 (fl), *Harling & Andersson 22658* (QCA). **Manabí**: NE of Montecristi, km 28.5 del acueducto de la presa La Esperanza, (0.97°S, 80.47°W), 150

m, 17 Apr 2014 (fr), *Cornejo*, *8608* (ASU0077558); Cerro Seco Biological Reserve, (0.60°S, 80.43°W), 80 m, 19 Feb 2016 (fl), *Cornejo 8777* (ASU0096793); Bahía de Caráquez, Cerro Seco, (0.60°S, 80.43°W), 80 m, 19 Feb 2016 (fl), *Cornejo 8777* (ASU0320202), 24 Sep 2016 (fr), *Cornejo 8852* (ASU0108382); Montecristi, along road to Portoviejo, (1.07°S, 80.65°W), 11 Mar 1981 (fl), *Sparre 19854* (NY, R, S).

PERU. **Piura**: Sullana, Marcavelica, coto de caza El Angolo, (4.87°S, 80.70°W), 850 m, 22 Aug 1990 (st), *Del Carpio P-1288* (USM); Morropón, Huancabamba, carretera Canchaque y Los Potreros, (5.30°S, 80.00°W), 2800 m, 16 Jan 1988 (fl), *Díaz et al. 2732* (ASU0077647); **Tumbes**: Cerros de Amotape, Quebrada Los Conejos, ca. 25 km SE of Cherrelique, (4.15°S, 80.62°W), 820 m, 9 Jun 1987 (fr), *Gentry & Diaz 58239* (ASU0077648.

Phenology—Flowering mainly from January to March; fruiting from April to September.

Habitat and Distribution—Dry forest, "premontano" forest, near coast in western Ecuador and northwestern Peru.

Distinguishing Features—Flower buds often with a rostrate tip (rostrum), discounting the rostrum, broadly pyriform, 10–12 mm long, the rostrate tip 1–5 mm long when present; leaves 2.6–13.5 cm long, 1.3–2.6 times as long as wide; young twigs subterete, compressed or obscurely quadrangular, without clear wings; seeds 4–12 (or perhaps more), 8–12 mm long; ovules per locule up to ca. 26; stamens ca. 600 or more; anthers 0.6–1 mm long, with 0 or 1 gland.

There is some geographical variation in *P. rostratum* that should be investigated with more collections. In Peru the leaves tend to be submembranous and peduncles long; in Ecuador the leaves tend to be subcoriaceous, and the peduncles shorter. The indumentum of hypanthium and calyx may also be variable.

Psidium rostrum and *P. guayaquilense* grow in the same region and may be confused with each other. They are distinguished in the key below. Both have relatively few large seeds.

1. Twigs subterete, sometimes weakly angular near nodes; peduncles terete; leaves often sparsely to moderately strigose-pubescent below, often less than 2 times as long as wide; petiole mainly 2–5 mm long; calyx pubescent within; anthers with no glands or 1 terminal gland ..... ***P. rostratum***

1' Twigs 4-winged, the wings up to ca. 1 mm wide just below nodes; peduncles quadrangular; leaves glabrous to subglabrous, rarely less than 2 times as long as wide; petiole mainly 1–2 mm long; calyx glabrous within; anthers with a terminal gland and 1–6 smaller glands below ..... ***P. guayaquilense***

53. ***Psidium rotundatum*** Griseb., Cat. Pl. Cub. 92. 1866. TYPE. Cuba. "occ., in sylvis depressis pr. Toscano, Manglares," *Wright 2457* (HOLOTYPE: GOET-8275; ISOTYPES: BM-616946, BRU-72806, G-227661!, K-565284, MICH-1210408!, MO!, NY-1365083!, P-25812!, US-731228!, W-18890061640!). Fig. 59

Psidium rotundatum var. ***triflorum*** Griseb., Cat. pl. Cub. 92. 1866. TYPE. Cuba. "Bahia Honda," *Wright 2456* (HOLOTYPE: GOET; ISOTYPES: G-227659!, MO!, P-258511!, YU-66208).

Psidium cymosum Urb., Symb. Ant. 9(4): 464. 1928. TYPE. Cuba. "Prov. Pinar del Rio in Pinar de Cajalbana," *Ekman 17342* (HOLOTYPE: B, lost; ISOTYPES: A-71239, F-65686f, G-223329!, NY-1288043!, S-R-8390 [annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE]).

Shrub or small tree up to 3 m high, most surfaces glabrous, minutely hispid on young growth, inner surface of calyx, outer surface of petals, and staminal ring, the leaves and flowers densely glandular; *hairs* reddish brown to whitish, mainly erect, less than 0.1 mm long; *young*

twigs at first hispid, the hairs persisting or not until the first bark falls, the first bark becoming whitish, the older twigs usually whitish, the bark with inconspicuous cracks. LEAF BLADES broadly elliptic to orbicular, 1.7–5.5 cm long, 1.5–4.5 cm wide, 0.8–1.4(–2) times as long as wide, subcoriaceous to coriaceous, lustrous to dull above, densely glandular, drying gray-green to dark brown above, often mottled with light gray areas above, lighter brown below, the margins often revolute; *apex* rounded, emarginate, or less often acute; *base* rounded to cordate; *petiole* 1–2 mm long, 1–1.5 mm wide; *venation* brochidodromous, sometimes obscure, the midvein somewhat impressed to about flat to slightly impress or raised above, prominent below; lateral veins 4–6(–8), leaving the midvein at an angle of nearly 90 degrees near leaf base and about 45 degrees near apex, sometimes slightly raised above; marginal vein broadly arching between laterals, mostly within 1–5 mm of the margin; weaker dendritic tertiary veins alternating with laterals and appearing to arise from the marginal vein. FLOWER BUDS pyriform, sometimes with an acuminate tip, restricted at the junction of the calyx and hypanthium, 4–6 mm long, the hypanthium obconic to infundibular, 1–2 mm long, the distal portion of bud ovoid to subglobose, 3–4 mm long; *indumentum pattern of buds* with all external and internal surfaces glabrous except for inner surface of calyx, outer surface of petals, and staminal ring of disk; *peduncles* 4–18 mm long, 0.5–0.8 mm wide, uniflorous, or bearing a 3-flowered dichasium, borne in the axils of leaves or bracts, or at leafless nodes, the arms of the dichasia ca. 0.5 cm long, the bracts triangular, ca. 1.5 mm long; *bracteoles* narrowly triangular, ca. 0.8–1.6 mm long. CALYX closed, or closed except for a minute apical pore through which reddish brown hairs protrude, tearing irregularly, usually in 2–4 persistent parts, the tears usually not cutting the staminal ring; *petals* 4 in buds seen, obovate, ca. 5 mm long, densely glandular, strigose without; *disk* within staminal ring ca. 1.5 mm wide, glabrous; *stamens* 85–125, 4–5 mm long, borne on inner surface of staminal tube; *anthers* subglobose, ca. 0.5 mm long, with ca. 4 subequal glands; *style* 5–6 mm long, glandular; *ovary* 2-locular; *ovules* 4–10 per locule, uniseriate along the edge of the peltate placenta. FRUIT subglobose, to ellipsoid, 0.8–1.2(–1.5) cm long, yellow, sweet, the wall 1–2 mm thick; *seeds* 2–9, 4–5 mm long, with flat and rounded sides.

Representative specimens examined. **CUBA**. **Artemisa**: `Pinar del Rio`, prope Morrillo in pascuis, (22.94°N, 83.31°W), 2 Sep 1923 (fr), *Ekman 17395* (G, NY, US); Cayajabos, Pelada de Buenavista, (22.86°N, 82.85°W), 650 m, 23 Mar 1929 *León 13863* (NY); Bahia Honda, (22.9°N, 83.1°W), 1 Jan 1970, *Wright 2456* (MO). **Pinar del Rio**: Cajalbana, La Palma, (22.75°N, 83.55°W), 15 Jul 1950 (fl), *Alain & Clemente 1448* (US); Cajalbana, (22.79°N, 83.45°W), 16 May 1953, *Alain 3021* (US); Loma de Cajalbana, La Palma, (22.75°N, 83.55°W), 200 m, 1 Nov 1975, *Arces et al. 29060* (FR); Sierra de Organos, grupo de Rosario, valley of Rio Santa Cruz, (22.4°N, 84°W), 31 Mar 1923, *Ekman 16395* (MO, US); on Pan de Cajalbana, (22.79°N, 83.45°W), 6 Apr 1915, *León & Charles 4941* (NY); La Palma, Camino Reduan, próximo al Charco Burundanga, APRM Mil Cumbres, (22.80°N, 83.41°W), 94 m, 11 Jan 2016 (fl buds), *Oviedo, R. s.n.* (FTG); Sandino, San Ubaldo, Reserva Natural, (22.07°N, 84.02°W), 22 Sep 1999 (fr), *Urquiola 381* (FR). **Villa Clara**: Rangel, near Loma Pelada, (22.5, 79.9°W), 24 Oct 1925, *León 12532* (NY); Rosario Range, Rangel, Loma Zambumbia, (22.19, 79.98°W), 31 Mar 1937, *León 16822* (GH, NY).

Phenology—Flowering and fruiting throughout year but mainly flowering from May to July; fruiting mainly in August and September.

Habitat and distribution—Endemic to western Cuba; growing in rocky areas, in forests, savannas, pine woodlands, at edges of manglares, along streams, and gallery forest; often found on serpentine soils; growing at 100–650 m.

Distinguishing features—Leaves broadly elliptic to orbicular, 1.7–5.5 cm long; lateral veins usually easily visible; dichasial inflorescences frequently present; flower buds pyriform,

4–6 mm long.

This species might be confused with *Psidium nummularia*. See discussion under that species.

54. ***Psidium rotundidiscum*** Proença & Tuler, Phytotaxa 288(2):162. 2016. TYPE. BRAZIL. Bahia: Maracás, 15–22 km ao S de Maracás na antiga Rodovia para Jequié, 900 m, 27 Abr 1978(fr), *S. A. Mori, L. A. M. Silva, J. A. Kallunki and T .S. dos Santos 10049* (HOLOTYPE: RB; ISOTYPES: CAS! NY!). Fig. 60

Tree up to 5(–22) m high, densely reddish tomentulose on young growth, the older leaves, and twigs losing most hairs; *hairs* curly, reddish brown, grayish with age, densely tangled together, up to ca. 0.3 mm long; *young twigs* densely tomentulose, some hairs persisting until the first bark falls, the first bark falling as scales, the older twigs with reddish brown scaly bark at first, the bark eventually becoming reddish gray and striate, with cracks. LEAF BLADES oblanceolate to elliptic, 5–9 cm long, 1.5–3.5 cm wide, 2–4 times as long as wide, stiffly coriaceous, densely glandular, drying reddish brown to gray-green, the margins revolute, sometimes strongly so; *apex* rounded to obtuse, sometimes emarginated; *base* cuneate to acuminate; *petiole* shallowly channeled, 7–12 mm long, 1.5–2 mm wide, densely tomentulose at first, glabrescent with age; *venation* obscure, apparently brochidodromous, the lateral veins up to ca. 12 pairs, leaving the midvein at an angle of ca. 45°, sometimes impressed slightly above, the marginal veins and tertiary veins not visible. FLOWER BUDS ca. 8 mm long, pyriform, the hypanthium ca. 4 mm long, the distal portion of bud subglobose, ca. 4 mm long; *indumentum pattern of buds* with all external surfaces and calyx lobes within densely tomentulose; *peduncles* uniflorous, borne in the axils of leaves or at leafless node, 6–8 mm long, probably ca. 0.8 mm thick in flower, ca. 1.5 mm thick at midpoint at maturity, wider at base and apex; *bracteoles* not seen. CALYX closed in the flower bud, tearing in 5 more or less regular lobes, the lobes in fruit about hemiorbicular, 5–6 mm long and wide, the tears between lobed not penetrating the staminal ring; *petals* 4–5 mm long, 3.5–4 mm wide, ciliate; *stamens* 130–190*; anthers* ca. 1 mm long; *style* ca. 3.5 mm long, glabrous*; ovary* 2-locular*,* the ovules at least 20 per locule, uniseriate on a peltate placenta. FRUIT to ca. 2 cm in diam., globose; seeds 3–4, 6–9 mm long, with rounded and flat sides.

Representative specimens examined. These paratypes, seen as images only: **Boa Nova**, Parque Nacional de Boa Nova, Setor Sudoeste, Rancho do Sacramento, Gurutunga, 14°21’07’’S, 40°15’00’’W, 925 m, 8 Jan 2013 (fl), *Aona* et al. *2005* (photo specimen at ASU); **Maracás**, margem da estrada entre Maracás e Planaltino, 13°23’19’’S, 40°28’22’’W, 938 m, 19 Oct 2014 (fr), *Faria* et al. *4160* (photo specimen at ASU).

Phenology—Flowering in January and April; fruiting in April and October.

Habitat and Distribution—Semideciduous forest (“mata de cipó”). Apparently endemic to Bahia. Brazil.

Distinguishing Features—Young growth reddish brown tomentulose; leaves mainly oblanceolate with revolute margins; calyx closed; seeds few, ca. 8 mm long.

Psidium rotundidiscum is similar to *P. rufum,* especially because they share a dense indumentum of curly, reddish-brown hairs. *Psidium rufum* differs in having an open calyx and seeds that are 4–5 mm long.

55. *Psidium rufum* DC., Prodr. 3: 234. 1828. TYPE. Brazil. "campis montanis prov. Minarum." *Martius s.n.* (SYNTYPES: M-32382, a flowering specimen with annotation by de Candolle; an additional Martius specimen in fruit is M-32383, probably part of original material as de Candolle mentions fruits in protologue). Fig. 61

Psidium macrospermum O. Berg, in Mart., Fl. bras. 14(1): 392. 1857. TYPE. Brazil. "Serra dos Orgaos prov. Rio de Janeiro." *Beyrich s.n.* (SYNTYPE: B, lost) *and* "ad S. Rey." *Sellow s.n.* (SYNTYPE: B, lost; LECTOTYPE: P-258425!, designated here; ISOLECTOTYPE: K-170089).

Psidium cupreum O. Berg, in Mart., Fl. bras. 14(1): 393. 1857. TYPE. Brazil. "in prov. Rio de Janeiro." *Sellow 223l* (HOLOTYPE: B, lost; LECTOTYPE: P-258471!, designated ["neotype"] by Proenca et al. (2020); ISOLECTOTYPES: BR-848969!, F-65692!, K-170091, LE-6974, , W-46103!).

Psidium aerugineum O. Berg, in Mart., Fl. bras. 14(1): 391. 1857. Type. Brazil. "in campis prov. Rio Grande do Sul," *Sellow s.n.* (HOLOTYPE: B, lost; ISOTYPE: LE-6972).

Psidium widgrenianum O. Berg, in Mart., Fl. bras. 14(1): 392. 1857. TYPE. Brazil. "in prov. Minarum", *Widgren 534* (HOLOTYPE: Sonder herbarium; ISOTYPE: SP-1394)

Psidium aerugineum var. ***angustifolium*** O. Berg, in Mart., Fl. bras. 14(1): 601. 1859. Type. Brazil (HOLOTYPE: LE; possibly based on same LE-6972 cited above).

?*Psidium widgrenianum* var. ***grandifolium*** O. Berg, Linnaea 30:705. 1861. TYPE. Brazil. Minas Gerais, *Claussen s.n.* (HOLOTYPE: Lenormand herbarium, not found).

Guajava macrosperma (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Guajava cuprea (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Guajava aeruginea (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Guajava widgreniana (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Psidium rufum var. ***rotundifolium*** Kiaersk., Enum. Myrt. bras. 31. 1893. TYPE. Brazil. "Lagoa Santa," *Warming s.n.* (HOLOTYPE: C-10015965).

Psidium lagoense Kiaersk., Enum. Myrt. bras. 30, tab. 3, fig. f. 1893. TYPE. Brazil. "Ad Lagoa Santa in sivulis [*Warming 1*] et in silvis in monte da Serra da Piedade [*Warming 112*]," both mounted on a single sheet. *Warming 1* (SYNTYPE: C-10015958) and *Warming 112* (SYNTYPE: C-10015961).

Psidium cupreum var. ***glabratum*** Kiaersk., Enum. Myrt. bras. 29. 1893. TYPE. Brazil. "Rio de Janeiro," *Glaziou 16989* (HOLOTYPE: C-10015951; ISOTYPES: BR-526987!, K-170090).

Psidium araca var. ***sampaionis*** Herter, Arq. Mus. Nac. Rio de Janeiro 18: 12, 26. 1916. Nomen nudum. Historical annotated specimen. Brazil. R! [= ASU photo].

Psidium pilosum var. ***rotundifolia*** (Kiaersk.) Mattos, Loefgrenia 124: 4. 2007.

Tree or shrub 0.4–8 m high, moderately to densely pubescent on young growth; *hairs* curly, more or less erect or less often appressed, up to ca. 1 mm long, usually reddish brown (less often whitish or yellowish); *young twigs* densely pubescent, reddish brown, the hairs persisting until the first bark falls, the older bark grayish to reddish brown, rough or smooth. LEAF BLADES elliptic, oblong-elliptic, narrowly elliptic, obovate, or oblanceolate, 5–12 cm long, 1.3–5.5 cm wide, 1.6–3.8(–5.2) times as long as wide, stiffly coriaceous at maturity, often bullate or with the appearance of old leather because of impressed veins, drying gray-green to reddish brown; *apex* rounded, acute, or acuminate; *base* acute, acuminate, or cuneate; *petiole* shallowly channeled, (2–)3–9 mm long, 1–2 mm wide, moderately to densely pubescent; *venation* brochidodromous, the midvein impressed above, prominent below, the lateral veins straight, 7–12 pairs, prominent below, often impressed above, leaving the midvein at an angle of ca. 45°, the marginal veins arching somewhat between laterals, usually running within 1–4(–5) mm of the margin, a second weak marginal vein near the margin sometimes evident, the tertiary veins impressed or not above, forming an irregular or regular dendritic pattern that alternates with laterals, if regular appearing to arise from the marginal vein. FLOWER BUDS 6–12 mm long, pyriform, the hypanthium obconic, 2–4 mm long, the distal portion of bud subglobose, sometimes wider than long, 4–

8 mm long; *indumentum pattern of buds* with all external surfaces densely covered with spreading or appressed hairs, or the calyx less densely covered, the petals pubescent to subglabrous without, sometimes ciliate, glabrous or nearly so within, the disk with the staminal ring densely to sparsely pubescent, the style glabrous or less often basally pubescent; *peduncles* 2–14 mm long, 0.5–1 mm wide, solitary in the axils of leaves or bracts or at leafless nodes; *bracteoles* linear (2–)4–12 mm long, up to 1 mm wide. CALYX open in bud, bowl-like, the lobes broadly rounded, scarcely prolonged beyond rim, 0.5–2 mm long (rarely triangular and up to 6 mm long), the tubular portion of calyx tearing between the lobes at anthesis, the tears not penetrating the staminal ring; *petals* 6–8 mm long; *disk* 4–5 mm across; *stamens* 160–280, 5–10 mm long; *anthers* 0.5–1 mm long, with a terminal gland and up to 4 smaller glands below; *style* 4–7 mm long; *ovary* 3-locular, the locules pubescent within; *ovules* 9–27 per locule, 1–2-seriate on each lamina, the placenta usually slightly peltate. FRUIT globose, up to 2 cm across; *seeds* 4–23, 4–5 mm long.

Representative specimens examined. BRAZIL. **Bahia**: Piatã, Serra do Atalho, próximo ao caminho velho de Inúbia-Cravada, (13.12°S, 41.92°W), 1420 m, 20 Aug 1992 (fr), *Ganev 909* (HUEFS); Rio de Contas, perto do Pico das Almas, Queiroz, (13.53°S, 41.95°W), 21 Feb 1987 (fr), *Harley 24582* (ASU0008273); Rio de Contas, trilha Catolés-Caiambola, pico do Itobira, (13.58°S, 41.81°W), 1700 m, 23 Mar 1999 (fr), *Nascimento 150* (ASU0008276). **Distrito Federal**: Reserva Ecológica do IBGE, mata ciliar do corrego Taquara, (15.91°S, 47.90°W), 22 May 1989 (fr), *Alvarenga 264* (RB). **Espírito Santo**: 1 km W de Venda Nova do Imigrante, entrada a Alto Bananeiras, 5–7 km de BR-262, (20.30°S, 41.13°W), 27 Jan 1997 (fl), *Arbo 7724* (ASU0008278); Domingo Martins, (20.37°S, 40.67°W), 16 Jun 1985 (fl), *Hatschbach et al. 49420* (MBM). **Goiás**: Campus U. E. G.- Anápolis, (16.38°S, 48.97°W), 20 Dec 2005, *Faria 194* (ASU0018565). **Minas Gerais**: Mun. Rio Paranaíba, faz. Olhos D'Água, ca. 11 km da cidade, propriedade do Sr.Antonio Marciano Filho, (19.15°S, 46.25°W), 18 Feb 1994 (fr), *Aparecida da Silva 1908* (ASU0008265); Rio Preto, margem da estrada entre e a vila Funil, (22.03°S, 43.84°W), 927 m, 28 Nov 2012 (fl), *Faria 3091* (ASU0082716); Serra Azul, Rodovia de Minas para Rio Vermelho, Rod. BR-259, (20.07°S, 44.43°W), 22 Nov 1997 (fl), *Hatschbach 67410* (ASU0008261); Caete, Serra da Piedade, (19.82°S, 43.67°W), 27 May 1997 (fr), *Kawasaki 1002* (SP); Ouro Preto, Camarinhas, (20.38°S, 43.50°W), 19 Mar 1998 (fr), *Kawasaki 1065* (ASU0008263); Viçosa, E.S.A.V, (20.75°S, 42.88°W), 21 Nov 1935 (fl), *Kulmann 2444* (MICH); São Gonçalo do Rio Preto. Parque Estadual do Rio Preto, trilha do alojamentoate o Corrego das Eguas, (18.12°S, 43.34°W), 19 Feb 2002 (fr), *Lombardi 4560* (ASU0008262); Minduri, 7 km ao nordeste de , na rodovia Caxambu-Barbacena, (21.68°S, 44.62°W), 870 m, 27 Nov 1967 (fl), *Mattos 15236* (SP); Alto Caparaó, Parque Nacional do Caparaó, estrada para a Tronqueira, (20.40°S, 41.90°W), 20 Oct 1999 (fr), *Mazine 227* (ASU0008259); Diamantina, Chácara das Bicas, (18.25°S, 43.60°W), 1270 m, 29 Apr 1931 (yfr), *Mexia 5714* (CAS, MICH, MO, NY, R); Descoberto, Res. Bio. Represa do Grama, (21.46°S, 42.96°W), 2 Dec 2001 (fl), *Pifano et al. 221* (ASU0008260); Serra do Cipó, Santana do Pirapama, Faz. Inhame (Serra Mineira), (18.92°S, 43.90°W), 22 Mar 1982 (fr), *Pirani et al. CFSC 8087* (SPF); Santana do Riacho, Km 111 ao longo da rod. Belo Horizonte-Conceição do Mato Dentro, (19.20°S, 43.70°W), 21 Feb 1986 (fr), *Semir et al. CFSC 9595* (SPF); Belo Horizonte, near Matadoura da Onca, (19.92°S, 43.93°W), 900 m, 25 Sep 1945 (fl), *Williams 8061* (LIL, MO, NY, R). **Paraná**: Campina Grande do Sul, Sitio do Belizário, (25.30°S, 49.08°W), 17 May 1967 (fr), *Hatschbach 16421* (MBM); Piraquara, Mananciais da Serra, (25.43°S, 49.07°W), 21 Feb 1968 (fl), *Hatschbach 18625* (MICH); Rio Branco do Sul, Serra do Caeté, (25.17°S, 49.30°W), 5 Dec 1995 (fl), *Kawasaki 927* (ASU0008255); Vila Velha, alrededores del Camping, (25.15°S, 50.67°W), 13 Jan 1987 (fr), *Krapovickas 40817* (ASU0008256, CTES). **Rio de Janeiro**: Novo Friburgo, (22.27°S, 42.53°W), 5 Nov 1881 (fl), collector unknown (R); Laranjeiras, (22.93°S, 43.19°W), 4 Nov 1863 (fl), *Glaziou 349* (ASU0008268-photo). **São Paulo**: Socorro, estrada das Gabirobas, (22.60°S, 46.53°W), 8 Oct 1994 (fl), *Arbocz 889* (SP); São José do Barreiro, P. N. da Bocaina, Charquinho, (22.65°S, 44.58°W), 22 Jul 1994 (fr), *Catharino 1994* (ASU0008258); São Paulo, (23.45°S, 46.16°W), 700 m, 6 May 1980 (fr), *Collares 6* (RB); Buritizal, próximo a Torre de TV na entrada de Buritizal, (20.18°S, 47.73°W), Sep 1989 (fl), *Fernandez* s.n. (ASU0008266); Botucatu, distr. Rubião Junior, J. Bot. do Inst. de Biociências-UNESP, (22.87°S, 48.43°W), 870 m, 8 Apr 1994 (fr), *Galhego 5* (SP); Caieiras, (23.37°S, 46.73°W), 10 Oct 1945 (fl), *Hoehne* (SP); Jarinu, (22.25°S, 47.82°W), 28 May 1969 (fr), *Kuhlmann* (NY); Mogi Guaçu, (22.37°S, 46.95°W), 15 Oct 1942 (fl), *Kulmann & Goncalves* (NY).

Phenology—Flowering mainly in October and November; fruiting throughout year.

Habitat and Distribution—Forests and campos at elevations of 870–1700 m. Brazilian endemic from Bahia to Paraná.

Distinguishing Features—Flower buds densely covered with usually reddish brown hairs; calyx bowl-like, open, usually with evident lobes; leaf blades stiffly coriaceous at maturity, often bullate or with the appearance of old leather because of impressed veins**.**

Psidium rufum is sometimes confused with *P. laruotteanum*. They are directly contrasted in lead 3 of Key 1-C.

Proença et al. (2020) support dividing this species into two: *Psidium rufum* and *P. cupreum* based on morphology, molecular studies, phenology, and field studies. For differences separating these two entities see their paper. My concept of P. *rufum* is a variable inclusive species that may have more than one morph living in a single place. It certainly deserves more study.

56. *Psidium rutidocarpum* Ruiz & Pavon ex G. Don, Gen. Hist. 2: 833. 1832. TYPE. Illustration, tab. 420, fig. b, in manuscript of Vol 4 of Flora Peru of Ruiz & Pavon and SYNTYPES: Peru. Pozuzo and Chincao. *Ruiz & Pavon*, MA-813705, designated here as LECTOTYPE; additional SYNTYPES: MA-813704, MA-817759, MA-817760, MA-817761, MA-817762, MA-817763; ISOSYNTYPES: F, G).

Fig. 62

The specimens collected by Ruiz and Pavon from Pozuzo and Chinchao were the basis of the illustration cited in the protologue (tab. 420, fig. b), which was seen but not published by Don (1832). One of these specimens, MA-813705, is here designated as the LECTOTYPE and would have been seen by Ruiz and Pavon, but probably not by Don.

Psidium ruizianum O. Berg, Linnaea 27: 365. 1856. An illegitimate name because the type of *P. rutidocarpum*, plate ["421"] 420 b, is cited in the protologue. TYPES. "v. In hb. Berol. et Vind." SYNTYPE collections two: 1—"Pajonal del cerro de San Cristóbal ad Cuchero" [Cochero, ca. 9.5°S, 76°W], *Poeppig 1716* (LECTOTYPE designated here, W-48045! [=F. neg. 31433], annotated by Berg, the apparent sole surviving syntype; ISOLECTOTYPES: G-227599, LE-7004?, P-258380!); and 2—"ad Pozuzo," *Ruiz s.n.* (SYNTYPE: B, lost; ISOSYNTYPES: F-76396f!, G-227598, MA-813704, MA-813705, MA-817759, MA-817760, MA-817761, MA-817762, MA-817763).

McVaugh (1958) cited the Poeppig collection (not specifying an herbarium specimen) as "paratype" implying that the holotype was a Ruiz collection but no Ruiz collection from B or W has been found. *Poeppig 142* [considered by McVaugh (1958) to be equivalent to *Poeppig 1716*] annotated by Berg (HAL-89788) may also be original material.

Psidium pratense Poepp. ex O. Berg, Linnaea 27: 365. 1856, nomen nudum (cited as a as a synonym).

Psidium xidocarpum Ruiz ex O. Berg, Linnaea 27: 365. 1856, nomen nudum (cited as a as a synonym).

Guajava ruiziana (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Psidium rypdocarpum Ruiz & Pav. ex McVaugh, Fieldiana, Bot. 29: 800. 1956, nomen nudum (cited as a as a synonym).

Psidium rypdocarpum Ruiz & Pavon, Anales Inst. Bot. Cavanilles 15: 193. 1957. An illegitimate name because the type of *P. rutidocarpum*, tab. 420, fig. b, is cited in the protologue. TYPE. Peru. "ad Pozuzo [10.07°S, 75.55°W] et Chinchao [9.57°S, 76.13°W]," *Ruiz & Pavon*. Of five syntypes at MA [see above

as syntypes of *P. rutidocarpum*], MA-813705, the designated lectotype of *P. rutidocarpum,* is designated here as LECTOTYPE of *Psidium rypdocarpum*; this specimen is annotated twice in an apparently non-modern handwriting as *Psydium rypdocarpum* and twice, apparently by Burret, as *Psidium ruizianum* Berg.

The species was illustrated and described as *Psidium rypdocarpum* in a manuscript by Ruiz and Pavon but not published until 1957. Apparently using a copy of their illustration, G. Don described the species with a slightly different name but attributing the new species to Ruiz and Pavon. It may be that Don also saw a specimen but none is mentioned. Don describes the branches as terete and the leaves as wrinkled, characters that are more likely interpreted from the illustration than a specimen. The young twigs are 4-angled as mentioned by Ruiz and Pavon in their description of *P. rypdocarpum* and the leaves are not wrinkled but may appear that way in the illustration.

Tree 5–11 m high, pubescent on young growth and lower leaf surfaces, the trunk "mottled reddish brown, peeling" (ex Smith); *hairs* reddish brown to whitish, usually curled, ca. 0.5(–1) mm long; *young twigs* quadrangular, winged, moderately to densely pubescent, the bark falling in about 1 year, the older twigs more or less smooth or scaly, round, the scales gray, the inner bark dark reddish brown. LEAF BLADES lanceolate, often narrowly so, 4–11 cm long, 1.4–3.4 cm wide, (2–)2.9–4.4 times as long as wide, coriaceous, drying dark reddish brown to dark gray-green, the margin slightly revolute; *apex* attenuate-acuminate; *base* rounded to obtuse; *petiole* channeled, pubescent, 3–5 mm long, ca. 1.2 mm thick; *venation* mainly eucamptodromous, sometimes brochidodromous distally, the midvein impressed above, prominent below, the lateral veins 11–25 prominent pairs, usually impressed above, ascending at an angle of ca. 45 degrees, nearly straight but curving upwards near margin, the tertiary veins numerous (more than 10 per cm of lateral), connecting the laterals in more or less ladder-like pattern. FLOWER BUDS unknown but probably similar to *P. guajava* or *P. guineense*; *indumentum pattern of buds* probably with external surfaces glabrous to moderately pubescent, the inner surface of the calyx densely covered with reddish brown hairs, the disc subglabrous; *peduncles* 5–23 mm long, 1–1.2 mm thick; *bracteoles* unknown. CALYX closed in bud, tearing irregularly, usually in 3 to 5 parts, tearing to staminal ring, but usually not cutting into it; *petals* unknown; *hypanthium* with ca. 10 poorly defined longitudinal ridges (in young fruits at least); *disk* ca. 5 mm across; *stamens* ca. 300; *anthers* unknown; *style* unknown; ovary 3-locular; *ovules* 25–40 ovules per locule. FRUIT subglobose, 1.5–2.5 cm long; *seeds* 65–90, ca. 2.5 mm long.

Representative specimens examined. **PERU**. **Huanuco**: Depto. Huanuco, abajo de Muña, valle Huallagua, (9.66°S, 75.82°W), 1800 m, 23 Jul 1913 (yfr), *Weberbauer 6793* (F, USM). **Junin**: Yaupe, (10.75°S, 75.54°W), 1580 m, 4 Jul 1961 (fr), *Woytkowski 6406* (ASU0008280-photos, MICH, MO). **Pasco**: 3–7 km N of Puente Paucartambo, (10.67°S, 75.42°W), 30 Jan 1983 (ofl), *Gentry et al. 39844* (ASU0008279, MO); Oxapampa, Pozuzo, Estación Biológica Huampal, Parque Nacional Yanachaga-Chemillén, alrededores de la estación, (10.18°S, 75.57°W), 898 m, 24 Apr 2011 (yfr), *Rojas 7939* (ASU0300549); Oxapampa, PNYCH, Huampal, Trocha Carretera, (10.20°S, 75.59°W), 1000 m, 2 Feb 2010 (yfr), *Tupayachi et al. 6383* (ASU, MOL).

Phenology—Probably flowering and fruiting throughout the year.

Habitat and Distribution—Wet forest and grassy areas, 900–3500 m; endemic to eastern lower slopes of the Andes of central Peru.

Distinguishing Features—Leaves lanceolate, often narrowly so, 4–11 cm long, (2–) 2.9–4.4 times as long as wide; apex attenuate-acuminate; venation mainly eucamptodromous, sometimes brochidodromous distally, the lateral veins 11–25 prominent

pairs, usually impressed above, nearly straight but curving towards apex near margin, the tertiary veins numerous (more than 10 per cm of lateral), connecting the laterals in more or less ladder-like pattern; inner surface of the calyx densely covered with reddish brown hairs.

This species is very similar to *Psidium guajava* and is compared with it directly in Key 2-C, lead 8.

According to Poeppig the fruits of *P. rutidocarpum* are 1-2 cm long and bitter. According to Ruiz and Pavon (1957) the common names are "Huayabo de Monte" and "Monte-Sahuintu." Woytkowski reports that a decoction of the leaves and bark are hemostatic.

57. *Psidium salutare* (Kunth) O. Berg, Linnaea 27: 356. 1856.

Myrtus salutaris Kunth, Nov. gen. sp. 6: 132. 1823. TYPE. Venezuela. "Carichanam, ad ripam Orinoci", *Humboldt & Bonpland s.n.* (HOLOTYPE: P-679449; ISOTYPE: B [=B1263/11 photo at MICH]).

Subshrub or shrub up to ca. 1.5 m high (often less than 0.5 m high), with new shoots arising from a woody subterranean base or rhizome, with shoots often short lived, or in *Psidium salutare* var. *pohlianum* sometimes reaching tree size (up to 10 m high), glabrous, glabrous except for disk and calyx lobes within, or sparsely to moderately pubescent on young growth, or silvery lanate in one variety; *hairs* when present whitish, 0.3–1 mm long; *young twigs* glabrous to densely pubescent, reddish brown, becoming grayish, the older bark gray to reddish brown, becoming flaky. LEAF BLADES opposite or alternate on some shoots (rarely ternate), ovate, lanceolate, elliptic, narrowly elliptic, obovate, oblanceolate, (1–)2–9 cm long, 0.6–5.5 cm wide, 1.4–5 times as long as wide, stiffly coriaceous at maturity, drying reddish brown to gray-green, dull or lustrous above, the margin entire to somewhat revolute; *apex* obtuse, acute to acuminate, abruptly acuminate, sometimes apiculate; *base* cuneate, obtuse, or rounded; *petiole* 0–2(–3) mm long, 1–1.5(–2) mm wide; *venation* brochidodromous, the midvein normally flat or slightly raised above, prominent below, the lateral veins 5–12 pairs, prominent to scarcely visible, leaving the midvein at an angle of ca. 45 degrees or less, nearly straight, the marginal veins arching shallowly between laterals, equaling laterals in prominence, running 0.2–2 mm from the margin, the tertiary veins forming a dendritic pattern between the laterals, sometimes appearing to arise from the marginal vein or the midvein. FLOWER BUDS pyriform, 4–7 mm long, the hypanthium obconic to campanulate, 1–3 mm long, the distal portion subglobose, wider than long, 2.5–4.5 mm long; *indumentum pattern of buds* with all surfaces glabrous, glabrous except for disk and calyx lobes within, or sparsely to moderately pubescent or silvery lanate except for glabrous petals, disk, and style; *peduncles* axillary, uniflorous or triflorous, 0.4–3.5 cm long, 0.5–0.8 mm wide; *bracteoles* linear to lanceolate, deciduous or persisting, 2–9 mm long, 0.5–2 mm wide. CALYX open, bowl-like, tearing ca. 1 mm between the lobes at anthesis, the lobes broadly rounded to ovate-triangular, 0.5–5(–6) mm long, 2–3(–4) mm wide; *petals* obovate to suborbicular, 5–11 mm long; *disk* 3–4(–5) mm across; *stamens* 100–200, 5–12 mm long; *anthers* subglobose to oblong, 0.3–0.8 mm long, with 1–3 glands; *style* 5–8 mm long; *ovary* 2–3-locular; *ovules* 9–48 per locule, uniseriate or biseriate along edge of the placenta, this strongly to scarcely peltate. FRUIT globose to subglobose, 8–10 mm in diam.; *seeds* 4–20, 4–8 mm long, subovoid.

Distinguishing Features—*Psidium salutare* is differentiated from other species of the genus by: usually being a subshrub or shrub (but reaching tree size in var. *pohlianum*);

glabrous or sparsely pubescent except in var. *sericeum*; mainly living in grasslands or low shrubby growth (cerrado) that is frequently burned; an ability to sprout back from underground stems even after fires; leaves with a well-marked marginal vein that closely follows the margin and tertiary veins that form a reticulate-dendritic pattern; relatively small flower buds (4–7 mm) with the calyx open; and a peltate placenta with 1–2(–3) rows of ovules on the edge of each lamina.

Phenology, habitats, and distribution are discussed under each variety.

Psidium salutare is a widespread and variable species, for which I have recognized five varieties (Landrum 2003). Others may consider these entities to be species and have even recognized additional segregates (Soares-Silva & Proença 2006). Legrand and Klein (1977, p. 723) noted the difficulty in distinguishing some of these entities but chose to retain them at the specific level. One might speculate that these morphological entities represent adaptive syndromes of characters for somewhat different niches. In-depth studies of these varieties, including population samples, field studies, estimates of genetic distinctness and exchange, and transplant experiments should prove interesting in the future, especially for sympatric varieties (e.g., var. *sericeum* and var. *cuspidatum*). As recognized here, there is still considerable variation in var. *salutare* to which specimens unassignable to any of the other varieties are tentatively placed.

Two of the names used in my revision of the *Psidium salutare* complex (Landrum 2003), must necessarily change: *P. salutare* var. *mucronatum* and *P. salutare* var. *decussatum*.

Myrtus mucronata Cambess. (1833), the basionym for *P. salutare* var. *mucronatum*, is a later homonym of *Myrtus mucronata* Pers. (1806). And that epithet cannot be used at the varietal level as a new name, because earlier varietal names exist. At the same time that Berg described *M. mucronata*, he proposed *M. cuspidata* and *M. suffruticosa*, each with varieties. In my opinion these all belong to the same variety of *P. salutare*. The autonym epithets of each have priority over the varieties he proposed. I have chosen *Myrtus cuspidata* as the basionym of a new name of the entity that has erroneously been called *P. salutare* var. *mucronatum* for the last 22 years.

Psidium decussatum, the basionym of *P. salutare* var. *decussatum*, has been proven to be a distinct species not closely related to *P. salutare* (Conceição et al. 2025). The group of specimens to which the name has been applied does not have a name at the varietal level. Therefore, a new one is proposed below, *P. salutare* var. *resiliens*. Some colleagues are describing the same entity with a different name at the specific level (Proença, pers. com.).

1. Young leaves densely covered with hairs beneath, the lower surface of the leaf often hidden; Argentina, Uruguay, Paraguay, Rio Grande do Sul, Santa Catarina, Paraná..... ***P. salutare*** var. ***sericeum***

1’ Young leaves glabrous to moderately pubescent beneath; distributions various.

2. Leaves 4–9 cm long, 2–5 cm wide, elliptic to obovate; usually shrubs to small trees, the bark of older stems light gray, thick, with deep fissures; plants glabrous; central Brazil, Bolivia to Venezuela… ..... ***Psidium salutare*** var. ***pohlianum***

2’ Leaves mostly 2–7 cm long, 1–3.3 cm wide, variously shaped; usually subshrubs, the bark not thick, not deeply fissured; plants glabrous to pubescent.

3. Leaves mostly narrowly elliptic to lanceolate, with pronounced venation above and below, raised on both surfaces; apex apiculate; peduncle uniflorous; northern Argentina, Uruguay, Paraguay, southern Brazil……..... ***P. salutare*** var. ***cuspidatum***

3’ Leaves various, mainly without pronounced venation; apex usually not apiculate; peduncles 1–3-florous; Paraguay, Paraná, Brazil to Mexico and Caribbean.

4. Leaves elliptic to narrowly elliptic, 0.7–1.7 cm wide, mainly 3–4.5 times as long as wide; marginal vein ca. 0.5 mm from margin; Pananá to Goias, Brazil..... ***P. salutare*** var. ***resiliens***

4’ Leaves elliptic, lanceolate, oblanceolate, ovate, or obovate, 1–3.3 cm wide, mainly 1.6–3 times as long as wide; marginal vein ca. 1 mm from margin; Paraguay, Paraná, Brazil to Mexico and Caribbean…….....…….***P. salutare*** var. ***salutare***

57a. *Psidium salutare* var. *salutare* Figs. 66–68

Myrtus salutaris Kunth, Nov. gen. sp. 6: 132. 1823. ≡ ***Psidium salutare*** (Kunth) O. Berg, Linnaea 27: 356, as to type. 1856.

Myrtus arayan Kunth, Nov. gen. sp. 6: 133. 1823. TYPE. Ecuador. “prope Gonzanamam Peruvianorum, ad ripam fluminis Catamayo,” *Humboldt & Bonpland s.n.* (HOLOTYPE: P-679197; ISOTYPE: P-258353!).

Psidium ciliatum Benth., J. Bot. (Hooker) 2: 318. 1840. TYPE. Guyana. “dry savannahs,” *Schomburgk s.n.* (HOLOTYPE: K-565505!; ISOTYPES: [*Schomburgk 365*], P-258378!, = ASU photo!, W, = F neg.-31434!).

Eugenia guayavillo Benth., Plantas Hartwegianas, 174. 1845. TYPE. Colombia. “Popayán,” *Hartweg 977* (HOLOTYPE: K-170068, = ASU photo!).

Psidium guayabita A. Rich., Ess. Fl. Cub. 581. 1846. TYPE**.** Cuba. “Vuelta de Abajo,” *J. M. Valenzuela s.n, (*LECTOTYPE: P-87092! [syntype designated as lectotype by Landrum, 2003], = ASU photo!; ISOLECTOTYPE: P-258510!).

Eugenia arayan (Kunth) Seem., Bot. Voy. Herald [Seemann] 4: 125. 1854.

Psidium oerstedeanum O. Berg, Linnaea 27: 360. 1856. TYPE**.** Costa Rica & Guatemala. “Provincia Guanacaste” (Oersted) & “Rincón in Guatemala” (Friedrichsthal), *Oersted s.n. & Friedrichsthal 1226* (SYNTYPES: W and “hb. Oersted. no16”; SYNTYPE: C-10015962 [*Oersted 4004*], = ASU photo!).

Psidium salutare var. ***subalternum*** O. Berg, Linnaea 27: 357. 1856. TYPE. Guyana. “ad flumen Tacutu,” *Rich. Schomburgk 498 & 1252; Rob. S. 365* (SYNTYPES: B, lost; LECTOTYPE: *Schomburgk 365*, P-258378!: [isosyntype designated as lectotype by Landrum, 2003], = ASU photo!).

Psidium salutare var. ***laxum*** O. Berg, Linnaea 27: 357. 1856. TYPE. Venezuela. “Orinoco, ad Upata,” *Otto 987* (HOLOTYPE: B, lost; LECTOTYPE: LE-7005 [isotype designated as lectotype by Landrum, 2003], = ASU photo!; ISOTYPES: MEL-2397977, possible isotype W, = F neg.-31435!).

Psidium salutare var. ***strictum*** O. Berg, Linnaea 27: 356. 1856. Illegitimate name to be replaced by *P. salutare* var. *salutare* because *Myrtus salutaris* Kunth is cited as a synonym.

Myrtus rigida O. Berg, in Mart., Fl. bras. 14(1): 417 1857. TYPE. Brazil. “ad Paranapitanga distr. Itapeva in prov. S. Pauli,” *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258328! [isotype designated as lectotype by Landrum, 2003], = ASU photo!).

Myrtus blanchetiana O. Berg, in Mart. Fl. bras. 14(1): 418. 1857. TYPE. Brazil. “Bahia,” *Blanchet 3310* (HOLOTYPE: B, lost; LECTOTYPE: P-258350! [isotype designated as lectotype by Landrum, 2003], = ASU photo!; ISOLECTOTYPES: F-76369f!, G-227665!, P-258351!, P-258505!),

Myrtus sagraea O. Berg, Linnaea 30: 710. 1860. TYPE. Cuba. without locality, *De la Sagra s.n.* (HOLOTYPE: P-258327!, = ASU photo!).

Psidium lanceolatum O. Berg, Linnaea 30: 704. 1861. TYPE. Brazil. without specific locality, “herbarium Richard” (HOLOTYPE: P-258430!, = ASU photo!).

Psidium guayabita var. ***oblongatum*** Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. without locality, *Wright 2436* (HOLOTYPE: GOET; ISOTYPES: MICH!, MO!, NY-1365086!, NY-1365087!, = ASU photo!, P-258509!).

Psidium guayabita var. ***angustifolium*** Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. without locality, *Wright 2436a* (HOLOTYPE: GOET).

Calycolpus parviflorus Sagot, Ann. Sci. Nat. (Paris) VI. 20: 181. 1885. TYPE. French Guiana. without locality, *Leprieur s.n.* (LECTOTYPE: P-258376! [syntype designated as lectotype by Landrum, 2003], = ASU photo!; ISOLECTOTYPE: P-258377!).

Guajava ciliata (Benth.) Kuntze, Rev. Gen. 240. 1891.

Guajava guayabita (A. Rich.) Kuntze, Rev. Gen. 240. 1891.

Guajava lanceolata (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Guajava oerstediana (O. Berg) Kuntze, Rev. Gen. 240. 1891.

Guajava salutaris (Kunth) Kuntze, Rev. Gen. 240. 1891.

Psidium deltosepalum Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 799. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Vaqueria Capibary," *Hassler 4400* (G![3 specimens, = ASU photos!], K-565504, NY-1288044!, P-258470!).

Psidium valenzuelense Barb. Rodr. ex Chodat & Hassl., Bull. Herb. Boissier 7: 798. 1907, nomen nudum. CITED COLLECTION. Paraguay. "pr. Valenzuela," *Hassler 6947* (G!, 2 specimens, NY-1288097!).

Psidium arayan (Kunth) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941.

Psidium blanchetianum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 483. 1941.

Psidium rigidum (Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941.

Psidium gentlei Lundell, Amer. Mid. Nat. 29: 483. 1943. TYPE. Belize. Toledo Dist., "Monkey River, Jenkins Creek," 1 Aug 1942 (fr), *Gentle 4062* (HOLOTYPE: MICH-1210412!; ISOTYPES: MO!, LL-372191!, NY-1288050!).

Psidium chiapasense Lundell, Wrightia 2: 204. 1961. TYPE. Mexico: Chiapas, Trapichito, near Comitan, 1350 m, 2 Jun 1945 (fl), *E. Matuda 5769* (HOLOTYPE: LL-372188; ISOTYPES: LL-372189, MEXU-90769, S-g-5089).

Myrcianthes reptans D. Legrand, Bol. Univ. Paraná Fac. Farm. 27: 1–3. 1971. TYPE. Brazil. Paraná, "Mun. Palmeira, Faz. S. Amelia," *Hatschbach 17697* (HOLOTYPE: MVM; ISOTYPES: HB!,= ASU photo!, MICH-1210166, UC-1387361, US-288636).

Mosiera sagraea (O. Berg) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 4. 1985.

Psidium reptans (D. Legrand) Soares-Silva & Proença, Kew Bull. 61(2): 203. 2006.

Usually a subshrub less than 0.5 m high; leaf blades elliptic, lanceolate, oblanceolate, ovate, or obovate, 3–7 cm long, 1–3.3 cm wide, 1.6–3.2 times as long as wide, glabrous to moderately pubescent; venation obscure to moderately pronounced, the marginal vein usually about 1 mm from margin; apex usually without an apiculum; peduncle 1–5 cm long, uniflorous or triflorous; calyx-lobes shorter or longer than the calyx tube, acute to rounded.

Representative specimens examined. BELIZE. **Cayo**: Augustine, Mountain Pine Ridge, (16.97°N, 89.00°W), 11 May 1959 (yfr), *Hunt 188* (US); upper 200 m of Baldy Beacon, (17.00°N, 88.79°W), 1000 m, 10 Jul 1970 (fr), *Spellman 1647* (MO). **Toledo**: Monkey River, Jenkins Creek, (16.47°N, 88.42°W), 1 Aug 1942 (fl), *Gentle 4062 C* (MICH).

BOLIVIA. **Santa Cruz**: P. N. Noel Kempff Mercado, Los Fierros, (14.61°S, 60.86°W), 26 Oct 1993 (fr), *Killeen 5943* (ASU0005043); P. N. Noel Kempff Mercado, Las Gamas, (14.81°S, 60.40°W), 900 m, 1 Nov 1995 (fl), *Killeen & Grinwood 7822* (SP); P. N. Noel Kempff Mercado, 6 km NE del campamento Las Gamas, (13.89°S, 60.81°W), 28 Oct 1995 (fl), *Rodriguez & Surubi 549* (ASU0005032).

BRAZIL. **Ceará**: Crato, Chapada do Araripe, ca. 15 km SW of Crato on BR-122, (7.50°S, 39.58°W), 860 m, 9 Jan 1983 (fl), *Plowman & Tavares Cacula 12704* (F). **Distrito Federal**: Brasilia, P. N., (15.78°S, 47.92°W), 30 Sep 1972 (fr), *Ratter et al. 2545* (MICH). **Goiás**: Serra do Caiapó, 35 km S of Caiapônia on road to Jataí, (17.35°S, 51.78°W), 800 m, 29 Oct 1964 (fl), *Irwin et al. 7552* (CAS, NY); Serra dos Cristais, ca. 10 km W of Cristalina, (17.00°S, 48.00°W), 1200 m, 4 Mar 1966 (fr), *Irwin et al. 13449* (MICH, MO, NY); Rio Corumbá, próximo a Foz do Corrego, (17.80°S, 48.35°W), 21 Sep 1993 (fl), *Da Silva et al. 1880* (ASU0015567). **Mato Grosso**: Barra do Garças, 210 km along new road NNE of village of Xavantina, Corrego do Gato, (15.88°S, 52.25°W), 450 m, 4 Oct 1968 (fl), *Eiten & Eiten 9058* (US); General Carneiro, Meruri, (15.70°S, 52.75°W), without date (fl), *Hartmann 369* (SP); 1 km NE of Garapú, (13.20°S, 52.57°W), 300 m, 1 Oct 1964 (fl), *Irwin & Soderstom 6506* (MICH, MO, NY, RB). **Minas Gerais**: Betim, Serra da Caveira, (19.97°S, 44.22°W), 1600 m, 11 Mar 1945 (fr), *Williams & Assis 6227* (MO). **Pará**: Martins Pinheiro, Campina do Mangaba, (0.80°S, 57.58°W), 28 Feb 1975 (yfr), *Coradin 141* (MICH); Maracaná, ca. 73 airline km NE of Castanhal, Martins Pinherio, (0.80°S, 57.58°W), 50 m, 6 Apr 1980 (fr), *Davidse 17923* (NY); Tucuruí, km 13 da Rod. Transcametá, (3.70°S, 49.70°W), 11 Nov 1980 (fr), *Lisboa et al. 1550* (NY); Serra de Tumuc-Humac via Rio Cuminá, (2.00°N, 55.00°W), 30 Nov 1928 (fl), *Sampaio 5701* (ASU0015542). **Paraná**: Ponta Grossa, Parque Vila Velha, (25.08°S, 50.15°W), 7 Oct 1969 (fl), *Hatschbach 22326* (MBM); Alm. Tamandar, Rodovia dos Minérios, Rio Barigui, (25.53°S, 49.38°W), 9 Feb 1982 (fl), *Hatschbach 44564* (MBM); Palmeira, Faz. Santa Rita, ca. 65 km W of Curitiba, (25.42°S, 49.85°W), 2 Dec 1981 (fl), *Landrum 3966* (MBM, NY); Rio Branco do sul, along road to Cerro Azul, (25.00°S, 49.33°W), 7 Jan 1982 (fr), *Landrum 4112* (CAS, MBM, MICH, MO, NY, RB). **Santa Catarina**: 24 km W of Campo Erê, (26.37°S, 53.18°W), 900 m, 7 Dec 1964 (fl), *Smith & Klein 13826* (MICH, NY). **São Paulo**: 21 km de Itararé para Bom Suceso de Itararé, (24.11°S, 49.34°W), 13 Nov 2003 (fl), *Mazine 1041* (ASU0015541).

COLOMBIA. **Caquetá**: San Vicente del Caguán, laguna El Retorno, (1.09°N, 74.28°W), 265 m, 26 Jan 1990 (fl), *Betancur & Porras 1517* (MO). **Vichada**: Parque Natural El Tuparro, ca. 11 km NE of El Tapón on rd. to Centro Administrativo, (5.20°N, 69.07°W), 18 Mar 1985 (fl), *Zarucchi & Barbosa 3749* (ASU0015570).

COSTA RICA. **Guanacaste**: Lomas Barbudal, Bagaces, (10.52°N, 85.25°W), 10 May 1984 (fr), *Gómez & Herrera 23021* (ASU0005039); al norte de la ciudad de Liberia, camino al Parque Nac. Rincón de la Vieja, (10.80°N, 85.36°W), 2 Oct 1985 (fr), *Gómez 23687* (MO); Santa Rosa National Park, across road from entrance, (10.88°N, 85.58°W), 250 m, 28 Jun 1977 (fl), *Liesner 2700* (MO); 4 km N of Bagaces, (10.57°N, 85.25°W), 100 m, 20 Jul 1977 (fr), *Liesner 3405* (CR, MO).

CUBA. **Isla de la Juventud**: Nueva Gerona, (21.88°N, 82.81°W), without date (fl), *Jennings 29* (NY); San Juan, (21.73°N, 82.61°W), 25 Feb 1939 (fl), *León & Victorin 18893* (NY). **Pinar del Rio**: Vinales, (22.62°N, 83.71°W), 11 Dec 1930 (fl), *Killip 13563* (US); San J. y Martínez, (22.41°N, 83.85°W), 7 May 1988 (fl), *Urquiola et al. 4522* (ASU0005042); Mantua, (22.29°N, 84.29°W), 8 Nov 1990 (fr), *Urquiola et al. 6678* (ASU0005041).

DOMINICAN REPUBLIC. **Sanchez Ramirez**: Cotui, (19.05°N, 70.15°W), 6 Sep 1952 (fr), *Jimenez 2433* (MICH, US).

ECUADOR. **Loja**: Zambi, camino a Tablazo, (3.92°S, 79.50°W), 18 Mar 1995 (st), *Eynden & Cueva 294* (ASU0005038).

GUYANA. NE from Karasabai, to Yourora Creek, (4.05°N, 59.50°W), 7 Mar 1989 (fr), *McDowell 2154* (ASU0015579); Potaro-Siparuni, Pakaraima Mts., Tay-klay-o Creek, upper Ireng River (4.83°N, 59.97°W), 19 Jan 1993 (yfr), *Henkel 880* (ASU0015574); 7 km SW of Aishalton, Boidkorodai Mt., S Rupununi Savanna, (2.42°N, 59.33°W), 18 Nov 1993 (fr), *Henkel 3479* (ASU0015573); Potaro-Siparuni, Pakaraima Mountains, near base of Malakwalai-Tipu, (4.80°N, 60.20°W), 9 Jul 1994 (fr), *Henkel 5501* (ASU0015578); Kanuku Mts., Rupununi R, Bush Mouth near Witaru Falls, (3.07°N, 59.47°W), 9 Feb 1985 (fl), *Jansen-Jacobs 87* (ASU0015577); N Pakaraimas, Ciong Valley, 9 km N of Kato Village, (4.70°N, 59.83°W), 31 May 1995 (fr), *Mutchnick 1420* (ASU0015576); Makatui savanna, ca. 3.5 km SW of Aishalton, (2.50°N, 59.25°W), 17 Nov 1982 (fl, fr), *Stoffers 369* (NY).

HONDURAS. **El Paraiso**: Guinope, 2.5 mi S of the intersection of El Zamorano-Morolica and Guinope rd, (13.86°N, 86.98°W), 16 Jun 1994 (fl), *Davidse et al. 35004* (ASU0005031); **Francisco Morazán**: road from Comayagua to Tegucigalpa, 6.7 km SW of Parque Aurora, near KM 27, (14.29°N, 87.40°W), 27 Aug 1989 (fr), *Landrum 6480* (ASU0005037); road from Comayagua to Tegucigalpa, 6.7 km SW of Parque Aurora, near KM 27 at powerline crossing, (14.29°N, 87.40°W), 27 Aug 1989 (fr), *Landrum 6500* (ASU0005040); ca. 25 km NW of Tegucigalpa on road to Comayagua, (14.24°N, 87.39°W), 27 Aug 1989 (fr), *Landrum 6520* (ASU0005036).

MEXICO. **Guerrero**: Mpio. and location: San Luis Acatlán, between, Yoloxóchitl y Cumiapa, (16.84°N, 98.64°W), 10 Jul 2013 (fl), *Amith F0025* (ASU0077443); Agua de Obispo. 34 km W of Chilpancingo on road to Acapulco, (17.32°N, 99.47°W), 900 m, 23 Jul 1989 *Landrum 6338* (ASU0015521).

NICARAGUA. **Chontales**: Hda. Veracruz, (12.19°N, 85.36°W), 120 m, 4 Aug 1983 (fl), *Stevens 22419* (MO); **Nuevo Segovia**: El Jícaro, Monte Rico, 5 km al NE de El Jícaro, (13.73°N, 86.08°W), 705 m, 3 Sep 1984 (fr), *Moreno 24611* (MO).

PANAMÁ. **Chiriquí**: Boquete, (8.78°N, 82.43°W), 1219 m, 29 Jun 1938 (fl), *Davidson 835* (MO).

PARAGUAY. **San Pedro**. Yaguareté Forest, (23.81°S, 56.11°W), 180 m, 30 Oct 1996 (yr), *Zardini 45687* (ASU0060391). **Cordillera**: Cordillera Cabaña Maria Auxiliadora, between Eusebio Ayala and Itacurubi de la Cordillera, Km 80, (25.43°S, 56.91°W), 8 m, 26 Nov 1997 (fr), *Zardini 47698* (ASU0304784).

VENEZUELA. **Apure**: Pedro Camejo, near mouth of Cano San Miguel, (6.55°N, 67.28°W), 38 m, 29 Apr 1977 (fl), *Davidse & Gonzalez 12373* (MICH, MO); 11 km directly E of Paso de San Pablo, along banks of Rio Capanaparo, (7.03°N, 67.65°W), 45 m, 8–9 May 1977 (fr), *Davidse & Gonzalez 12953* (MICH, MO, VEN). **Bolívar**: Caroní, Puerto Ordaz, (8.28°N, 62.92°W), 20 Nov 1997 (fl), *Diaz 3384* (ASU0015571); Farreras, Maripa-Aripao, (7.48°N, 65.33°W), 80 m, Feb 1990 (fr), *Elcoro 686* (MO); Piar, Cerro Tomasote, (7.80°N, 62.03°W), 540 m, May 1986 (fl), *Fernandez 2742* (MO); Piar, W de Santa Maria, ca. 10 km SE de Upata, (7.93°N, 62.33°W), 380 m, 12 May 1986 (fl), *Huber & Fernandez 11669* (MO); Represa Guri, 1–5 km S of dam, (7.75°N, 63.00°W), 1 Apr 1981 (fl), *Liesner & Gonzalez 11064* (ASU0015572, VEN); Sabaneta, Medio Río Chiguao (6°32'N, 63°8'W), May-Jun 1987 (fl), *Stergios 11113* (MO); **Caraboro**: Hacienda de Cura, near San Joaquin, (10.26°N, 67.79°W), 480 m, 5 Jul 1819, *Pittier 7936* (US). **Guárico**: Calabozo, Estación Biológica de Los Llanos, Sabana de arrecife, (8.86°N, 67.38°W), without date (st), *Aristeguieta 5547* (VEN). **Sucre**: Cumbre de Montana de Mochima, 18 km SE de Cumana, (10.33°N, 64.33°W), 350 m, 16 Sep 1973 (fr), *Steyermark et al. 108604* (MO, VEN). **Zulia**: Perijá, carretera San Ignacio-Barranquitas, km 24 al

SE del empalme con la carretera Perijá, (10.18°N, 72.38°W), 100 m, 10 Sep 1977 (fr), *Bunting 5469* (NY, VEN).

Phenology—Flowering in all months; mainly in September to December in Brazil, mainly in April and May in Venezuela, in June and July in Mexico; probably fruiting 2-3 months after flowering.

Habitat and Distribution—Found from Paraguay to Mexico and the Caribbean; a shrub or subshrub of open habitats.

Distinguishing Features—See key to varieties.

57b. *Psidium salutare* var. ***cuspidatum*** (O. Berg) Landrum, comb. nov. Fig. 63

Myrtus cuspidata O. Berg, in Mart., Fl. bras. 14(1): 415. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (SYNTYPES [the types of two varieties]: B, lost; LECTOTYPE: SGO! [isotype of *Myrtus cuspidata* var. *pentamera*, designated as lectotype by Landrum, 2003], = ASU0113651 photos.

Myrtus cuspidata var. ***pentamera*** O. Berg, in Mart., Fl. bras. 14(1): 415. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost; ISOTYPE: SGO!). Illegitimate name to be replaced with *Myrtus cuspidata* var. *cuspidata*.

Myrtus lurida Spreng., Syst. Veg. 2: 480. 1825. TYPE. Uruguay. "Monte Video", *Sello s.n.* (HOLOTYPE: B?, probably lost). NEOTYPE. Uruguay. Paysandú, Chapicuy, orillas del río Uruguay, Sta. Sofia, 15 Nov 1942 (fl), *Rosengurtt et al. B-4183* (MVFA, designated here as NEOTYPE, = ASU image; ISONEOTYPES: MO!, NY!, US).

Myrtus pauciflora Cambess., in Saint-Hilaire, Fl. Bras. merid. 2: 296. 1833. TYPE. "Encapamento do Ricão das galinhas in parte occidentali provinciae Cisplatinae", *Martius s.n.* (HOLOTYPE: P!, = F-36439!, = ASU photo!).

Myrtus mucronata Cambess., in Saint-Hilaire, Fl. Bras. merid. 2: 295. 1833. A later homonym of *Myrtus mucronata* Pers., Syn. Pl. 2(1): 30. 1806. TYPE. "ad ripas fluminum Rio de la Plata et Uruguay in provincia Cisplatina", *Saint-Hilaire s.n*. (LECTOTYPE: P-258377! [syntype designated as lectotype by Landrum, 2003], = F neg. 36436!; ISOLECTOTYPES: K-565511, MPU-10996, P-258355!, P-258336!).

Myrtus cuspidata var. ***tetramera*** O. Berg, in Mart., Fl. bras. 14(1): 415. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: SGO! [isotype designated by Landrum, 2003], = ASU0113650 photos.

Myrtus mucronata var. ***perforata*** O. Berg, in Mart., Fl. bras. 14(1): 416. 1857. Based on the same specimen as the illegitimate name *M. mucronata.*

Myrtus mucronata var. ***opaca*** O. Berg, in Mart., Fl. bras. 14(1): 416. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost).

Myrtus ovalis O. Berg, in Mart., Fl. bras. 14(1): 417 1857. Later homonym of *Myrtus ovalis* Spreng. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost).

Myrtus suffruticosa O. Berg, in Mart., Fl. bras. 14(1): 418. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (SYNTYPES [the types of two varieties]: B, lost; (LECTOTYPE: P-258323! [isotype of *Myrtus suffruticosa* var. *latifolia*; designated as lectotype by Landrum, 2003]); ISOLECTOTYPES: BR-8489753!, K-565512, W-16662!).

Myrtus suffruticosa var. ***latifolia*** O. Berg, in Mart., Fl. bras. 14(1): 418. 1857. Illegitimate name to be replaced by *M. suffruticosa* var. *suffruticosa*.

Myrtus suffruticosa var. ***angustifolia*** O. Berg, in Mart., Fl. bras. 14(1): 419. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost).

Myrtus acutata O. Berg, in Mart., Fl. bras. 14(1): 415. 1857. TYPE. Uruguay. "in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258355!, = F neg. 36424 [isotype designated as lectotype by Landrum, 2003]; ISOLECTOTYPES: BR-8489708!, P-258354!).

Myrtus sellowiana O. Berg, in Mart., Fl. bras. 14(1): 413. 1857. TYPE. Brazil. "ad Tapanhoacanga prov. Minarum," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258326!, = F-36445 [isotype designated as lectotype by Landrum, 2003]; ISOLECTOTYPE: K-276984).

Psidium thea Griseb., Pl. Lorentz. 91. 1874, and in Abh. Königl. Ges. Wiss. Göttingen 19: 139. 1874. TYPE. Argentina. "Cordoba, in monte Cerro negro [ca. 31.95°S, 64.91W] pr. San Bartolo.," *Lorentz 377* [Feb

1871] (LECTOTYPE chosen by Landrum (2021b): GOET-7309; ISOLECTOTYPE: CORD-5688) and "Tucuman, in sylvis primaevis," *Lorentz 63* [May 1872] (SYNTYPE: GOET-7310; ISOSYNTYPE: CORD-5687).

Myrtus mucronata var. ***thea*** (Griseb.) Griseb., Abh. Königl. Ges. Wiss. Göttingen 24: 127. 1879.

Pseudocaryophyllus seemannii Triana ex Hemsl**.,** Biol. Cent.-Amer., Bot. i. 407. 1879-80. Nomen nudum. Listed as synonym of *Myrtus arayan* Kunth

Psidium luridum (Spreng.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941.

Psidium pubifolium Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941. New name for *Myrtus ovalis* O. Berg.

Psidium cuspidatum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 483. 1941.

Psidium mucronatum Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 483. 1941. Later homonym of *P. mucronatum* Barb. Rodr.

Psidium latium **[*latius*]** Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941. New name for *Myrtus suffruticosa* O. Berg.

Psidium affine Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941. New name for *Myrtus sellowiana* O. Berg.

Psidium acutatum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 484. 1941. New name for *Myrtus acutata* O. Berg.

Psidium luridum var. ***cinereum*** Mattos, Loefgrenia 64: 2. 1975. TYPE. Brazil. Santa Catarina, "Campo Erê, 17 km W of Campo Erê, ca. 26°22'S, 53°08'W, 900–1000 m," *Smith & Klein 13807* (HOLOTYPE: HBR; ISOTYPE: R-127745!).

Psidium pubifolium f. ***nanum*** Rotman, Darwiniana 20: 433. 1976. TYPE. Brazil. Santa Catarina, "Campo Erê, 37 km W of Campo Erê, ca. 26°22'S, 53°08'W, 900–1000m," *Smith & Klein 13807* (HOLOTYPE: MVM; ISOTYPE: R-127745!).

Psidium luridum var**. *pauciflora*** (Cambess.) Mattos, Loefgrenia 71: 2. 1977.

Psidium salutare var. ***mucronatum*** (Cambess.) Landrum, Sida 20(4): 1463. 2003. Illegitimate name because basionym, *Myrtus mucronata* Cambess. is a later homonym and *Psidium salutare* var. *mucronatum* Landrum would be a superfluous name because other prior varietal names were cited.

Usually a subshrub less than 0.5 m high; leaf blades mostly narrowly elliptic to lanceolate, (1.5–)2–6 cm long, 0.7–2.3 cm wide, (1.4–)1.5–5 times as long as wide, glabrous to subglabrous, often lustrous; venation pronounced, raised on both surfaces, the marginal vein usually within 1 mm of the margin; apex apiculate; peduncle often over 2 cm long, uniflorous; calyx-lobes usually longer than hypanthial tube plus calyx tube, usually acute.

Representative specimens examined. **ARGENTINA. Buenos Aires**: Mar del Plata, Sierra de los Difuntos, Reserva Paititi 37°53'40.5"S 57°50'36.4"W, ca. 220 m, 13 Mar 2021 (fr), *Méndez* (ASU-photos). **Corrientes:** 2.5 km de la ciudad de Monte Caseros, 28 Dec 1968 (fr), *Carnevali 1317* (CTES); Paso de Los Libres, Bonpland, costa río Uruguay, 19 Jan? 1945 (fr), *Ibarrola 2135* (NY); Santo Tomé, 33 km N de Santo Tomé, 27 Jan 1976 (fl), *Krapovickas & Cristóbal 28934* (CTES, NY); Ituzaingó, Rincón Ombú Chico, 3–5 Jul 1974 (fl), *Krapovickas et al. 25477* (CTES, MICH); Dep. Mercedes, Mercedes a Itá Corá, Ayo. Pay-Ubre, 2 Feb 1974 (fr), *Quarín & Gonzalez 2069* (CTES); Berón de Astrada, 15 km W of Itá Ibaté, Ayo. Santa Isabel, 16 Jan 1977 (fl), *Schinini 14105* (CTES); Estación Experimental INTA, Dep. Empedrado, 7 Dec 1978 (fl), *Schinini 16225* (CTES); Co. Nazareno (Co. de Susini), 15 Feb 1979 (fr), *Schinini et al. 17192* (CTES); Santo Tome, Ea. San Lorenzo 4 km N de Galarza, (28°04'S, 56°38'W), 30 Mar 2000 (fr), *Tressens et al. 6640* (ASU0015580). **Entre Ríos:** Dep. Federación, Santa Ana, 15 Oct 1968 (fl), *Gomez Sosa 99* (CTES). **Misiones:** Posadas, Bonpland, 11 Jan 1908 (fl), *Ekman 2048* (MICH, NY); Concepción, aldea aborigena Yraka Miri, 15 Sep 2008 (fl), *Keller et al. 6078* (ASU0078679); Candelaria, Bonpland, arroyo Mártires Chico, 16 Jan 1976 (fl), *Krapovickas & Cristóbal 28785* (CTES); Cainguás, Monte Carlo, 205 m, 2 Feb 1955 (fr), *Montes 14806* (NY); Apóstoles, 29 Jan 1948 (fr), *Schulz 6889* (CTES). **Tucumán:** Villa Nongues, Jan 1918 (fr), *Lillo 1351* (MO).

BRAZIL. Paraná: Palmas, Rio Chopim, 7 km abaixo da nascente, 20 Nov 1990 (fl), *Hatschbach 54810* (ASU0015549, MBM). **Rio Grande do Sul:** São Francisco de Paula (fr), *Rambo 30793* (MICH); Bom Jesus, Fazenda B. Velho, 4 Jan 1947 (fr), *Rambo 35177* (MO, NY).

PARAGUAY. Itapua: Arroyo Guazú Acatí, 15 Sep 1983 (fl), *Basualdo s.n.* (FCQ); Capitán Miranda, 4.2 km N of entrance to Hotel Tirol (ca. 27°12'S, 55°45'W), ca. 210 m, 9 Aug 1995 (fl), *Landrum 8796*

(ASU0015535); Capt. Miranda, road to Jesús, ca. 0.6 km from main highway, (27°12'S, 55°45'W), ca. 185 m, 9 Nov 1995 (fl), *Landrum 8814* (ASU0015536). **Paraguarí:** National Park Ybycuí, 6 km S of NE corner of the park, (26°04'S, 56°46'W), 25 Nov 1991 (fr), *Zardini & Garcete 29111* (ASU0015538).

URUGUAY. Artigas: ruta 30, 7 km S de Artigas, 10 Dec 1995 (fr), *Solis Neffa et al. 242* (ASU0015534, CTES); Cerro Largo: S of Melo, 4.8 km, 9 Jan 1944 (fr), *Bartlett 21279* (MICH). **Maldonado:** Sierra de Ánimas, ca. 65 km E of Montevideo (ca. 34°45'S, 55°30'W), 22 Nov 1981 (fl), *Landrum 3856* (NY). **Montevideo:** Punta Espinillo (fl), *Legrand 2710* (MICH); Chapicuy, orillas del río Uruguay, Sta. Sofia, 15 Nov 1942 (fl), *Rosengurtt et al. B-4183* (MO, MVFA, NY, US); **Rocha:** Santa Teresa (fl), *Legrand MVM-1064* (MICH). **San José:** Rincón Gallinas, 5 m, Dec 1931 (fl), *Herter 88052* (NY, RB). **Tacuarembó:** Gruta de los Cuervos, 17 Jan 1944 (fr), *Legrand 3338* (NY).

Phenology—Flowering mainly September to December; fruiting mainly December to February.

Habitat and Distribution—Northern Argentina, Brazil (Paraná to Rio Grande do Sul), Paraguay, and Uruguay; a shrub or subshrub of open habitats that are occasionally burnt.

Distinguishing Features—See key to varieties.

Grisebach (1874) reports that the vernacular name of his *Psidium thea*, a synonym of this variety, is "alpamato" and that it is used as a substitute for tea.

There are many intermediates between typical var. *cuspidatum* (which is glabrous) and typical var. *sericeum* (which is densely covered with silvery hairs). The fact that these varieties also have similar distributions, leads me to suspect that there is a simple genetic difference between them. Intermediates have mainly been identified as var. *sericeum*.

Psidium salutare var. *cuspidatum* frequently grows with *P. missionum* and can easily be confused with that species. The two are contrasted in the key below.

1. Leaves 2–4.5 cm long, 0.7–2.3 cm wide, 1.5–5 times as long as wide; marginal vein distinct, closely following the margin; placenta protruding, peltate; style 5–6 mm long, glabrous…… ..... ***P. salutare*** var. ***cuspidatum***

1' Leaves 2.5–8.8 cm long, 1.1–4 cm wide, 1.8–3.5 times as long as wide; marginal vein evident only in distal portion of leaf, arching broadly between laterals; placenta protruding only slightly, not peltate; style 7–9 mm long, usually with a few scattered hairs**.** ..... ***P. missionum***

If the entity here called *Psidium salutare* var. *cuspidatum* is recognized at the specific level, the name *P. luridum* (Spreng.) Burret should be used. There may be no type specimen of *Myrtus lurida* in existence, having been at B and now destroyed, so I have here recognized a neotype (see above). Burret (1941), who studied the type shortly before it was destroyed, listed *Myrtus cuspidata* as a synonym. That coupled with Sprengel's protologue leave little doubt as to its identity. The type of *Myrtus ovalis* O. Berg at B was also destroyed, but the protologue is sufficient to consider it a synonym of this variety.

57c. *Psidium salutare* var. ***pohlianum*** (O. Berg) Landrum, Sida 20(4): 1466. 2003.

Fig. 64

Psidium pohlianum O. Berg, in Mart., Fl. bras. 14(1): 390. 1857. TYPE. Brazil. "v. fructif. in hb. Vindob., sine fruct. et florib. in hb. Berol," "ad S. Luzia in prov. Goyazensi," *Pohl 913* (SYNTYPE: W-48043; ISOSYNTYPE: F-65713!, fragment) and *Sellow s.n.* (SYNTYPES: B, lost, W-48042; ISOSYNTYPES: K-170088, P-258393!, P-258394! designated as LECTOTYPE by Landrum [2003]).

Psidium pohlianum var. ***brevipes*** O. Berg, in Mart., Fl. bras. 14(1): 601. 1859. TYPE. Brazil. "prope S. Carlos prov. S. Pauli," *Riedel s.n.* (apparent HOLOTYPE LE-6998 [mixed with other collections]).

Guajava pohliana (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Shrub or tree to 10 m high, the trunk bark rough, deeply cracked; leaf blades mostly elliptic, to obovate, or oblanceolate, 4–9 cm long, 2–5.5 cm wide, 1.4–2.7(–3.5) times as long as wide, glabrous; venation pronounced, raised on both surfaces, the marginal vein usually about 1 mm from the margin; apex usually without an apiculum; peduncle 0.4–2 cm long, often triflorous; calyx lobes shorter or about as long as the calyx tube, rounded to obtuse.

Representative specimens examined. BOLIVIA. **Santa Cruz**: P. N. Noel Kempff Mercado, Pista Las Gamas, (14.80°S, 60.39°W), 9 Nov 1993 (fr), *Guillén & Centurión 1023* (ASU0015553); P. N. Noel Kempff Mercado, Huanchaca I, (13°53'55`S, 60°48'46`W), 3 Nov 1995 (fr), *Rodriguez & Surubi 630* (ASU0015551).

BRAZIL. **Bahia**: Campos da Pedra Furada prox. ao Rio da Água Suja. Distr. Arapiranga, Rio de Contas, (13.80°S, 42.43°W), 1120 m, 7 Aug 1993 (fr), *Ganev 2031* (HUEFS); Abira, Frios, caminho Guarda Mor-Frios pelo convuao. Divisão Bacia do Rio de Contas e Bacia do São Francisco, (13.33°S, 41.88°W), 1600 m, 11 Apr 1994 (fr), *Ganev 3085* (HUEFS); Rio de Contas, near Junco, ca. 15 km WNW of town of Rio de Contas, (13.53°S, 41.92°W), 1200 m, 22 Jan 1974 (fr), *Harley 15596* (ASU0015547); Caetité, 6 km ao Sul de Caetité na estrada para Brejinho das Ametistas, (14.13°S, 42.50°W), 10 Jan 2006 (yfr), *Nunes 1556* (ASU0057417); Correntina, Fazenda Jatobá, (13.23°S, 44.75°W), 9 Jan 1991 (fr), *Rezende et al. 137* (UB); Licínio de Almeida, (14.66°S, 42.55°W), 954 m, 25 Feb 2012, *Roque et al. 3363* (ASU0075034). **Ceará**: Crato, Barreiro Grande-Agreste, (7.23°S, 39.38°W), 2 Apr 1995 (fr), *Silveira 22103* (RB); **Distrito Federal**: Planaltina, (15.62°S, 47.67°W), 1150 m, 10 Oct 1965 (yfr), *Irwin et al. 9101* (NY); Chapada da Contagem, road NE edge Parque Nacional de Brasilia, (15.78°S, 47.92°W), 1160 m, 10 Sep 1995 (fl), *Proença 1455* (ASU0015585), (yfr), *Proença 1462* (ASU0015584). **Goias**: Serra dos Cristais, ca. 12 km E of Cristalina, (17.00°S, 48.00°W), 1200 m, 9 Mar 1966 (fr), *Irwin et al. 13226* (CAS, MICH, NY); Campus UEG- Anápolis, (16.38°S, 48.97°W), 20 Dec 2005 (yfr), *Faria 197* (ASU0018559); BR 153 próximo a Goiatuba, (17.98°S, 49.25°W), 7 Sep 1998 (fl), *Farias 118* (ASU0018545). **São Paulo**: Itirapina, Estrada de Graúna, (22.25°S, 47.82°W), 2 Feb 1993 (fr), *de Barros 2515* (ASU0015550).

VENEZUELA. **Amazonas**: ca. Atures, 15 km al N de Puerto Ayacucho, (5.78°N, 67.50°W), 80 m, 21 Jul 1977 (fr), *Huber & Tillett 959* (MICH, NY, VEN); Atures, Ricones de Chacorro, 30 km N de Puerto Ayacucho, 5 km NE de Galipero, (5.80°N, 67.33°W), 80 m, 27 Feb 1982 (fl), *Huber 6289* (MICH, MO, NY, VEN).

Phenology—Flowering mainly from September to December; fruiting mainly from January to March.

Habitat and Distribution—Cerrado, campo rupestre, areas subject to burning at 1000 to 1600 m. *Psidium salutare* var. *pohlianum* is found in Bolivia, from São Paulo to Ceará and Mato Grosso in Brazil, and also in Venezuela.

Distinguishing Features—See key to varieties. This variety is distinguished from most other Myrtaceae by its rough, deeply cracked, trunk bark.

Psidium robustum is provisionally placed here because of its large glabrous leaves that are often elliptic, to obovate, or oblanceolate; bochidodromous venation with a marginal vein closely following the margin; and an open calyx with short lobes and calyx tube.

57d. *Psidium salutare* var. ***resiliens*** Landrum, var. nov. TYPE. Brazil. Paraná: Rio Branco do sul, along road to Cerro Azul, (25°S, 49.33°W), 7 Jan 1982 (fr), *Landrum 4110* (HOLOTYPE: MBM!, = ASU photo; ISOTYPES: MICH!, NY!). Fig. 65

Usually a subshrub less than 0.5 m high; leaf blades elliptic to narrowly elliptic, (1–) 2–5.3 cm long, 0.7–1.7 cm wide, (1.5–)2.5–4.5 times as long as wide, glabrous (rarely sparsely pubescent); venation obscure, the marginal vein about 0.5 mm from margin; apex without an apiculum; peduncle 0.5–1.5 mm long, uniflorous (rarely triflorus); calyx-lobes shorter or about as long as calyx tube, acute or rounded.

Representative specimens examined. BRAZIL. **Distrito Federal**: Brasilia, (15.78°S, 47.92°W), 950 m, 2 Feb 1966 (fr), *Irwin et al. 12210* (MICH, NY); Chapada da Contagem, road NE edge Parque Nacional de Brasilia, (15.78°S, 47.92°W), 1160 m, 10 Sep 1995 (yfr), *Proença 1463* (ASU0015565); Chapada da Contagem, road NE edge Parque Nacional de Brasilia, (15.78°S, 47.92°W), 1160 m, 10 Sep 1995 (fl) *Proença 1464* (ASU0015566); ao lado da Reserva Biológica das Aguas Emendadas, (15.57°S, 47.69°W), 3 Sep 1995 (st), *Proença et al. 1493* (ASU0015564); Nordeste da Fazenda Sucupira (CENARGEN/EMBRAPA), (15.92°S, 48.02°W), 1080 m, 21 Jan 1999 (fr), *Sampaio et al. 307* (CEN). **Goias**: 10 km W of Cristalina, (17.00°S, 48.00°W), 1200 m, 5 Mar 1966 (fr), *Irwin et al. 13548* (NY). **Minas Gerais**: Morro das Pedras, ca. 37 km NE of Patrocinio, (19.95°S, 43.25°W), 1000 m, 29 Jan 1970 (fr), *Irwin et al. 25600* (NY). **Paraná**: Colombo, Capivari, (25.28°S, 49.23°W), 4 Nov 1971 (fl, fr), *Hatschbach*, *27711* (MBM); Bocaiúva do Sul, Serra da Bocaina, (25.18°S, 49.13°W), 16 Jan 2001 (fr), *Ribas & Barbosa 3166* (ASU0015531).

Phenology—Flowering from September to November; fruiting mainly from January to March.

Habitat and Distribution—Found in cerrado and campos.

Distinguishing Features—See key to varieties.

I believe this variety may hybridize with var. *pohlianum* when found together.

57e. *Psidium salutare* var. *sericeum* (Cambess.) Landrum, Sida 20(4): 1467. 2003.

Fig. 69

Myrtus sericea Cambess., in Saint-Hilaire, Fl. Bras. merid. 2: 295. 1833. TYPE. Uruguay [Brazil]. "Capilha de Mercedes... provinciae Cisplatinae, necnon... Rincão de Saneloés ad ripam amnis Ibicuy in provincia Missionum," *Saint-Hilaire s.n.* (HOLOTYPE: P, = F-36446!; ISOTYPE: P-258325!).

Myrtus sericea var. ***suffruticosa*** O. Berg, in Mart., Fl. bras. 14(1): 414. 1857. TYPE. Brazil. Illegitimate name to be replaced by *M. sericea* var. *sericea* because *Myrtus sericea* Cambess. is cited as a synonym.

Myrtus sericea var. ***fruticosa*** O. Berg, in Mart., Fl. bras. 14(1): 414. 1857. TYPE. Uruguay. "ad Cerro in Montivedeo," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258324! [isotype designated as lectotype by Landrum, 2003]).

Myrtus nivea O. Berg, in Mart., Fl. bras. 14(1): 414. 1857. TYPE. Uruguay. "ad Pº dos Inforcados in Montevideo," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258334! [isotype designated as lectotype by Landrum, 2003]; ISOLECTOTYPES: BR-8489760!, W-48023!, = F-31405).

Myrtus incana O. Berg, in Mart., Fl. bras. 14(1): 416. 1857. TYPE. Brazil. "ad Cassapava in Rio Grande do Sul," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258432! [isotype designated as lectotype by Landrum, 2003]; ISOLECTOTYPE: BR-8489746!).

Myrtus pubescens O. Berg, in Mart., Fl. bras. 14(1): 415. 1857. Later homonym of *Myrtus pubescens* Kunth. TYPE. Brazil. "ad Andre' Ferrina," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258329! [isotype designated lectotype by Landrum, 2003], = F-36441; ISOLECTOTYPE: K-276996).

Myrtus hassleriana Barb. Rodr., Myrt. Paraguay 16. 1903. TYPE. Paraguay. "prope Rio Curuguatay," *Hassler 4609* (HOLOTYPE G, = ASU photo).

Guajava sericea (O. Berg) Kuntze, Rev. Gen. 239. 1891.

Psidium incanum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941.

Psidium tomentellum Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941. New name for *Myrtus sericea* Cambess., proposed because of the prior existence of *P. sericeum* O. Berg.

Psidium pubigerum Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941. New name *Myrtus pubescens* O. Berg.

Psidium barbosianum Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 485. 1941. New name for *Myrtus hassleriana* Barb. Rodr.

Psidium niveum (O. Berg) Herter, Rev. Sudamer. Bot. 7: 221. 1943.

Psidium luridum var. ***pubescens*** (O. Berg) Mattos, Loefgrenia no. 61: 3. 1974.

Psidium incanum var. ***pubescens*** (O. Berg) Mattos, Loefgrenia no. 70: 4. 1976.

Usually a subshrub less than 0.5 m high; leaf blades elliptic, ovate, obovate, narrowly elliptic, oblanceolate to lanceolate, 2–7 cm long, 0.6–2.8 cm wide, 2–3.7 times as long as wide, densely covered with silvery gray hairs when young; venation pronounced under hair cover, the marginal vein usually within 1 mm of the margin; apex apiculate; peduncle often over 2 cm long, uniflorous; calyx-lobes usually longer than hypanthial tube plus calyx tube, usually acute.

Representative specimens examined. ARGENTINA. **Corrientes:** Santo Tomé, ruta 41, 5–6 km al N de Galarza (ca. 28°4'S, 56°39''W), 17 Nov 1994 (fl), *Arbo et al. 6402* (CTES); Estancia Ana Cuá, 17 Dec 1970 (fl), *Carnevali 2243* (CTES); Estancia Garruchos, cachuera, Ayo. Chimiray, 6 Feb 1972 (fr), *Krapovickas et al. 21174* (CTES); General Paz, Arroyo Sta. Isabel at ruta 12 E of Itá Ibaté (ca. 57°30'W, 27°20'S), 9 Dec 1987 (fr), *Landrum 5701* (ASU, CTES); Dep. Paso de los Libres, Estancia El Recreo, 21 km E Bonpland, costa río Uruguay, 18 Nov 1973 (fl), *Lourteig et al. 2737* (CTES); Monte Caseros, 19 Feb 1975 (fr), *Prause s.n.* (CTES); Empedrado, Estación Experimental INTA, 7 Dec 1978 (fl), *Schinini 16188* (CTES); 10 km S de Bella Vista, 8 Nov 1978 (fl), *Schinini & Ahumada 15894* (CTES, MO); 11 km S de Mercedes, antiguo camino a Curuzú Cuatiá, Co. Pajarito, 23 Feb 1984 (fr), *Tressens et al. 2420* (CTES). **Entre Ríos:** Concordia, Dec 1946 (fl), *Meyer 11007* (LIL). **Misiones:** Posadas, Lareto, Casa de Drewes, 26 Jan 1908 (fr), *Ekman 2056* (MICH, NY); San José, Feb 1961 (st), *Martinez Crovetto 8D-1* (CTES). **Tucumán:** Burruyacú, Cerro del Campo, 1000 m, Nov 1978 (fl), *Venturi 7582* (F).

BOLIVIA. **Santa Cruz:** Prov. Florida, 4 km N of center of Samaipata, (18°08'S, 63°52'W), 2000–2100 m, 31 Dec 1992 (fr), *Nee & Vargas 43465* (ASU0015557).

BRAZIL. **Rio Grande do Sul:** Continuação da estrada Alegrete-Cerro do Tigre, apos o Cerro do Tigre, direção rio Ibicuí, 11 Feb 1990 (fr), *Falkenberg & Sobral 15235* (MBM); Pôrto Alegre, Montserrat, 13 Nov 1941 (fl), *Emrich 8380* (LIL); Fazenda Faxinal, Arroio dos Ratos, 5 Nov 1980 (fl), *Hagelund 13420* (CTES, NY); Morro das Abertas, 9 Jan 1949 (fl), *Rambo 39674* (LIL); São Vicente do Sul, estrada a Cacequi, rio Ibicuí, Dec 1985 (st), *Sobral & Marchiori 4544* (UB).

PARAGUAY. **Central:** Itá, Granja Isapy, orilla arroyo Lazarillo, 30 Jan 1966 (fr), *Krapovickas et al. 12231* (CTES). **Cordillera:** Ypacaraí, 6 Dec 1950 (fr), *Sparre & Vervoost 814* (LIL). **Misiones:** San Juan Bautista, ca. 8.5 km along road to Pilar, ca. 170 m, 8 Nov 1995 (fr), *Landrum 8790* (ASU); Ea. La Soledad, 3 km S de Santiago (56°46'W, 27°10'S), 3–4 Feb 1988 (fr), *Schinini & Vanni 26108* (ASU, CTES). **Paraguarí:** Rt. 1, between Quindy and Caapucú, near km 246, (26°S, 57°15'W), ca. 250 m, 7 Nov 1995 (st), *Landrum 8764* (ASU).

URUGUAY. **Cerro Largo:** Arroyo Zapallar, 22 Dec 1961 (fr), *Praderi 740* (LIL). **Durazno:** Est. Las Palmas, Mar 1922 (st), *Osten 16563* (NY). **Montevideo:** La Colorada, 17 Nov 1947 (fl), *Legrand 2711* (NY). **Paysandú:** Chapicuy, orillas del río Uruguay, Sta. Sofia, 15 Nov 1942 (fl), *Rosengurtt B-3250* (MO, NY). **Rivera:** Tranqueras (fl), *Legrand 4145* (MICH, NY). **San José:** Rincón Gallinas, Dec 1931 (fl), *Herter 8051* (MO). **Tacuarembó:** Cerro Dos Hermanos, Mar 1922 (fr), *Osten 16651* (NY).

Phenology—Flowering mainly in November and December; fruiting from December to February.

Habitat and Distribution—Open habitats such as "campos" and grasslands, that are occasionally burned; Argentina and Uruguay to southeastern Brazil, Paraguay and Bolivia.

Distinguishing Features—See key to varieties.

This entity has long gone by the name *Psidium incanum* (O. Berg) Burret, which is the correct name if one recognizes it at the specific level. It most closely resembles var. *cuspidatum* and intergrades with it. It also resembles a southern morph of *P. grandifolium*; the two are distinguished in lead 4 of Key 2-A. It may also be confused with *P. laruotteanum*; the two entities are compared in lead 5 of the Key 2-A.

58. *Psidium schenckianum* Kiaersk., Enum. Myrt. bras. 34, tab. 13, fig. f. 1893. TYPE. Brazil. "Garanhuus [Garanhuns] Prov. Pernambuco," *Schenck 4174* (SYNTYPE: C-

10015968) and *Schenck 4239* (SYNTYPE: C-10015967, designated as LECTOTYPE by Tuler et al. [2023]). Fig. 70

Psidium oncocalyx Burret, Repert. Spec. Nov. Regni Veg. 50: 56. 1941. TYPE. Brazil. Bahia,"auf Bergen bei Maracas," *Ule 6975* (HOLOTYPE: B, lost; LECTOTYPE: HBG-527373, designated by Tuler et al. [2023]. Image of lectotype at ASU).

Shrub up to 2(–3) m high, sparsely to densely puberulent on young growth; *hairs* simple, whitish to yellowish, minute, up to ca. 0.2 mm long, mainly erect; *young twigs* yellowish brown to reddish brown, moderately to densely puberulent, in age becoming gray, the surface then nearly smooth or with a minute reticulate scaly pattern, the indumentum persisting until the first bark falls. LEAF BLADES suborbicular to oblong-elliptic, subsessile, 1–3(–5) cm long, 0.8–2.4 cm wide, 1–1.7(–2) times as long as wide, thickly coriaceous, drying dark olive-green above, light reddish brown below, often with light gray mottling above, densely glandular glabrous to sparsely puberulent, the margin revolute; *apex* acute, obtuse, or emarginate; *base* rounded to cordate; *petiole* unchanneled, up to ca. 1 mm long and thick, glabrous to puberulent; *venation* obscure or not, brochidodromous, the midvein about flat or slightly raised above, often prominent below, the lateral veins if visible, ca. 4 pairs, leaving the midvein at an angle of ca. 45°, the marginal vein broadly arching between the laterals, the tertiary veins not clearly visible. FLOWER BUDS pyriform, 4–6 mm long, the hypanthium obconic to campanulate, 1.5–2 mm long, the distal portion of bud subglobose (not including the calyx flanges), 2.5–4 mm long; *indumentum pattern of buds* with peduncles, bracteoles, and hypanthium glabrous to puberulent, the calyx glabrous to sparsely puberulent without, densely puberulent within, the petals densely puberulent without and glabrous within, the disk puberulent, the style glabrous; *peduncles* 8–15 mm long, 0.3–0.5 mm wide, solitary, uniflorous; *bracteoles* linear-filiform, 1.5–5 mm long, 0.1–0.2 mm wide, recurved when dry, deciduous at about anthesis. CALYX bowl-like, encircling the closed corolla at its widest point, the lobes with two distinct parts, a clasping base that is connate along its edges with adjacent lobes (forming the bowl), and a flange-like subapical appendage, the bowl 1.7–3 mm long, tearing between the lobes into subrectangular pieces, these 1–2 mm long and wide, the tears not usually cutting into the staminal ring, the flange-like appendages about hemiorbicular, radiating, laterally compressed, 1.5–2 mm long; *petals* suborbicular, 3–4 mm long; *disk* ca. 3 mm across; *stamens* 90–130, 4–6 mm long; *anthers* 0.3 mm long, with a single terminal gland; *style* 4–6 mm long; *ovary* 2–3-locular; *ovules* 7–11 per locule. FRUIT globose, 7–20(–30) mm in diameter, crowned by the persistent calyx lobes, the wall 1–1.5 mm thick; *seeds* 4–13, 3.5–5.5 mm long, with rounded and flat sides.

Representative specimens examined. BRAZIL. **Alagoas**: Água Branca, Refúgio de Vida Silvestre do Caraunã e Padre, (9.26°S, 37.94°W), 15 Dec 2013 (fl), *Tavares-Silva et al. 27*. **Bahia**: Uauá, Serra do Jerônimo, (9.72°S, 39.33°W), 30 Mar 2000 (fl), *Alves et al. 2* (HUEFS); entre Nova Soure e Buritinga, (11.45°S, 38.65°W), 25 May 1983 (fr), *Bautista 742* (ASU0015766); ca. 2 km do Riacho deo Mel, em direção a Iraporanga, (12.32°S, 41.49°W), 19 Mar 1980 (fr), *Brazão 167* (HRB, HUEFS); Tucano, Sitio do Mandacaru, ca. 11 km de Tucano, (10.87°S, 38.77°W), 391 m, 9 Apr 2004 (fr), *Cardoso 16* (HUEFS); Gloria, Aldeia Serrota, (9.33°S, 38.48°W), 6 Jan 2006 (fl), *Colaço 87* (ASU0014350); Ruy Barbosa, subida para a serra do Orobo, no começo da subida, próximo a cidade, (12.30°S, 40.49°W), 547 m, 12 Apr 2012 (yfr), *Faria 2621* (ASU0078793); Morro do Chapeú, arredores do provoado de Fedegosos, 25 km N da estrada do Feijão, (11.47°S, 40.88°W), 770 m, 30 Apr 1999 (fr), *França et al. 2751* (ASU0015712); Andorinha, estrada para o sítio do acude, (10.21°S, 39.91°W), 430 m, 18 Feb 2006. *Franca 5459* (ASU0014349); ca. 2 km SW of town Morro do Chapéu on the Utinga Rd, (11.57°S, 41.17°W), 3 Mar 1977 (fr), *Harley 19333* (ASU0015704);

Alagoinhas, Campus II/ UNEB, (12.13°S, 38.43°W), 120 m, 13 Oct 1999 (fl, fr), *Jesus et al. 297* (HUEFS49119); Castro Alves, Tabuleiro do Salgado, (12.75°S, 39.43°W), 17 Jan 1957. (fr), *Lordeio 57-14 14* (ALCB, HRB); Abaíra, Brejo do Engenho, (13.30°S, 41.80°W), 950 m, 30 Dec 1991 (fl), *Nic Lughadha et al. 50571* (HUEFS, SPF, CEPEC, K); Jequié, (13.82°S, 40.32°W), 580 m, 19 Feb 2011 (fr), *Macedo 2177* (NY); Campo Formoso, (10.51°S, 40.43°W), 739 m, 13 Apr 2006, *Melo 228* (ASU0014352); Palmeiras, caminho para Conceição dos Gados, (12.53°S, 41.55°W), 21 Mar 2003 (fr), *Melo et al. 3534* (HUEFS); Caetité, Ca. 14 km ao norte de Caetité em direção a Maniaçu, (13.93°S, 42.47°W), 894 m, 12 Apr 2005 (fr), *Miranda 760* (ASU0015714); Rod. BA 026, a 6 km a SW de Maracás, (13.43°S, 40.45°W), 900 m, 27 Apr 1978 (fr), *Mori 10005* (NY, RB); Campus da UEFS - Feira de Santana, (12.25°S, 38.97°W), 18 May 1983 (fr), *Noblick 2666* (NY); Jeremoabo, (10.22°S, 38.50°W), 29 Oct 1981 (fr), *Orlandi 568* (ALCB, HRB); Miguel Calmon, Entre a Fazenda Pe de Serra e o riacho do Caldeirão, (11.41°S, 40.55°W), 820 m, 5 Apr 2001 (fl, fr), *Ribeiro et al. 123* (HUEFS). **Minas Gerais**: Montezuma, Vargem de Salinas, (15.27°S, 42.43°W), 977 m, 8 Mar 2018 (yfr), *Sevilhas et al. 7331* (CEN). **Pernambuco**: Reservatório Copiti, (8.26°S, 37.70°W), 24 Nov 2011 (fl), *Cotarello et al. 1153* (HVASF). **Sergipe**: Serra da Guia, Poço Redondo, (9.98°S, 37.86°W), 4 Apr 2013 *Deda De'da 245* (ASE).

VENEZUELA. **Sucre**: Península de Araya, Cruz Salmerón Acosta, parroquia Chacopata, Caimancito, cerro Los Marmoletes, (10.59°°N, 63.96°W), 130 m, 4 Sep 2017 *Bello CAIM011* (ASU0316591).

Phenology—Flowering and fruiting throughout the year.

Habitat and Distribution—Caatinga, cerrado, at 120–1040 m; Brazilian endemic, known to me only from Bahia and Pernambuco, but reported to grow from Paraiba to Minas Gerais by SpeciesLink (2017).

Distinguishing Features—Calyx bowl-like, the lobes with two distinct parts, a clasping base that is connate along its edges with adjacent lobes (forming the bowl), and a flange-like subapical appendage, the flange-like appendages about hemiorbicular, radiating, laterally compressed; leaves suborbicular to oblong-elliptic, subsessile; venation often obscure.

Psidium schenckianum is hypothesized to hybridize with *P. appendiculatum* and *P. oligospermum* (discussed under those species). It also hybridizes with *P. brownianum*; a key comparing the two species is provided below.

1. Calyx without flange-like subapical appendages; lateral veins 7–13 pairs; leaves ovate, lanceolate to lanceolate-oblong, 3–12 cm long, 2–6 cm wide; petiole 0–4(–5) mm long; bracteole narrowly triangular, 0.5–2 mm long; peduncles often on bracteate shoots or otherwise clustered together ..... ***P. brownianum***

1' Calyx with flange-like subapical appendages; lateral veins ca. 4 pairs if visible; leaves suborbicular to oblong-elliptic, subsessile, 1–3(–5) cm long, 0.8–2.4 cm wide; petiole 0–1 mm long; bracteole linear-filiform, 1.5–5 mm long; peduncles solitary..... ***P. schenckianum***

The specimen I suspect of being a hybrid is *Harley 19333* (ASU0015704) from Morro do Chapéu. The leaves are smaller than most *P. brownianum* but the ovate shape is typical of that species; lateral veins are up to about 7 pairs (about intermediate between the two species); there is a hint of a flange on some calyx lobes; inflorescences appear more typical of *P. schenckianum*.

59. *Psidium sessiliflorum* (Landrum) Proença & Tuler, Heringeriana 14(1): 53. 2020. Fig. 71

Calycolpus sessiliflorus Landrum, *Brittonia* 60(3): 254. 2008**.** Brazil. Bahia**:** Mun. de Correntina, Fazenda Jabotá, 26 Jun 1992 (fr). TYPE. *Da Silva et al. 1383* (HOLOTYPE: RB!, = ASU0008728-images, ASU0008729-images).

Shrub to ca. 1.5 m, sparsely to densely tomentulose on young twigs, some floral surfaces, and young leaves; *hairs* yellowish gray to silvery gray, some curled and appressed, others nearly straight and erect, up to ca. 1 mm long; *young twigs* densely tomentulose at first, losing the longer hairs first, shorter hairs later, the first bark smooth, yellowish white, cracking and flaking off, the older bark gray to brownish, the leaf and fruit scars prominent. LEAF BLADES sessile, ovate to lanceolate, 1.7–7 cm long, 1–4.5 cm wide, 1–2.5 times as long as wide, thickly coriaceous, somewhat lustrous above, dull below, impressed glandular above, puberulent basally above, densely tomentulose below at first, most hairs falling with age; *apex* acute to acuminate or obtuse, the very tip often blunt; *base* truncate to cordate; *petiole* less than 0.5 mm long, ca. 2 mm wide, tomentulose; midvein prominent below, flat above; venation moderately strong to obscure, brochidodromous, the lateral veins up to ca. 12 pairs, straight, leaving the midvein at an angle of ca 45º or more, uniting with a marginal vein that closely parallels the margin, up to ca. 2 mm from margin. FLOWER BUD campanulate-pyriform, ca. 8 mm long, sessile or subsessile, borne at leafless or bracteate nodes, or in axils of leaves near the tips of twigs; *indumentum pattern of buds* with peduncles and hypanthium tomentulose, with calyx and bracteoles tomentulose without, puberulent to glabrous within, with petals glabrous to subglabrous; *peduncles* 0–2 mm long; *bracteoles* ovate to linear-lanceolate, involute-clasping, 3–5 mm long. CALYX open, the calyx tube ca. 1.5 long, tearing between the lobes to the staminal ring at anthesis, the calyx lobes ovate-triangular, ca. 2–3 mm long and wide; petals glandular, ca. 8 mm long; *hypanthium* with the hairs persisting in fruit; *disk* in fruit 4–5 mm across, the staminal ring puberulent, the center recessed; *stamens* 150–200; anthers with a single terminal gland; mature *style* unknown; *ovary* 3-locular; *ovules* 9–15 per locule, uniseriate on a peltate placenta FRUIT globose, up to ca. 12 mm in diam.; seeds ca. 8, ca. 5 mm long.

Additional specimens examined. BRAZIL. **Bahia**: Correntina, (13.50°S, 44.82°W), without date, (yfr) *Moura 1505* (UB, = image ASU); Formosa de Rio Preto, ca. de 20 km da guarita da Faz. Estrondo, (11.56°S, 46.11°W), 450 m, 2 Feb 2000 (fl), *Passos et al. 359* (ASU0008730-images). **Goias**: Guaraní de Goiás, Rodovia entre Guaraní de Goiás e Posse, (14.01°S, 46.36°W), 829 m, 14 Nov 2011 (fl), *Faria 2182* (ASU0082737, ASU0082992), *Faria*, *2184*, (UB). **Tocantins**: Dianópolis, (11.57°S, 46.33°W), without date, *Scariot 782* (CEN, = ASU photo).

Phenology—Known to flower in February and fruit in June.

Distribution and habitat—Known from five localities in western Bahia and adjacent Goiás and Tocantins cerrado.

Distinguishing features——Hypanthium tomentulose; bracteoles caducous at about anthesis; flowers sessile or subsessile.

I described this species (Landrum 2008) as a *Calycolpus* and soon sent the holotype with seeds back to RB. My colleagues Carolyn Proença and Amelia Tuler were doubtful that it was a *Calycolpus* and included a sample collected by Jair Faria in a molecular study which indicated that the species was a *Psidium*. I was still not sure that I had made a mistake and asked Aline Stadnik to photograph seeds of the holotype at RB. After some study I found that I agreed with my colleagues that the species is a *Psidium*. I should have examined the seeds, which must be immature, more carefully, which would have shown that the species was *Psidium* and not *Calycolpus*. I am grateful to my colleagues for correcting my error. *Psidium sessiliflorum* is similar to *P. laruotteanum* and the two are compared directly Key 1-C, lead 4.

60. *Psidium sobralianum* Landrum & Proença, Brittonia 67(4): 325. 2015. TYPE. Brazil. Ceará, Crato, Flo[resta] Na[tional]-Araripe, caminho para Santana do Cariri, carrasco,

10 Feb 2012 (fl), *A. I. F. B. Lima, M. H. Carvalho, M. F. Sales & C. Crepaldi 54* (HOLOTYPE: UB; ISOTYPES: ASU0082461!, HCDAL, PEUFR. Fig. 72

Tree 3–25 m high, glabrous except for minute hairs on young growth (e.g., terminal buds), inner surface of calyx and disk; *hairs* reddish brown, less than 0.1 mm long; *young twigs* drying reddish brown, smooth, the older twigs light brown to yellowish, remaining smooth or slightly flaky or cracked. LEAF BLADES elliptic to lanceolate, 5–11 cm long, 1.4–4.2 cm wide, 2–3.6 times as long as wide, coriaceous, drying reddish brown to gray-green; *apex* acuminate; *base* cuneate to acuminate; *petiole* 2–4 mm long, 1.5(–2) mm wide, channeled; *venation* brochidodromous, the midvein broadly and shallowly impressed to nearly flat above, raised prominently below, the lateral veins ca. 12 pairs, nearly straight, leaving the midvein at an angle of ca. 45 degrees or more, connecting to an arching marginal vein that mostly runs within 1–2 mm of the margin, the tertiary veins dendritic, alternating with the laterals and seeming to arise mainly from the marginal. FLOWER BUDS pyriform, ca. 9 mm long, the hypanthium infundibular, ca. 4 mm long, the distal portion of bud subglobose, ca. 5 mm long, wider than long; *indumentum pattern of buds* with all surfaces glabrous except for minutely puberulent disk and calyx within, and the ciliate bracteoles and petals; *peduncles* uniflorous, 1–5 mm long, ca. 1 mm wide, slightly flattened to terete, apparently subtended by small scale-like bracts on otherwise leafless shoots or distally leafy shoots; *bracteoles* narrowly triangular, caducous at about anthesis or before, ca. 1 mm long. CALYX probably closed with a terminal pore, tearing longitudinally into ca. 5 irregular lobes at anthesis, these truncate, to ca. 2 mm long, the tears sometimes entering the staminal ring; *petals* unknown; *disk* ca. 5 mm across in recently opened flowers or fruits, puberulent to glabrescent; *stamens* ca. 250 (by scars); *anthers* ca. 0.5 mm long, with a terminal gland and 2–5 additional smaller glands; *style* 5–7 mm long; *ovary* 3-locular; *ovules* 4–5(–18) per locule. FRUIT globose, ca. 1.5–2 cm long; *seeds* (1–)5–10, 5–7 mm long, smooth, the outer rim of the seed coat ca. 8 cells thick.

Representative specimens examined. BRAZIL. **Ceará**: Crato, Chapada do Araripe, (7.30°S, 39.47°W), 31 Jan 2012, *Fernandez* (ASU0077349); Santana do Cariri, Santana/Canselao, (7.28°S, 39.61°W), 923 m, 23 Nov 2006 (fr), *Seixas sn* (ASU0082462). **Maranhão**: Reserva Florestal do Sacavém-São Luis, (2.58°S, 44.26°W), 23 Jan 1993 (fl), *Muniz 287* (UEC); Barra do Corda, Munic. Barra do Corda, lugar Cachoerinha, no camino que vai para o ribeirão Pau Grosso, (5.50°S, 45.25°W), 27 Feb 1983 (fl), *Santos 733* (ASU0082463). **Pará**: Mun. Tucuruí, Breu Branco, km 40 S of Reprêsa Tucuruí, (3.92°S, 49.73°W), 90 m, 17 Mar 1980 (fr), *Plowman et al. 9668* (MO, NY, US); Rio Jarí, Monte Dourado, Planalto B, (0.87°S, 52.52°W), 10 Oct 1968 (fr), *Silva 1157* (MICH, NY). **Pernambuco**: Serrita, Serra do Gravatá, (7.55°S, 39.32°W), 847 m, 22 Jan 2013 (fl), *Oliveira 2232* (HVASF); Petrolina, (9.40°S, 40.50°W), 25 May 2017 (fr), *Lima sn* (EAC).

Phenology—As far as known, flowering in January and February; fruiting from March to November.

Habitat and Distribution—Caatinga, carrasco (dense, xerophytic, shrubby vegetation), terra firme (uplands); from Pernambuco to Pará.

Distinguishing Features—Hypanthium glabrous to sparsely pubescent; calyx apparently closed with a terminal pore with a sinuate margin, tearing into about 5 lobes as it opens; leaves coriaceous, elliptic to lanceolate, 5–11 cm long, 1.4–4.2 cm wide, 2–3.6 times as long as wide, the base cuneate to acuminate; petiole 2–4 mm long; stamens usually more than 200; flower buds ca. 9 mm long.

61. ***Psidium striatulum*** DC., Prodr. 3: 233. 1828. TYPE. Brazil. *Martius s.n.* (HOLOTYPE: M-32386, annotated by de Candolle). Fig. 73

Shrub or small tree 1–6 m high, the young growth densely to sparsely hirsute-pubescent; *hairs* 0.1–0.6 mm long, on external surfaces, soft, whitish, usually spreading to erect, on inner surfaces of calyx and disk reddish brown, appressed; *young twigs* moderately to densely covered with spreading hairs or rarely glabrous, soon glabrescent, the young bark reddish brown to light gray, becoming dark reddish brown or dark gray, remaining smooth or becoming longitudinally striate or cracked or slightly flaky in age. LEAF BLADES elliptic, ovate, or oblong-lanceolate, usually widest at the middle or below, 2.2–7(–12) cm long, 1.5–3(–5) cm wide, 1.5–3 times as long as wide, submembranous to subcoriaceous, drying gray-green to dark reddish brown, slightly lighter below than above, lustrous to dull above, usually densely dotted with glands, glabrous or with scattered hairs, or sparsely to densely pubescent along the midvein, the margin usually obscurely sinuate-crenulate; *apex* acute, acuminate, less often rounded-obtuse (rarely emarginate), often apiculate; *base* rounded, subcordate, or obtuse; *petiole* pubescent or glabrous, channeled, 1–3 mm long, 0.8–1.5 mm thick; *venation* brochidodromous, sometimes eucamptodromous proximally, the midvein impressed above, prominent below, the lateral veins 4–10 pairs, leaving the midvein at an angle of 45º to nearly 90°, the marginal vein broadly arching between the laterals, as much as 7 mm from margin between arches, the tertiary veins obscure or pronounced, irregularly dendritic. FLOWER BUDS 8–14 mm long, pyriform, the hypanthium campanulate, narrowly campanulate or fusiform, 3–5 mm long, the distal portion of bud subglobose to barrel-shaped, sometimes wider than long, 5–9.5 mm long; *indumentum pattern of buds* with peduncles moderately to sparsely pubescent with spreading hairs, or glabrous, the bracteoles pubescent, the hypanthium pubescent to glabrous, the calyx puberulent within, pubescent to glabrous without, the petals glabrous or ciliate, the disk puberulent, the style glabrous; *peduncles* uniflorous (rarely 3-flowered), solitary, borne in the axils of leaves, usually terete, 0.9–2.3 cm long, 0.8–1 mm wide, thicker and somewhat woody at fruit maturation, usually puberulent with erect hairs; *bracteoles* narrowly triangular to filiform, ca. 1–2 mm long, caducous before bud matures. CALYX bowl-like, closed except for an apical pore nearly as wide as closed corolla, or completely closed, with no clear lobes evident before anthesis, extending 3–6(–8) mm beyond the ovary summit, densely glandular, at anthesis tearing somewhat irregularly or in 5 nearly equal lobes, the tears not cutting the staminal ring; *petals* obovate, 10–15 mm long; *hypanthium* densely glandular; *disk* ca. 4–5 mm across; *stamens* ca. 200–300, 8–15 mm long; *anthers* ca. 0.7–1 mm long, oblong, with a terminal gland and 0–2 smaller glands below, or 3–4 mm long, attenuate, with a terminal gland and up to at least 5 smaller glands below; *style* 10–15 mm long, the stigma peltate, 0.5–1 mm wide; *ovary* 3-locular, the placenta not peltate; *ovules* ca. 30–60 per locule, about 4-seriate (2-seriate on each lamella). FRUIT globose, 1–1.5 cm long, brown to green, sometimes tinted red; *seeds*13 to ca. 80 fruit, compressed, angular, C to L-shaped, ca. 4–6 mm long.

Phenology—Flowering and fruiting throughout year; mainly flowering from June to November; probably fruiting a few weeks later.

Habitat and Distribution—Along rivers or on islands in rivers, in sandy or rocky places; reported also from a white sand savanna. Found from Venezuela, the Guianas, Roraima to Mato Grosso do Sul in Brazil, and Bolivia.

Distinguishing Features—Young growth densely to sparsely hirsute-pubescent, the hairs 0.1–0.6 mm long, on external surfaces, soft, whitish, usually spreading to erect; leaves with base rounded, subcordate, or obtuse, with blades submembranous to subcoriaceous; calyx bowl-like, closed except for an apical pore, or completely closed, with no clear lobes evident before anthesis, extending 3–6(–8) mm beyond the ovary summit, at anthesis tearing somewhat irregularly or in 5 nearly equal lobes, the tears not cutting the staminal ring; peduncle usually terete, 0.8–1 mm wide, thicker and somewhat woody at fruit maturation, usually puberulent with erect hairs; seeds angular.

The population of this species in northeastern Bolivia and adjacent Rondônia, Brazil I recognize as var. *rondoniense* because of its unusual stamens.

1. Stamens with filaments ca. 10 times as long as anthers; anthers oblong, 1–1.5 mm……. long..…… ..... ***P. striatulum*** var. ***striatulum***
1' Stamens with filaments 1.5–3 times as long as anthers; anthers elongate, narrowly sagittate, 2–3.5 mm long ..... ***P. striatulum*** var. ***rondoniense***

61a. *Psidium striatulum* var. *striatulum*

Psidium striatulum DC., Prodr. 3: 233, as to type, 1828.

Psidium turbiniflorum DC., Prodr. 3: 234. 1828. TYPE. Brazil. "in Brasilia," *Martius s.n.* (HOLOTYPE: M-32388, annotated by de Candolle. Possible ISOTYPES: from Ega on Rio Negro, M-32387, M-146858!).

Psidium aquaticum Benth., J. Bot. (Hooker) 2: 318. 1840. TYPE. Guyana. *Schomburgk 191* (HOLOTYPE: K-565506; ISOTYPES: BM-796830, BR-5281459!, E-167679, F-76381!, F-76382!, MICH-1210416, P-2428283, US-117654, W-46098!).

Psidium parviflorum Benth., J. Bot. (Hooker) 2: 318. 1840. TYPE. Guyana. "on the Essequibo and Rupunoony," *Schomburgk 110* (SYNTYPES: K-565174 [annotated as isotype], K-565402; ISOSYNTYPES: BM-796861, E-167680, F-65709, P-258400!, P-258401!, TCD-4963, US-117671, W-48041).

Psidium aquaticum var. ***uniflorum*** O. Berg, Linnaea 27: 354. 1856. Illegitimate name to be replaced by the autonym *Psidium aquaticum* var. *aquaticum* because Berg cites *P. aquaticum* under that variety.

Psidium aquaticum var. ***triflorum*** O. Berg, Linnaea 27: 355. 1856. TYPE. Guyana ["Guiana Anglica"]. *Rich. Schomburgk 539* (HOLOTYPE: B, lost).

Psidium leptocladum O. Berg, in Mart., Fl. bras. 14(1): 409. 1857. TYPE. Brazil. "ad flumen Rio Maranhão in prov. Goyazensi," *Pohl 1018* (SYNTYPES: W-16678, W-16679).

Psidium persicifolium O. Berg, in Mart., Fl. bras. 14(1): 407. 1857. TYPE. Brazil. "in montibus Serra d'Acurua prov. Bahiensis, [11.5S, 42.5W]" "v. in hb. Berol., Mart., Vindob," *Blanchet 2916* (SYNTYPES: BR-528154!, W-16676, W-18890124691; ISOSYNTYPES: BM-796800, E-167674, F-65711, G-227672!, HAL-89787, K-18468, LE-6997, MICH-1210427!, P-258398!, P-258397!, P-258399!).

Guajava turbiniflora (DC.) Kuntze, Revis. Gen. Pl. 1: 239.1891.

Guajava [s]triatula (DC.) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava leptoclada (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239.1891.

Guajava persicifolia (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.

Guajava aquatica (Benth.) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Guajava parviflora (Benth.) Kuntze, Revis. Gen. Pl. 1: 240. 1891.

Myrtus striatula (DC.) O. Kuntze, Revis. Gen. Pl. 3(3): 92. 1898.

Psidium parviflorum var. ***saramaccense*** Amshoff, Bull. Torr. Bot. Club 75: 537. 1948. TYPE. Surinam. "Saramacca River," *Maguire 24930* (HOLOTYPE: NY-1288075!; ISOTYPES: F-76391!, K-565403, U-5190, US-117672).

Psidium parviflorum var. ***coppenamense*** Amshoff, Fl. Suriname 3, pt. 2: 153. 1951. TYPE. Surinam. "Coppename R," *Boon 1083* (SYNTYPE: U?), "Raleighfalls" *Stahel 4654* (SYNTYPE: U?) and "Raleighfalls" *Lanjouw 997* (SYNTYPES: U-5188, U-5189; ISOSYNTYPES: K-565418, NY-1288072!).

Psidium nigrum Mattos & D. Legrand, Loefgrenia 67: 10. 1975. TYPE. Brazil. Mato Grosso, Pantanal, Rio Negro. *Strang* 4203 (HOLOTYPE: MVM; ISOTYPE: SI-3049-fragments). Later homonym of *P. nigrum* Lour. 1790. 4203 seems to be an institution number and 614 the collection number.

Psidium ramboanum Mattos, Loefgrenia 116: 2. 2001. New name for *P. nigrum* Mattos & D. Legrand.

Leaves lustrous above or not, the base obtuse to subcordate; stamens with filaments ca. 10 times as long as the anthers; anthers oblong, 1–1.5 mm long.

Representative specimen examined. BRAZIL. **Amazonas:** Itaprianga, Rio Uatuma, acima da boca do rio Pitinga, (1.57°S, 59.67°W), 25 Aug 1979 (fl), *Cid et al. 746* (CAS, NY). **Bahia:** Serra Acuruá [Assuruá], (11.50°S, 42.50°W), 30 Nov 1838 (fl), *Blanchet 2916* (LE, P, ASU-photos); Estrada Barra-Ibotirama, BA-161, ponte sobre o Rio Grande, (11.16°S, 43.37°W), 385 m, 2 Jun 1999 (fr), *Melo 2715* (ASU0015710). **Maranhão:** Altamira, Igarapé Ipixuna, affluent of Rio Xingú, 5 km S of settlement, Arawté Indian Reserve, (4.82°S, 52.52°W), 5 Nov 1985 (fr), *Balee 1893* (ASU0010484). **Mato Grosso:** Fazenda Salina, Pantanal do Rio Negro, (19.50°S, 56.17°W), 12 Sep 1987 (fr), *Dubs 352* (ASU0015617), 26 May 1989 (fl), *Dubs 981* (ASU0015614); "Villa Maria", (16.07°S, 57.68°W), without date (fl), *Kuntze* (NY); Track Garapú to Rio Sete Septembro, (13.28°S, 52.53°W), 29 Sep 1964 (fr), *Prance 59169* (MICH, NY, US); São Félix do Araguaía, Rio Araguaía, Lago Inglés, (11.57°S, 50.72°W), 7 Oct 1985 (fr), *Thomas et al. 4269* (ASU0015616). **Mato Grosso do Sul:** Pantonal do Rio Negro, Barra Mansa, (19.55°S, 57.28°W), 12 Sep 1959 (fr), *Castellanos & Strang 22490* (R); Três Lagoas, (20.79°S, 51.79°W), 14 Oct 1964 (fr), *Gomes 2264* (ASU0015618). **Pará:** São João do Araguaia (5.38°S, 48.77°W), 12 Jul 1976 (fl), *Elias de Paula 945* (UB); Oriximiná, alto rio Erepecuru, Cachoeira Paciência, (0.30°N, 56.00°W), 19 Nov 1987 (fl), *Cid Ferreira 9638* (ASU0015627); Romansinho, Rio Tocantins, (1.75°S, 49.17°W), 15 Sep 1948 (fr), *Froes 23482* (ASU0015624); Rio Maicuru, proximidades da pista de pouso do Lageiro, (1.00°S, 54.50°W), 30 Jul 1981 (fr), *Jangoux & Ribiero 1576* (ASU0015622); São Felix do Xingú, Sub-base da fazenda Dourada, margem direita do Rio Dourado, (6.63°S, 51.98°W), 12 Jun 1978 (fl), *Rosario 43* (MICH, NY, RB); Serra de Tumuc-Humac, Rio Cuminá, (2.00°N, 55.00°W), without date (fl), *Sampaio 5340* (R); Santarém, Rio Curuá-Una, beira da Cachoeira do Palhão, (2.43°S, 54.70°W), 16 Feb 1968 (fl), *Silva 1426* (SP); Serra dos Carajas, Rio Itacaiúnas near ferry crossing to AMZA camp 3-Alfa, (5.88°S, 50.50°W), 150 m, 12 Jun 1982, *Sperling et al. 6126* (ASU0060195). **Pernambuco:** Rio Itacaiúna, Surubim, (7.85°S, 35.75°W), 19 Jun 1949 (fl), *Froes & Black 24610* (ASU0015623). **Roraima:** Caracaraí, by Rio Branco, (1.81°N, 61.13°W), 65 m, 9 Nov 1977 (yfr), *Coradin & Cordeiro 1029* (MICH, NY); Rio Apiaú, 30 km from mouth, (2.65°N, 60.95°W), 29 Jan 1967 (fr), *Prance 4143* (MICH, NY); Rio Murupu, 28 km NW of Boa Vista, rd. to Taiano, (3.00°N, 60.85°W), 8 Jan 1969 (yfr), *Prance 9115* (MICH, NY, US).

GUYANA. Near Dadanawa Ranch, Rupununi, (2.83°N, 59.50°W), 100 m, 16 Nov 1992 (fl), *Gorts et al. 218* (ASU0015922); along Rupununi River; near Karanambo, N. Rupununi, (4.07°N, 59.32°W), 100 m, 20 Nov 1992 (fl), *Gorts et al. 336* (ASU0015639); Rupununi Dist. Shea Rock, (2.82°N, 59.15°W), 160 m, 11 Feb 1994 (fr), *Jansen-Jacobs 3708* (ASU0015630); basin of Rupununi River, Karenambo, lat. ca. 3 45' N, (3.75°N, 59.00°W), 9 Oct 1937 (fl), *Smith 2254* (MO, NY); Upper Takutu-Upper Essequibo, Maparri Creek, N side, opposite camp at base of waterfall, (3.33°N, 59.25°W), 4 Jun 1996 (fr), *Clarke 1979* (ASU0015635); Upper Takutu-Upper Essequibo, Kamoa Mts. just below summit, 2 km N of camp on Kamoa River, (1.53°N, 58.83°W), 450 m, 10 Nov 1996 (fl), *Clarke 3070* (ASU0015626); Upper Takutu-Upper Essequibo, Essequibo River, between camp (at confl. of Essequibo River and Onoro Creek) and Konashen Rapids, (1.58°N, 58.62°W), 240 m, 18 Nov 1996 (fl), *Clarke 3283* (ASU0015640); Upper Takutu-Upper Essequibo, Upper Essequibo River, 1–4 km upstream from mouth of Kuyuwini River; E and W of banks, (2.33°N, 58.37°W), 100 m, 3 Oct 1993 (fl), *Clarke 3355* (ASU0015638); Upper Takutu-Upper Essequibo, Rewa River, 0.5 km S of Great Falls, (3.17°N, 58.67°W), 90 m, 20 Sep 1997 (fl), *Clarke 6633* (ASU0015637); Upper Takutu-Upper Essequibo, Acarai Mts., Sipu River 0–4 km from juncture with Essequibo River, (1.42°N, 58.83°W), 250 m, 13 Mar 1994 (fr), *Henkel, et al. 5172* (ASU0015631); Upper Takutu-Upper Essequibo, Kassakaityu River 15–20 km from juncture with Essequibo River, (1.82°N, 58.67°W), 250 m, 22 Mar 1994 (fr), *Henkel 5282* (ASU0015634); Upper Takutu-Upper Essequibo, Northern Rupununi savannas, Rupununi River, 3 km S of Karanambo Ranch, (3.82°N, 59.30°W), 90 m, 19 Feb 1992 (fr), *Hoffman 987* (ASU0015632).

SURINAME. Kabalebo Dam project, distr. Nickerie, (4.50°N, 57.52°W), 30 m, 25 Sep 1980 (fl), *Lindeman et al. 629* (MICH, NY); upper Coppename River near Raleigh Falls (4.71°N, 56.2°W), 23 Sep 1954 (fl), *Mennega 80* (NY).

VENEZUELA. **Amazonas:** Orinoco River, S part of Isla Ratón, (5.03°N, 67.77°W), 90 m, 24 Nov 1965 (fl), *Breteler 4804* (MER, MO, VEN, US); Isla Hormiga, alto Río Orinoco, (4.40°N, 67.8°W), 25 Jan 1958 (fr), *Vareschi 6588* (VEN). **Bolivar:** Raúl Leoni, Río Carapo, puente en via hacia El Pegón, al norte de Ciudad Piar, (7.49°N, 63.60°W), 100 m, 12 Jan 2005 (fl), *Díaz 7260* (ASU0015629). **Delta Amacuro:** Casacoima, Río Orinoco, margen derecha, ca. 3 km aguas arriba de Castillos de Guayana, (8.38°N, 62.17°W), 10 m, 27 Nov 2003 (fl), *Díaz 6777* (ASU0005113).

61b. ***Psidium striatulum*** var. ***rondoniense*** Landrum, J. Bot. Res. Inst. Texas 15(2): 540. 2021. TYPE. Brazil. Rondônia: Mineração Campo Novo, ca. 100 km SW of Ariquemes, forest on terra firma, 10°34'S, 63°37'W, 16 Oct 1979 (fl), *J. L. Zarucchi, M. G. Viera, R. H. Petersen, C. D. Mota, & J. F. Ramos 2722* (HOLOTYPE: INPA (seen as image); ISOTYPES: MICH!, NY!, R!, US!).

Leaves often lustrous above, the base usually subcordate; stamens with filaments 1.5–3 times as long as the anthers; anthers elongate, narrowly sagittate, 2–3.5 mm long.

Representative specimens examined. BOLIVIA. Santa Cruz: Prov. Velasco, a 150 km de Florida a Bella Vista, (13°42'10"S, 61°31'59"W), 4 Nov 1994 (fl), *Guillén et al. 2541* (ASU0015611); P. N. Noel Kempff M., Las Torres (13°39'20"S, 60°49'08"W), 200 m, 29 Nov 1994 (fl), *Jardim & Quevedo 189* (ASU0015619); P. N. Noel Kempff M., Campamento Flor de Oro (13°38'24''S, 60°47'45''W), 200 m, 22 Nov 1993 (fr), *Quevedo et al. 2533* (ASU0015620).

62. ***Psidium suffruticosum*** O. Berg, in Mart., Fl. bras. 14(1): 387. 1857. TYPE. Brazil. "in pascuis desertorum Brasiliae," *Pohl 1021* (original material cited at B, M, W; LECTOTYPE: W-0046104! [isotype designated as lectotype by Landrum, 2005]; ISOLECTOTYPES: M-146859!, = F neg 19727, BR-5267231!, K-565293, K-565294). Fig. 74

Psidium alatum O. Berg, in Mart., Fl. Bras. 14(1): 604. 1859. TYPE. Brazil. "Serra da Chapada prov. Minarum," *Riedel s.n.* (HOLOTYPE: LE-6973, = ASU photo).
Guajava suffruticosa (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.
Guajava alata (O. Berg) Kuntze, Revis. Gen. Pl. 1: 239. 1891.
Psidium suffruticosum var. ***alata*** Kiaersk., Enum. Myrt. bras. 27. 1893. TYPE. Brazil. "Lagoa Santa," "São Simão," *Warming s.n.* (SYNTYPE: C) and *Lofgren 212* (SYNTYPE: C*;* ISOSYNTYPE: SP!, = photo specimen ASU0116498) and *Glaziou 16972* (SYNTYPE: C; ISOSYNTYPE: R-8952!, = ASU photo).
Psidium australe var. ***suffruticosum*** (O. Berg) Landrum, SIDA 21(3): 1344. 2005.

Shrub up to ca. 30 cm high, sprouting from a fire-resistant underground stem, glabrous or essentially so except for puberulent inner calyx-lobe surface and young growth, the surfaces often with numerous raised glands; *hairs* minute, whitish; *young twigs* 4-angled, gray-green, becoming darker gray to light brown with age, the bark of older stems becoming flaky, reddish brown. LEAF BLADES oblanceolate, obovate, narrowly elliptic, 5–9 cm long, 1.3–4.6 cm wide, 1.6–5.6 times as long as wide, coriaceous, lustrous above, drying gray-green, dark olive green, to dark reddish brown above, usually lighter below; *apex* acute, acuminate or rounded, often with an abruptly acuminate tip; *base* cuneate to acute; *petiole* essentially none to ca. 2 mm long, 2–1.5 mm wide, usually channeled; *venation* eucamptodromous proximally to brochidromous distally, the midvein flat to slightly impressed above, prominent below, the lateral veins 5–8, ascending at an angle of less than 45 degrees, raised above and below, the marginal vein only evident distally, up to 3(–6) mm from the margin, the tertiary veins branching dendritically, often more prominent above than below. FLOWER BUDS pyriform, 5–8 mm long, the hypanthium campanulate to

infundibular, 2–3.5 mm long, the distal portion of bud subglobose, 3–5 mm long, sometimes wider than long; *indumentum pattern of buds* with all surfaces glabrous except for the puberulent inner surface of the calyx; *peduncles* 1–3-flowered, (2–)10–37 mm long, 0.8–1.5 mm wide, the arms of the dichasia 2–13 mm long; *bracteoles* narrowly deltoid-lanceolate, 2–3 mm long, usually falling before anthesis. CALYX in young bud closed except for an apical pore surrounded by 5 minute lobes, tearing more or less regularly between at least some lobes at anthesis for about 1/2 of bud's length to staminal ring; *petals* suborbicular to obovate, ca. 9 mm long; *disk* ca. 5–10 mm across; *stamens* 6–9 mm long, 140–300; *anthers* 0.5–1 mm long, with a single gland; *style* ca. 8 mm long; *ovary* 3–4-locular; *ovules* 20–47, the placenta not peltate, hidden by the ovules. FRUIT subglobose, 1–2 cm in diameter; *seeds* 6–11 per fruit, 3–5 mm long.

Representative specimens examined. BOLIVIA. **Santa Cruz**: Nuflo de Chavez, 15 km por el camino de Santa Rosa a Piso Firme, (15.81°S, 61.48°W), 358 m, 14 Nov 2008 (fr), *Wood 25359* (ASU0078689); Velasco, Parque Nacional Noel Kempff Mercado, (13.89°S, 60.81°W), 28 Jan 1997 (fl), *Soto et al. 424* (ASU0005422).

BRAZIL. **Goiás**: Mineiros, P. N. das Emas, cerca de 17.7 km do Portão do Jacuba, (17.91°S, 52.95°W), 857 m, 13 Dec 2012 (yfr), *Cordeiro 3423* (CEN). **Mato Grosso**: Chapada dos Guimarães, (15.38°S, 55.83°W), 6 Dec 1977 (fl), *Silva Costa 76* (RB), 29 Nov 1977 (fr), *Silva Costa 1300* (ASU0005423). **Minas Gerais**: Patos de Minas, (18.58°S, 46.53°W), 800 m, 19 Aug 1950 (fl), *Duarte 2825* (NY); Carmo da Cachoeira, Rod. Fernão Dias, (21.47°S, 45.22°W), 30 Nov 1985 (fl), *Hatschbach 50322* (ASU0005426); Serra da Anta, ca. 10 km NW of Paracatu, (17.22°S, 46.87°W), 900 m, 3 Feb 1970 (fr), *Irwin et al. 25885* (CAS, F, MO, NY); Caldas, (21.92°S, 46.39°W), 14 Nov 1861, *Regnell III 590* (R, US). **Paraná**: Jaguariaíva a Lageado 5 Reis, (24.25°S, 49.70°W), 860 m, 3 Dec 1964 (fl), *Hatschbach 11948* (HB, MBM); Ipiranga, Faxinal do Tanque, (25.02°S, 50.58°W), 20 Dec 1970 (fl), *Hatschbach 25899* (ASU, MBM). **São Paulo**: Botucatu, 18 km N, 14 km E of São Manuel, along São Manuel-Piracicaba hwy., near Treze de Maio, (22.75°S, 48.42°W), 550 m, 12 Oct 1979 (fl), *Gottsberger 11-121079* (ASU0005191), 22 Nov 1974 (fr), *Gottsberger & Campos 24-221174* (ASU0005403); Pirassununga, (22.00°S, 47.43°W), 14 Nov 1946 (fl), *Kuhlmann 1472* (ASU0005192); Itaberaba, Rio Verde, (23.86°S, 49.14°W), 17 Feb 1982 (fr), *Kummrow 1787* (ASU0005419); Mogi Guaçu, Estação Experimental do Instituto Florestal, Fazenda Campinha, (22.37°S, 46.95°W), 10 Oct 1977 (fl), *Leitão et al. 6049* (MBM); Itapetininga, (23.60°S, 48.05°W), 13 Nov 1961 (yfr), *Mattos 9576* (ASU0005417); 37 km de Avaré, rodovia Avaré-São Manuel, (23.08°S, 48.92°W), 15 Mar 1967 (fr), *Mattos 14527* (ASU0005400); 1 km a SE de Itararé, (23.79°S, 46.82°W), 29 Oct 1965 (fl), *Mattos 14973* (ASU0005404); Mogi Guaçu, Pádua Sales, Res. Biológica da Fazenda Campininha, (22.30°S, 47.13°W), 24 Nov 1977 (fr), *Sakane 698* (ASU0005425); Itapeva, Estação Ecológica de Itapeva, (24.07°S, 49.05°W), 12 Nov 1994 (fl), *Souza et al. 7092* (ASU0005427); Angatuba, Estrada para Itatinga, ca. 29 km de Angatuba, (23.31°S, 48.53°W), 2 Jan 1996 (yfr), *Souza et al. 10752* (ASU0005407); Mogi Mirim, (22.43°S, 46.95°W), 27 Feb 1941 *Viegas 6155* (CTES).

PARAGUAY. **Amambay**: Sierra de Amambay, (23.00°S, 56.00°W), without date (fl), *Hassler 11401* (ASU0005421). **Canindeyú**: Ygatimí, Res. Natural del Bosque Mbaracayú, Nandurocai, (24.17°S, 55.67°W), 19 Nov 1995 (fl), *Landrum 8857* (ASU0005424).

Phenology—Flowering mainly in October and November; fruiting from November to May.

Habitat and Distribution—Campos, cerrado, grasslands, frequently burnt areas; Mato Grosso, Minas Gerais, and São Paulo in Brazil; Bolivia and Paraguay.

Distinguishing Features—Calyx of flower bud nearly closed in young flower bud, tears forming between lobes as flower bud opens; leaves often 3 or more times as long as wide, lustrous above, glabrous or nearly so below; peduncles usually more than 2 cm long, usually 3-flowered; seeds up to ca. 11; placenta not peltate, hidden by ovules.

I have previously recognized this entity as a variety of *Psidium australe*, to which it seems to be closely related and with which it may hybridize (e.g., *Souza et al. 7135*, ASU0005418). The two taxa are compared in lead 6 of the Key 1-E.

63. *Psidium urquiolanum* Landrum & Z. Acosta, Phytotaxa 618(2): 196. 2023. TYPE. CUBA. Guantánamo: Baracoa, al sur de la loma del Yunque, (20.34°N, 74.57°W), 9 Feb 1972 (fl), *J. Bisse 21450* (HOLOTYPE: HAJB-G-001291; ISOTYPES: HAJB-G-001292, JE!). Fig. 75

Shrub or small tree perhaps, mainly glabrous but with minute hairs on some young growth and inner surface of calyx, the leaves and external surfaces of flowers densely glandular; *hairs* reddish brown, up to ca. 0.2 mm long; *young twigs* compressed to subterete, unwinged, glabrous to densely puberulent. LEAVES elliptic, oblong, obovate, or oblanceolate, (2.5–)3–8.7 cm long, (1.5–)2–4.2 cm wide, 1.3–2.3 times as long as wide; *apex* rounded to obtuse, sometimes emarginate; *base* rounded, cuneate, or broadly cuneate; *petiole* 2–4 mm long, 1.5–2 mm thick; *venation* brochidodromous, obscure to faintly visible, the midvein impressed or nearly flat above, prominent below, the lateral veins 4–6 pairs, leaving the midvein at an angle of 45–60 degrees, the marginal vein following the margin, arcing slightly between laterals, mainly running between 1 and 4 mm from margin, the tertiary veins rarely clear, dendritic, appearing to arise from the marginal vein; *blades* coriaceous, drying dark reddish-brown, densely glandular above and below, dull to slightly lustrous above and below, the margin revolute. FLOWER BUDS pyriform, 5–7 mm long, glabrous, densely and conspicuously glandular, the hypanthium ovoid to subcylindrical, 3–4 mm long, the distal portion of bud subglobose, 2–3 mm long; *indumentum pattern of buds* with all external surfaces glabrous, the inner surface of calyx and staminal ring minutely puberulent, the hairs mainly appressed; *peduncles* 1-flowered, (2–) 4–20 mm long, 0.8–1 mm wide, flattened or subterete, borne in the axils of leaves, or small bracts, often grouped together in short bracteate shoots, these usually at the tips of branches, but sometimes at the base of a young leafy shoot, the buds often of various sizes and stages of maturity in a single inflorescence, the bracts ovate to triangular, ca. 1–1.5 mm long; *bracteoles* narrowly triangular, ca. 1 mm long. CALYX closed in bud, with a terminal pore through which minute reddish brown hairs emerge, usually tearing in 4 nearly equal, subtriangular lobes, these 3–5 mm long, ca. 3 mm wide, the tears between lobes not cutting deeply into the staminal ring; *petals* 5, suborbicular, not persisting; *disk* 3–4 mm across, the staminal ring densely puberulent, 1–2 mm wide, the disk within staminal ring sparsely pubescent to glabrous; *stamens* ca. 100; *anthers* ca. 0.5 mm long, with a terminal gland and a few smaller glands below; *style* 3–5 mm long, glabrous, glandular; *ovary* 2–4-locular; *ovules*16–20 per locule, mainly uniseriate, the placenta peltate. FRUIT globose, ca.1 cm wide; *seeds* ca. 7, lenticular to reniform, somewhat flattened, ca. 4 mm long, the seed coat several cells thick at narrowest point, the embryo ca. 2 mm long in curved state.

Representative specimens examined. **CUBA. Guantánamo**: Baracoa, alto entre Loma del Mirador y Loma de Buena Vista (al oeste de Camarones), (20.44°N, 74.60°W), 500 m, 6 Aug 1975 (fl), *Alvarez et al. 27136a* (HAJB, JE), (fr), *Alvarez 27137* (HAJB, JE); cabezada del Río Naranjo, (20.44°N, 74.69°W), 27 Feb 1975, *Alvarez et al. 27136b* (HAJB); Baracoa, camino de Los Naranjos a la Loma de Buenavista, (20.45°N, 74.65°W), 200 m, 21 Jan 1977 (fl), *Alvarez et al. 33784* (HAJB, JE); camino a vega de la Palma, orillas de Arroyo Blanco, (20.33°N, 74.63°W), 27 Feb 1979, *Areces et al. 40095* (HAJB); Baracoa, valle al noroeste del Yunque de Baracoa, (20.34°N, 74.55°W), 31 Jan 1968 (ybud), *Bisse & Kohler 5291* (JE); Baracoa, altiplano de la Mina Iberia, (20.46°N, 74.73°W), 600 m, 29 Feb 1968 (fr), *Bisse 6818* (JE); Baracoa, valle del Río

Maraví, (20.42°N, 74.58°W), 31 Mar 1970 (st), *Bisse 16967* (HAJB, JE); Baracoa, al sur de la Loma del Yunque, (20.34°N, 74.55°W), 300 m, 31 Mar 1970 (ofl), *Bisse 17073* (JE); Baracoa, orillas del Río Báez, cerca del campamento `Los Naranjos`, (20.45°N, 74.58°W), 1 Aug 1975 (fl), *Bisse 27000* (HAJB, JE). **Holguín**: Moa, Cuchillas de Moa, alrededores del aserrío La Melba, (20.45°N, 74.82°W), 28 Apr 1980 (fl), *Alvarez et al. 42244* (HAJB, JE); Moa, orillas del Río Jiguani, cerca del segundo aserrío de La Melba, (20.45°N, 74.82°W), 31 Mar 1968 (bud), *Bisse & Kohler 6774* (HAJB, JE); Moa, La Melba, (20.45°N, 74.82°W), 27 Dec 1968 (bud, fl), *Bisse & Lippold 11888* (HAJB, JE); charrascal de Cayo Guam, Moa, al W del campismo, (20.58°N, 74.86°W), 30 Jun 1991 (yfr), *Urquiola 7108* (ASU0060189).

Phenology—Phenology is not well known; flowering in January, April, August and December; fruiting in March and August.

Habitat and distribution—Endemic to eastern Cuba; charrascal, rain forest, and cloud forest at 200 to 700 m.

Distinguishing features—Leaves mostly elliptic, obovate, or oblanceolate, (2.5–)3–8.7 cm long; flower buds 5–7 mm long, with the calyx closed except for a small terminal pore.

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Table 4. List of accepted species names and additional varietal names **in bold, (72)**. Synonyms of accepted names not in bold with their accepted synonym not in bold, (464).

Britoa acida (Mart. ex DC.) O. Berg = *Psidium acidum*
Calycolpus parviflorus Sagot = *P. salutare* var. *salutare*
Calycolpus sessiliflorus Landrum = *Psidium sessiliflorum*
Calycorectes protractus Griseb. = *P. oligospermum*
Calyptranthes tonduzii Donn. Smith = *P. oligospermum*
Calyptrogenia biflora Alain = *P. amplexicaule*
Calyptropsidium friedrichsthalianum O. Berg = *P. friedrichsthalianum*
Calyptropsidium sintenisii Kiaersk. = *P. oligospermum*
Calytranthes eugenioides Cambess. = *P. oligospermum*

Campomanesia suffruticosa O. Berg = *P. laruotteanum*
Campomanesia tomentosa Kunth = *P. guineense*
Chytraculia browniana (DC.) Kuntze = *Psidium brownianum*
Chytraculia eugenioides (Cambess.) Kuntze = *Psidium oligospermum*
Chytraculia gardneriana (O. Berg) Kuntze = *Psidium oligospermum*
Chytraculia sartoriana (O. Berg) Kuntze = *Psidium oligospermum*
Corynemyrtus corynantha (Kiaersk.) Mattos = *Psidium myrtoides*
Episyzygium oahuense Suess. & A.Ludw. = *Psidium cattleyanum*
Eugenia arayan (Kunth) Seem. = *Psidium salutare* var. *salutare*
Eugenia brunnea Nied. = Psidium ovale
Eugenia corozalensis Britton = *Psidium amplexicaule* Pers.
Eugenia guayavillo Benth. = *Psidium salutare var. salutare*
Eugenia nummularia C. Wright ex Griseb. = *Psidium nummularia*
Eugenia pseudovenosa H. Perrier = *Psidium cattleyanum*
Guajava acutangula (DC.) Kuntze = *P. acutangulum*
Guajava aeruginea (O. Berg) Kuntze = *Psidium rufum*
Guajava alata (O. Berg) Kuntze = *P. suffruticosum*
Guajava albida (Cambess.) Kuntze = *P. guineense*
Guajava amplexicaulis (Persoon) Kuntze = *P. amplexicaule*
Guajava anceps (O. Berg) Kuntze = *P. australe* var. *australe*
Guajava aquatica (Benth.) Kuntze = *Psidium striatulum* var. *striatulum*
Guajava argenta (O. Berg) Kuntze = *Psidium australe var. argenteum*
Guajava australis (Cambess.) Kuntze = *P. australe* var. *australe*
Guajava basantha (O. Berg) Kuntze = *P. laruotteanum*
Guajava benthamiana (O. Berg) Kuntze = *P. guineense*
Guajava buxifolia (Nutt.) Kuntze = *P. cattleyanum*
Guajava cattleyana (Sabine) Kuntze = *P. cattleyanum*
Guajava ciliata (Benth.) Kuntze = P. *salutare* var. *salutare*
Guajava cinerea (DC.) Kuntze = *P. grandifolium*
Guajava costaricensis (O. Berg) Kuntze = *P. guineense*
Guajava crenata (O. Berg) Kuntze = *P. maribense*
Guajava cuneata (Cambess.) Kuntze = *P. australe* var. *argenteum*
Guajava cuprea (O. Berg) Kuntze = *Psidium rufum*
Guajava decussata (DC.) Kuntze = *P. decussatum*
Guajava densicoma (DC.) Kuntze = *P. densicomum*
Guajava doniana (O. Berg) Kuntze = *P. guyanense*
Guajava firma (O. Berg) Kuntze = *P. firmum*
Guajava fluviatilis (DC.) Kuntze = *P. acutangulum*
Guajava gardneriana (O. Berg) Kuntze = *P. myrsinites*
Guajava glaucescens (O. Berg) Kuntze = *P. laruotteanum*
Guajava grandifolia (DC.) Kuntze = *P. grandifolium*
Guajava guayabita (O. Berg) Kuntze = *P. salutare* var. *salutare*
Guajava guineensis (Sw.) Kuntze = *P. guineense*
Guajava hians (O. Berg) Kuntze = *P. guineense*
Guajava incanescens (DC.) Kuntze = *P. grandifolium*
Guajava lanceolata (O. Berg) Kuntze = *P. salutare* var. *salutare*
Guajava laruotteana (O. Berg) Kuntze = *P. laruotteanum*
Guajava laurifolia (O. Berg) Kuntze = *P. guineense*
Guajava leptoclada (O. Berg) Kuntze = *Psidium striatulum* var. *striatulum*
*Guajava macrosperma (*O. Berg) Kuntze = *Psidium rufum*
Guajava maranhensis (O. Berg) Kuntze = *P. riparium*
Guajava maribensis (DC.) Kuntze = *P. maribense*
Guajava mengahiensis (Cambess.) Kuntze = *P. riparium*
Guajava microcarpa (Cambess.) Kuntze = *P. grandifolium*
Guajava mollis (Bertol.) Kuntze = *P. guineense*
Guajava montana (Sw.) Kuntze = *P. montanum*
Guajava moritziana (O. Berg) Kuntze = *P. brownianum*
Guajava multiflora (Cambess.) Kuntze = *P. guineense*
Guajava myrsinites (DC.) Kuntze = *P. myrsinites*
Guajava myrsinoides (O. Berg) Kuntze = *P. myrsinites*
Guajava myrtoides (O. Berg) Kuntze = *P. myrtoides*
Guajava nutans (O. Berg) Kuntze = *P. nutans*
Guajava oblongata (O. Berg) Kuntze = *P. oblongatum*
Guajava oblongifolia (O. Berg) Kuntze = *P. nutans*
Guajava obovata (DC.) Kuntze = *P. P. cattleyanum*
Guajava oerstediana (O. Berg) Kuntze = *P. salutare* var. *salutare*
Guajava oligosperma (DC.) Kuntze = *P. oligospermum*
Guajava ooidea (O. Berg) Kuntze = *P. guineense*
Guajava ovatifolia (O. Berg) Kuntze = *P. densicomum*
Guajava paraensis (O. Berg) Kuntze = *P. riparium*
Guajava paranensis (O. Berg) Kuntze = *P. kennedyanum*
Guajava parviflora (Benth.) Kuntze = Psidium striatulum var. *striatulum*
Guajava persicifolia (O. Berg) Kuntze = Psidium striatulum var. *striatulum*
Guajava pohliana (O. Berg) Kuntze = *P. salutare* var. *pohlianum*
Guajava polycarpa (Lambert) Kuntze = *P. guineense*
Guajava pumilia (O. Berg) Kuntze = *P. guajava*
Guajava pyrifera (L.) Kuntze = *P. guajava*
Guajava refracta (O. Berg) Kuntze = *P. guineense*
Guajava rhombea (O. Berg) Kuntze = *P. rhombeum*
Guajava richardiana (O. Berg) Kuntze = *P. guyanense*
Guajava riedeliana (O. Berg) Kuntze = *P. grandifolium*
Guajava riparia (DC.) Kuntze = *P. riparium*
Guajava rubescens (O. Berg) Kuntze = *P. guineense*?
Guajava ruiziana (O. Berg) Kuntze = *P. rutidocarpum*
Guajava salicifolia Kuntze = *P. maribense*
Guajava salutaris (Kunth) Kuntze = *P. salutare*
Guajava schiedeana (O. Berg) Kuntze = *P. guineense*
Guajava sericea (O. Berg) Kuntze = *P. salutare* var. *sericeum*
Guajava sieberiana (O. Berg) Kuntze = *P. riparium*
Guajava sprucei (O. Berg) Kuntze = *P. guyanense*
Guajava striatula Kuntze = *P. striatulum var. striatulum*
Guajava suffruticosa (O. Berg) Kuntze = *P. suffruticosum*
Guajava turbiniflora (Mart. ex DC.) Kuntze = Psidium striatulum var. *striatulum*
Guajava umbrosa (O. Berg) Kuntze = *P. guyanense*
Guajava widgreniana (O. Berg) Kuntze = *Psidium rufum*
Guajava ypanemensis (O. Berg) Kuntze = *P. guineense*
Marlierea leal-costae G. M. Barroso & Peixoto = *P. amplexicaule*
Mitranthes browniana (Mart. ex DC.) O. Berg = *P. brownianum*
Mitranthes eugenioides (Cambess.) O. Berg = *P. oligospermum*
Mitranthes eugenioides var. oblongifolia O. Berg = *P. oligospermum*
Mitranthes eugenioides var. ovata O. Berg = *P. oligospermum*
Mitranthes gardneriana O. Berg = *P. oligospermum*
Mitranthes sartoriana O. Berg = *P. oligospermum*
Mitropsidium brownianum (Mart. ex DC.) Burret = P. brownianum
*Mitropsidium eugenioides (*Cambess.) Burret = *P. oligospermum*
Mitropsidium gardnerianum (O. Berg) Burret = *P. oligospermum*
Mitropsidium oblanceolatum Burret = *P. oligospermum*
Mitropsidium oligospermum (DC.) Burret = *Psidium oligospermum*
Mitropsidium pittieri Burret = *P. oligospermum*
Mitropsidium sartorianum (O. Berg) Burret = *Psidium oligospermum*

Mitropsidium sintenisii (Kiaersk.) Burret = *Psidium oligospermum*
Mosiera guineensis (Sw.) Bisse = *P. guineense*
Mosiera sagraea (O. Berg) Bisse = *P. salutare* var. *salutare*
Myrcianthes brunea O. Berg = *P. ovale*
Myrcianthes brunea var. *grandifolium* O. Berg = *P. ovale*
Myrcianthes brunea var. *parvifolium* O. Berg = *P. ovale*
Myrcianthes reptans D. Legrand = *P. salutare* var. *salutare*
Myrtus acutata O. Berg = *P. salutare* var. *cuspidatum*
Myrtus arayan Kunth = *P. salutare* var. *salutare*
Myrtus bergiana Niedenzu = *P. laruotteanum*
Myrtus blanchetiana O. Berg = *P. salutare var. salutare*
Myrtus claraensis (Urb.) Bisse = Psidium oligospermum
Myrtus corynantha Kiaersk. = *P. myrtoides*
Myrtus cuspidata O. Berg = *P. salutare* var. *cuspidatum*
Myrtus cuspidata var. *tetramera* O. Berg = *P. salutare* var. *cuspidatum*
Myrtus cuspidata var. pentamera O. Berg = *P. salutare* var. *cuspidatum*
Myrtus formosa Barb. Rodr. = *P. laruotteanum*
Myrtus grandifolia O. Berg = *P. firmum*
Myrtus guajava (L.) Kuntze = Psidium guajava
Myrtus guajava var. pyrifera (Kuntze) Kuntze = Psidium guajava
Myrtus guineensis (Sw.) Kuntze = Psidium guineense
Myrtus hassleriana Barb. Rodr. = *P. salutare* var. *sericeum*
Myrtus incana O. Berg = *P. salutare* var. *sericeum*
Myrtus lurida Sprengel = *P. salutare* var. *cuspidatum*
Myrtus mucronata Cambess. = *P. salutare* var. *cuspidatum*
Myrtus mucronata var. *perforata* O. Berg = *P. salutare* var. *cuspidatum*
Myrtus mucronata var. *opaca* O. Berg = *P. salutare* var. *cuspidatum*
Myrtus mucronata var. thea (Griseb.) Griseb. = *Psidium salutare var. cuspidatum*
Myrtus nigra Willd. ex O. Berg, nom. nud. = *P. salutare* var. *salutare*
Myrtus nivea O. Berg = *P. salutare* var. *sericeum*
Myrtus ovalis Sprengel = *P. ovale*
Myrtus ovalis O. Berg = *P. salutare* var. *cuspidatum*
Myrtus pauciflora Cambess. = *P. salutare* var. *cuspidatum*
Myrtus pubescens O. Berg = *P. salutare* var. *sericeum*
Myrtus rigida O. Berg = *P. salutare* var. *salutare*
Myrtus sagraea O. Berg = *P. salutare* var. *salutare*
Myrtus salicifolia Willd. Nomen nudum = *P. maribense*
Myrtus salutaris Kunth = *P. salutare* var*salutare*
Myrtus sellowiana O. Berg = *P. salutare* var. *cuspidatum*
Myrtus sericea Cambess. = *P. salutare var. sericeum*
Myrtus sericea var. *suffruticosa* O. Berg = *P. salutare* var. *sericium*
Myrtus sericea var. *fruticosa* O. Berg = *P. salutare* var. *sericeum*
Myrtus striatula (DC.) Kuntze = *P. striatulum var. striatulum*
Myrtus suffruticosa O. Berg = *P. salutare* var. *cuspidatum*
Myrtus suffruticosa var. *latifolia* O. Berg = *P. salutare* var. *cuspidatum*
Myrtus suffruticosa var. *angustifolia* O. Berg = *P. salutare* var. *cuspidatum*
Myrtus thyrsodea O. Kuntze = *P. riparium*
Pseudocaryophyllus seemannii Triana ex Hemsl. = *Psidium salutare* var. *salutare*
Pseudocaryophyl uniflorus Burret = *P. myrtoides*
Psidium acidum (DC.) Landrum
Psidium acranthum Urb.
Psidium acre Tenore = P. cattleyanum
Psidium acunae Borhidi = *P. nummularia*
Psidium acutangulum DC.
Psidium acutangulum var. *acidum* DC. = *P. acidum*
Psidium acutangulum var. *crassirame* O. Berg = *P. acutangulum*
Psidium acutangulum var. *oblongatum* Mattos = *P. acutangulum*
Psidium acutangulum var. *tenuirame* O. Berg = *P. acutangulum*
Psidium acutatum (O. Berg) Burret = *P. salutare* var. *cuspidatum*
Psidium aerugineum O. Berg = *P. rufum*
Psidium aerugineum var. *angustifolium* O. Berg = *P. rufum*
Psidium affine Burret = *P. salutare* var. *cuspidatum*
Psidium alatum O. Berg = *P. suffruticosum*
Psidium albescens Urb.
Psidium albidum Cambess. = *P. guineense*
Psidium albidum var. cuneatum (Cambess.) Mattos = Psidium australe var. argenteum
Psidium amplexicaule Persoon
Psidium anceps O. Berg = *P. australe* var. *australe*
Psidium angustifolium Lamarck = *P. guajava*
Psidium apaense Barb. Rodr. = *P. grandifolium*
Psidium apiculatum Mattos = *P. acidum*
Psidium appendiculatum Kiaersk.
Psidium aquaticum Bentham = *P. P. striatulum* var. *striatulum*
Psidium aquaticum var. *uniflorum* O. Berg = *P. striatulum* var. *striatulum*
Psidium aquaticum var. *triflorum* O. Berg = *P. striatulum* var. *striatulum*
Psidium araca Radd*i* = *P. guineense*
Psidium araca var. *sampaionis* Herter = *P. rufum*
Psidium araucanum Soares-Silva & Proença
Psidium arayan (Kunth) Burret = *Psidium salutare* var. *salutare*
Psidium argenteum O. Berg = *P. australe var. argenteum*
Psidium argenteum var. *angustifolium* O. Berg = *P. australe* var. *argenteum*
Psidium argenteum var. *grandifolium* O. Berg = *P. australe* var. *argenteum*
Psidium argenteum var. pumilum O. Berg = *P. australe* var. *argenteum*
Psidium argenteum var. *purpureum* O. Berg = *P. australe* var. *argenteum*
Psidium aromaticum Blanco = *P. guajava*
Psidium atiraense Barb. Rodr. = *P. guineense*
Psidium australe Cambess.
Psidium. australe var. ***argenteum*** (O. Berg) Landrum
Psidium australe var. ***australe***
Psidium australe var. *suffruticosum* (O. Berg) Landrum = *P. suffruticosum*
Psidium bahianum Landrum & Funch
Psidium balium Urb. = *P. parvifolium*
Psidium barbosianum Burret = *P. salutare* var. *sericeum*
Psidium basanthum O. Berg = *P. laruotteanum*
Psidium benthamianum O. Berg = *P. guineense*
Psidium bergianum (Nied.) Burret = *P. laruotteanum* Cambess.
Psidium bergianum var. verticillata (Kiaersk.) Mattos = *Psidium laruotteanum*
Psidium blanchetianum (O. Berg) Burret = *Psidium salutare* var. *salutare*
Psidium brevifolium Alain = *P. acranthum*
Psidium brevipedunculatum Tuler & Landrum
Psidium brownianum DC.
Psidium buxifolium Nutt. = *P. cattleyanum*
Psidium calyptranthoides Alain = *P. oligospermum*
Psidium campicolum Barb. Rodr. = *P. nutans*
Psidium canum Mattos = *P. myrtoides*
Psidium capibaryense Barb. Rodr. = *P. laruotteanum*
Psidium cattleyanum Sabine
Psidium cattleyanum var. *coriaceum* Kiaersk. = *P. cattleyanum*
Psidium cattleyanum f. *lucidum* Degener = *P. cattleyanum*

Psidium cattleyanum var. *purpureum* Mattos = *P. cattleyanum*
Psidium cattleyanum var. *pyriforme* Mattos = *P. cattleyanum*
Psidium cauliflorum Landrum & Sobral
Psidium celastroides Urb. = *P. nummularia*
Psidium chiapense Lundell = *P. salutare* var. *salutare*
Psidium chodatianum Barb. Rodr. = *P.guajava*
Psidium chrysobalanoides Standl. = *P. australe*
Psidium ciliatum Bentham = *P. salutare* var. *salutare*
Psidium cinereum DC. = *P. grandifolium*
Psidium cinereum var. angustifolium O. Berg = *P. grandifolium*
Psidium cinereum var. *brevipes* O. Berg = *P. grandifolium*
Psidium cinereum var. *grandifolium* O. Berg = *P. australe* var. *argenteum*
Psidium cinereum var. incanescens (Mart. ex DC.) D. Legrand = *Psidium grandifolium*
Psidium cinereum var. *intermedium* O. Berg = *P. grandifolium*
Psidium cinereum var. *paraguariae* D. Legrand = *P. grandifolium*
Psidium claraense Urb. = *P. oligospermum*
Psidium cordatum Sims = *P. amplexicaule*
Psidium cordillerense Barb. Rodr. = *P. guineense*
Psidium coriaceum O. Berg = *P. cattleyanum*
Psidium coriaceum var. *obovatum* O. Berg = *P. cattleyanum*
Psidium coriaceum var.*grandifolium* O. Berg = *P. cattleyanum*
Psidium coriaceum var. *longipes* O. Berg = *P. cattleyanum*
Psidium corynanthum (Kiaersk.) Burret = *P. myrtoides*
Psidium costaricense O. Berg = *P. guineense*
Psidium crenatum O. Berg = *P. maribense*
Psidium crispum Barb. Rodr. = *P. guajava*
Psidium cujavillus Burm. f. = *P. guajava*
Psidium cujavus L. = *P. guajava*
Psidium cuneatum Cambess. = *P. australe* var. *argenteum*
Psidium cuneatum var. *incanescens* O. Berg = *P. grandifolium*
Psidium cuneatum var. *niveum* O. Berg = *P. australe* var. *argenteum*
Psidium cuneifolium Tenore = *P. cattleyanum*
Psidium cupreum O. Berg = *P. rufum*
Psidium cupreum var. *glabratum* Kiaersk. = *P. rufum*
Psidium cuspidatum (O. Berg) Burret = *P. salutare* var. *cuspidatum*
Psidium cymosum Urb. = *P. rotundatum*
Psidium decussatum DC.
Psidium deltosepalum Barb. Rodr. = *P. salutare* var. *salutare*
Psidium densicomum DC.
Psidium dichotomum Weinm. = *P. guineense*
Psidium dictyophyllum Urb. & Ekman = *P. amplexicaule*
Psidium donianum O. Berg = *P. guyanense*
Psidium dumetorum Proctor = *P. amplexicaule*
Psidium ellipticum Barb. Rodr. = *P. guajava*
Psidium emilhasslerianum Barb. Rodr. = *P. australe* var. *australe?*
Psidium eriophyllum Barb. Rodr. = *P. grandifolium*
Psidium eugenii Kiaersk. = *P. guineense*
Psidium eugenioides (Cambess.) Niedenzu = *P. oligospermum*
Psidium firmum O. Berg
Psidium firmum var. *subcordatum* O. Berg = *P. firmum*
Psidium fluviatile DC. = *P. acutangulum*
Psidium formosum (Barb.Rodr.) Burret = *Psidium laruotteanum*
Psidium fragrans Macfad. = *P. guajava*
Psidium friedrichsthalianum (Berg) Niedenzu
Psidium fulvum McVaugh
Psidium galapagaeum Hook. f. = *P. oligospermum*
Psidium galapageium var. *howellii* D. M. Porter = *P. oligospermum*
Psidium ganevii Landrum & Funch
Psidium gardnerianum O. Berg = *P. myrsinites*
Psidium gaudichaudianum Proença & Faria = *P. cattleyanum*
Psidium gentlei Lundell = *P. salutare var. salutare*
Psidium giganteum Mattos = *P. myrtoides*
Psidium glandulosum Barb. Rodr. = *P. guineense*
Psidium glaucescens O. Berg = *P. laruotteanum*
Psidium glaziovianum Kiaersk.
Psidium grandiflorum Ruiz & Pavon = *P. friedrichsthalianum*
Psidium grandifolium DC.
Psidium grandifolium (O. Berg) Burret = *P. firmum*
Psidium grandifolium var. *albidum* O. Berg = *P. grandifolium*
Psidium grandifolium var. *genuinum* O. Berg = *P. grandifolium*
Psidium grandifolium var. *heterophyllum* O. Berg = *P. grandifolium*
Psidium grandifolium var. *incanescens* O. Berg = *P. grandifolium*
Psidium grandifolium var. *intermedium* O. Berg = *P. grandifolium*
Psidium grandifolium var. *tenuinerve* O. Berg = *P. grandifolium*
Psidium grandifolium var. *ternatifolium* (Cambess.) O. Berg = *P. grandifolium*
Psidium grazielae Tuler & M. C. Souza
Psidium guajava L.
Psidium guajava var. *cujavillum* (Burm.f.) Krug & Urb = *P. guajava*
Psidium guajava var. *minor* Mattos = *P. guajava*
Psidium guajava var. *pyriferum* (L.) Blume = *P. guajava*
Psidium guayabita Richard = *P. salutare* var. *salutare*
Psidium guayabita var. *angustifolia* Grisebach = *P. salutare* var. *salutare*
Psidium guayabita var. *oblongata* Grisebach = *P. salutare* var. *salutare*
Psidium guayaquilense Landrum & Cornejo
Psidium guedesiae Stadnik & Landrum
Psidium guineense Sw.
Psidium guyanense Persoon
Psidium hagelundianum Mattos = *P. myrtoides*
Psidium haitiense Alain = *P. acranthum*
Psidium harrisianum Urb.
Psidium hasslerianum Barb. Rodr. = *P. guineense*
Psidium hatschbachii D. Legrand = *P. ovale*
Psidium hians DC. = *P. guineense*
Psidium hians var. *cuneatum* O. Berg = *P. guineense*
Psidium hians var. *truncatum* O. Berg = *P. guineense*
Psidium hotteanum Urb. & Ekman = *P. acranthum*
Psidium huanucoense Landrum
Psidium hypoglaucum Standl. = *P. guineense*
Psidium igatemyensis Barb. Rodr. = *P. guajava*
Psidium imaruinense Mattos = *P. myrtoides*
Psidium incanescens DC. = *P. grandifolium*
Psidium incanescens var. *cuneatum* O. Berg = *P. grandifolium*
Psidium incanescens var. *parvifolium* O. Berg = *P. grandifolium*
Psidium incanescens var. *rotundifolium* O. Berg = *P. grandifolium*
Psidium incanum (O. Berg) Burret = *Psidium salutare* var. *sericeum*
Psidium incanum var. *pubescens Mattos = Psidium salutare* var. *sericeum*
Psidium insulincola S. Moore = *P. riparium*
Psidium involutisepalum Tuler, Carrijo & Peixoto = *P. myrtoides*
Psidium jakucsianum Borhidi = *P. minutifolium*
Psidium kennedyanum Morong
Psidium lagoense Kiaersk. = *P. rufum*
Psidium lanatum Barb. Rodr. = *P. grandifolium*

Psidium lanceolatum O. Berg = *P. salutare* var. *salutare*
Psidium laruotteanum Cambess.
Psidium latium Burret = *P. salutare* var. *cuspidatum*
Psidium laurifolium Rich. ex O. Berg = *P. guyanense*, unpublished herbarium name mentioned by Berg
Psidium laurifolium O. Berg = *P. guineense*
Psidium laurifolium Barb. Rodr. = *P. guineense*
Psidium lehmanni Diels = *P. guineense*
Psidium leonis Urb. = *P. parvifolium*
Psidium leptocladum O. Berg = *P. striatulum* var. *striatulum*
Psidium littorale Raddi = *P. cattleyanum*
Psidium littorale var. *longipes* (O. Berg) Fosberg = *P. cattleyanum*
Psidium longifolium Schum. = *P. guajava?*
Psidium longipetiolatum D. Legrand
Psidium lourteigii D. Legrand = *P. firmum*
Psidium luridum var. *cinereum* Mattos = *P. salutare* var. *cuspidatum*
Psidium luridum var. *pauciflora* (Cambess.) Mattos = *Psidium salutare* var. *cuspidatum*
Psidium luridum var. *pubescens* Mattos = *P. salutare* var. *sericeum*
Psidium macahense O. Berg = *P. brownianum*
Psidium macedoi Kausel = *P. firmum*
Psidium macrophyllum Barb. Rodr. = *P. guineense*
Psidium macrospermum O. Berg = *P. rufum*
Psidium malmei Kausel = *P. myrsinites*
Psidium maranhense O. Berg = *P. riparium*
Psidium maribense DC.
Psidium mattogrossense Barb. Rodr. = *P. nutans*
Psidium mengahiense Cambess. = *P. riparium*
Psidium microcarpum Cambess. = *P. grandifolium*
Psidium microphyllum Britton = *P. oligospermum*
Psidium minense Mattos = *P. firmum*
Psidium minutiflorum Amshoff = *P. oligospermum*
Psidium minutifolium Krug & Urb.
Psidium missionum D. Legrand
Psidium molinae Amshoff = *P. oligospermum*
Psidium molle Bertol. = *P. guineense*
Psidium molle var. *gracile* O. Berg = *P. guineense*
Psidium molle var. *robustum* O. Berg = *P. guineense*
Psidium montanum Sw.
Psidium monticola O. Berg = *P. guineense*
Psidium moritzianum O. Berg = *P. brownianum*
Psidium mucronatum Barb. Rodr. = *P. australe var. australe*
Psidium mucronatum Burret = *P. salutare* var. *cuspidatum*
Psidium multiflorum Cambess. = *P. guineense*
Psidium myrsinites DC.
Psidium myrsinoides O. Berg = *P. myrsinites*
Psidium myrtoides O. Berg
Psidium nannophyllum Alain
Psidium nigrum Mattos & D. Legrand = *P. striatulum* var. *striatulum*
Psidium nitidum Wright = *P. parvifolium*
Psidium niveum (O. Berg) Herter = *Psidium salutare* var. *sericeum*
Psidium nummularia (C.Wright ex Griseb.) C. Wright
Psidium nummularioides Britton & Wilson = *Mosiera nummularioides*
Psidium nutans O. Berg
Psidium oblongatum O. Berg
Psidium oblongifolium O. Berg = *P. nutans*
Psidium obovatum DC. = *P. cattleyanum*
Psidium occidentale Landrum & C. Parra O.
Psidium oerstedeanum O. Berg = *P. salutare* var. *salutare*
Psidium oligospermum DC.
Psidium oncocalyx Burret = *P. schenckianum*
Psidium ooideum O. Berg = *P. guineense*
Psidium ooideum var. *grandifolium* O. Berg = *P. guineense*
Psidium ooideum var. *intermedium* O. Berg = *P. guineense*
Psidium ooideum var. *longipedunculatum* Rusby = *P. guineense*
Psidium ooideum var. *parvifolium* O. Berg = *P. guineense*
Psidium ooideum var. *intermedium* O. Berg = *P. guineense*
Psidium ovale (Spreng.) Burret
Psidium ovatifolium O. Berg = *P. densicomum*
Psidium ovatifolium var. *glabrum* Amshoff = *P. densicomum*
Psidium paraense O. Berg = *P. riparium*
Psidium paraguayense Barb. Rodr. = *P. grandifolium*
Psidium paranense O. Berg = *P. kennedyanum*
Psidium parviflorum Bentham = *P. striatulum* var. *striatulum*
Psidium parviflorum var. *coppenamense* Amshoff = *P. striatulum* var. *striatulum*
Psidium parviflorum var. *saramaccense* Amshoff = *P. striatulum* var. *striatulum*
Psidium parvifolium *Grisebach*
Psidium parvifolium var. *planifolium* Krug & Urb. = *P. parvifolium*
Psidium passeanum Andre = *P. cattleyanum*
Psidium paucinerve Urb. = *P. parvifolium*
Psidium pedicellatum McVaugh
Psidium persicifolium O. Berg = *P. striatulum* var. *striatulum*
Psidium persoonii McVaugh = *P. acutangulum*
Psidium pilosum var. rotundifolium (Kiaersk.) Mattos = *Psidium rufum*
Psidium piribebuiense Barb. Rodr. = *P. australe var. australe?*
Psidium pohlianum O. Berg = *P. salutare* var. *pohlianum*
Psidium pohlianum var. *brevipes* O. Berg = *P. salutare* var. *pohlianum*
Psidium polycarpon Lambert = *P. guineense*
Psidium pomiferum L. = *P. guajava*
Psidium pomiferum var. *sapidissimum* (Jacq.) DC. = *P. guajava*
Psidium popenoei Standl. = *P. nutans*?
Psidium pratense Poepp. ex O. Berg = *P. rutidocarpum*
Psidium protractum (Griseb.) Lundell = *P. oligospermum*
Psidium psychrophyllum Barb. Rodr. = *P. grandifolium*
Psidium pubifolium Burret = *P. salutare* var. *cuspidatum*
Psidium pubifolium f. *nanum* Rotman = *P. salutare* var. *cuspidatum*
Psidium pubigerum Burret = *P. salutare* var. *sericeum*
Psidium pulcherrimum Tuler & C. M. Costa
Psidium pumilum Vahl = Psidium guajava
Psidium pumilum var. *guadalupense* DC. = *P. guajava*
Psidium pumilum var. *intermedium* Blume = *P. guajava*
Psidium pumilum var. *rufescens* Blume = *P. guajava*
Psidium pyriferum L. = *P. guajava*
Psidium pyriferum var. *glabrum* Benth. = *P. guajava*
Psidium quinquedentatum Amshoff = *P. laruotteanum*
Psidium ramboanum Mattos = *P. striatulum* var. *striatulum*
Psidium ratterianum Proença & Soares-Silva
Psidium refractum O. Berg = *P. guineense*
Psidium reptans (D. Legrand) Soares-Silva & Proença
Psidium rhombeum O. Berg
Psidium richardianum O. Berg = *P. guyanense*
Psidium riedelianum O. Berg = *P. grandifolium*
Psidium rigidum Burret = *P. salutare var. salutare*
Psidium riobonito A. Maruy, & Tuler = *P. myrtoides*
Psidium riparium DC.
Psidium rostratum McVaugh
Psidium rotundatum Griseb.
Psidium rotundatum var. *triflorum* Griseb. = *P. rotundatum*
Psidium rotundidiscum Proença &Tuler
Psidium rotundifolium Standl. = *P. guineense*
Psidium rubescens O. Berg = *P. guineense?*
Psidium rufum DC.
Psidium rufum var. *rotundifolia* Kiaersk. = *P. rufum*
Psidium ruizianum O. Berg = *P. rutidocarpum*
Psidium rutidocarpum Ruiz & Pavon ex G. Don

Psidium rypdocarpum Ruiz & Pavon = *P. rutidocarpum*
Psidium sabulosum Barb. Rodr. = *P. kennedyanum*
Psidium salutare (Kunth) O. Berg
Psidium salutare var. ***cuspidatum*** (O. Berg) Landrum
Psidium salutare var. *decussatum* (DC.) Landrum = *P. decussatum.*
Psidium salutare var. *laxum* O. Berg = *P. salutare* var. *salutare*
Psidium salutare var. mucronatum (Cambess.) Landrum = *P. salutare* var. *cuspidatum*
Psidium salutare var. ***pohlianum*** (O. Berg) Landrum
Psidium salutare var. ***resiliens*** Landrum
Psidium salutare var. ***salutare***
Psidium salutare var. ***sericeum*** (Cambess.) Landrum
Psidium salutare var. *strictum* O. Berg = *P. salutare* var. *salutare*
Psidium salutare var. *subalternum* O. Berg = *P. salutare* var. *salutare*
Psidium sapidissimum Jacq. = *P. guajava*
Psidium sartorianum (O. Berg) Nied. = *Psidium oligospermum*
Psidium sartorianum var. yucatanense (Lundell) McVaugh = *Psidium oligospermum*
Psidium savannarum Donnell Smith = *P. laruotteanum*
Psidium schenckianum *Kiaersk.*
Psidium schiedeanum O. Berg = *P. guineense*
Psidium schippii Standl. = *P. guineense*
Psidium scopulorum Ekman & Urb. = *P. nummularia*
Psidium sellowinanum O. Berg = *P. cattleyanum*
Psidium sericiflorum Bentham = *P. guineense*
Psidium sessiliflorum (Landrum) Proença & Tuler
Psidium sessilifolium Alain = *P. amplexicaule*
Psidium sieberianum O. Berg = *P. riparium*
Psidium sieberianum var. *gracile* O. Berg = *P. riparium*
Psidium sieberianum var. *robustum* O. Berg = *P. riparium*
Psidium sintenisii (Kiaersk.) Alain = *Psidium oligospermum*
Psidium sobralianum Landrum & Proença
Psidium socorrense I. M. Johnst. = *P. oligospermum*
Psidium solisii Standl. = *P. oligospermum*
Psidium spathulatum Mattos = *P. ovale*
Psidium spodophyllum Barb. Rodr. = *P. grandifolium*
Psidium sprucei O. Berg = *P. guyanense*
Psidium striatulum DC.
Psidium striatulum var. *australe* O. Berg = *P. kennedyanum*
Psidium striatulum var. *paranense* O. Berg = *P. kennedyanum*
Psidium striatulum var. ***rondoniense*** Landrum
Psidium striatulum var. ***striatulum***
Psidium subcrenatum Barb. Rodr. = *P. guajava*
Psidium submetrale McVaugh = *P. australe* var. *australe*
Psidium suffruticosum O. Berg
Psidium suffruticosum var. *alata* Kiaersk. = *P. suffruticosum*
Psidium tenuirame Urb. = *P. parvifolium*
Psidium ternatifolium Cambess. = *P. grandifolium*
Psidium thea Griseb. = *P. salutare* var. *cuspidatum*
Psidium thyrsoideum (Kuntze) K. Schum. = *P. riparium*
Psidium tomasense Barb. Rodr. = *P. guineense*
Psidium tomasianum Urb. & Ekman = *P. nummularia*
Psidium tomentellum Burret = *P. salutare* var. *sericeum*
Psidium trilobum Urb. & Ekman = *P. acranthum*
Psidium tripartitum S. Moore = *P. kennedyanum*
Psidium triphyllum Barb. Rodr. = *P. australe* var. *australe*
Psidium turbinatum Mattos = *P. myrtoides*
Psidium turbiniflorum DC. = *P. striatulum* var. *striatulum*
Psidium ubatubense Mattos = *P. cattleyanum*
Psidium umbrosum O. Berg = *P. guyanense*
Psidium urquiolanum Landrum & Z. Acosta
Psidium valenzuelense Barb. Rodr. = *P. salutare var. salutare*
Psidium variabile O. Berg = *P. cattleyanum*
Psidium verrucosum Barb. Rodr. = *P. nutans*
Psidium warmingianum Kiaersk. = *P. laruotteanum*
Psidium warmingianum var. *verticillata* Kiaersk. = *P. laruotteanum*
Psidium widgrenianum O. Berg = *P. rufum*
Psidium widgrenianum var. *grandifolium* O. Berg = *P. rufum*
Psidium wrightii Lamb. ex W. Wright = *P. montanum*
Psidium wrightii Krug & Urb. = later homonym
Psidium xidocarpum Ruiz ex O. Berg = *P. rutidocarpum*
Psidium yacaense Barb. Rodr. = *P. grandifolium*
Psidium ypanemense O. Berg = *P. guineense*
Psidium yucatanense Lundell = *P. oligospermum*
Syzygium ellipticum K. Schum. & Lauterb. later homonym = *P. guajava?*

Table 5. Uncertain or Excluded Names, including some nomina nuda [123].

Names of *Psidium* published by Vellozo in Florae Fluminensis vol. 5: 211–213 (1829) have no known type specimens and the descriptions and images are not adequate for identification; these names are unassignable for the present. For citation of types for species of *Campomanesia* see Landrum (1986), for *Chamguava* see Landrum (1991) and for *Accara* Landrum (1990).

Calyptropsidium ekmanii Urb., Ark. Bot. 24A(4): 17. 1931. TYPE. Haiti. “Massif de la Hotte in parte occidentali prope Les Anglais in Morne l'Etang", 21 Jul 1928 (fl), *Ekman H10360* (LECTOTYPE: S-10-6265, designated by Flickinger [Flickinger et al. 2020]). ≡ *Eugenia burretii* Flickinger, Taxon 69(3): 469. 2020.
Guajava sorocabensis (O. Berg) Kuntze. Probably belongs to the *Psidium grandifolium* complex.
Myrtus hauthalii Kuntze. My colleague Marcos Sobral has annotated the holotype specimen at NY as a mixture of *Hexachlamys humilis* and *Psidium guineense,* and I agree based on my examination of an image of the type. Kuntze compares his species to *Hexachlamys humilis* rather than *Psidium*, so that part of the mixture should be considered the type. A portion could be designated as lectotype upon careful examination of the holotype.
Myrtus serratifolia Griseb. = *Durantia serratifolia* (Griseb.) Kuntze
Psidium adamantium Cambess. ≡ *Campomanesia adamantium* (Cambess.) Berg
Psidium albidum Miq., Linnaea 22(5): 532. 1849. Later homonym of *Psidium albidum* Cambess.
Psidium anglohondurense (Lundell) McVaugh, Fieldiana, Bot. 29: 521. 1963. = *Chamguava schippii* (Standl.) Landrum, Syst. Bot. 16(1): 27. 1991.
Psidium anthomega Vell. Fl. Flumin. 212. 1829. Unassignable name.
Psidium apodanthum (Standl.) McVaugh, Fieldiana, Bot. 29: 520. 1963. ≡ *Chamguava gentlei* var. *apodantha* (Standl.) Landrum, Syst. Bot. 16(1): 24. 1991.
Psidium apricum Vell. Fl. Flumin. 213. 1829. Unassignable name. = *Campomanesia*?

Psidium araneosum Urb., Repert. Spec. Nov. Regni Veg. 19: 304. 1924. TYPE. Cuba. "Prov. Oriente prope Baracoa ad Maraví", *Ekman 4027* (HOLOTYPE: B, lost; ISOTYPE: NY-1288032!-fragment). ≡ *Mosiera araneosa* (Urb.) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.

Psidium arasa-hu D. Parodi**,** Anales Soc. Ci. Argent. 7: 65. 1879. No Type specimen found. Perhaps *P. australe* or another member of the *P. grandifolium* complex.= *Psidium sp.*

Psidium arasa-pe D. Parodi**,** Anales Soc. Ci. Argent. 7: 65. 1879. No Type specimen found. = *Psidium sp.*

Psidium arasope-mi D. Parodi**,** Anales Soc. Ci. Argent. 7: 65. 1879. No Type specimen found. = *Psidium sp.*

Psidium arboreum Vell. Fl. Flumin. 211. 1829. Unassignable name.

Psidium apysa D. Parodi**,** Anales Soc. Ci. Argent. 7: 66. 1879. No Type specimen found. = Possibly *Campomanesia guazumifolia* (Cambess.) O. Berg

Psidium aromaticum Aublet ≡ *Campomanesia aromatica* (Aublet) Griseb.

Psidium aromaticum D. Don ex O. Berg, in Mart. Fl. Bras. 14(1): 522. 1858. Nomen nudum mentioned under *Psidium donianum* O. Berg

Psidium bahorucanum Alain & R. García, Moscosoa 9: 12–17. 1997. TYPE. Dominican Republic. Prov. Independencia: Sierra de Bahoruco, approx. 12 km al S de Duvergé, Monte Palma, 800 m, 24 Mar 1993 (fr), *R. García, G. Caminero, D. Höner 4478* (HOLOTYPE: BRIT-23964; ISOTYPES: ASU-0019296!, MO-313593, NY-76858, S-R-10929). =*Eugenia*.

Psidium berteroanum O. Berg, Linnaea 27(2–3): 374. 1856. TYPE. Puerto Rico. *Bertero 206.* Sterile specimen in Herbarium of Sprengel. Not found. Compared to *Psidium montanum* by Berg but considered distinct by him.
No type has been found and *P. montanum* is not known to grow in Puerto Rico.

Psidium biloculare McVaugh, Fieldiana, Bot. 29. 520. 1963. = *Chamguava gentlei* (Lundell) Landrum var. *gentlei,* Syst. Bot. 16(1): 24. 1991.

Psidium bullatum Britton & P. Wilson, Mem. Torrey Bot. Club 16: 85. 1920. TYPE. Cuba. Camagüey, Santa Clara, *Britton & Cowell 13328* (HOLOTYPE: NY-3376846, viewed at NY website; ISOTYPES: GH-375217!, US-117655!) ≡ *Mosiera bullata* (Britton & P. Wilson) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.

Psidium campestre Cambess. = *Campomanesia adamantium* (Cambess.) Berg

Psidium caninum Lour., Fl. Cochinch. 1: 310. 1790. TYPE. Loureiro? Cantonem Sinarum. No specimen found. Probably not Myrtaceae because leaves are alternate and sub-serrate.

Psidium cacuminis Britton & P. Wilson, Bull. Torrey Bot. Club 50: 43. 1923. TYPE. Cuba. Pico Turquino, *Ekman 10749* (HOLOTYPE: NY-1288037!) =*Eugenia maestrensis* Urb.*,* Symb. Antill. (Urban). 9(1): 107. 1923, according to Govaerts et al. (2008).

Psidium calycolpoides Griseb., Pl. Wright. (Griseb.) 1: 183. 1860. TYPE. Cuba. *Wright 1195 & 1196* (SYNTYPES: GOET-13807!, GOET-13811!) ≡ *Mosiera calycolpoides* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 78. 1992.

Psidium caudatum McVaugh, Fieldiana, Bot. 29. 226. 1956. ≡ *Psidiopsis moritziana* O. Berg ≡ *Calycolpus moritzianus* (O. Berg) Burret, Repert. Spec. Nov. Regni Veg. 50: 57. 1941.

Psidium cerasoides Cambess. = *Campomanesia guaviroba* (A. P. de Candolle) Kiaersk.

Psidium chinense Lodd. ex Loudon, Hort. Brit. [Loudon] 197. 1830. Nomen nudum mentioned in a list only.

Psidium chrysophyllum (Berg) F. Muell. = *Campomanesia eugenioides* Cambess.

Psidium confertum R. A. Howard, J. Arnold Arbor. 28: 123. 1947. Type. Cuba. "near airfield at Moa", *Howard 5901* (HOLOTYPE: A-00069288) =*Mosiera ophiticola* (Britton) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.

Psidium cordatum var. *parvifolium* Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. *Wright 2455* (HOLOTYPE: GOET) ≡ *Psidium wrightii* Krug & Urb., Bot. Jahrb. Syst. 19(4): 570. 1894, nom. illeg. (non *Psidium wrightii* Lamb. ex W. Wright, Memoir W. Wright 278. 1828.) ≡ *Psidium parvifolium* (Griseb.) Mabb., Taxon 30(1): 12. 1981, nom. illeg. (non *Psidium parvifolium* Griseb., Cat. Pl. Cub. 91, 285. 1866.) ≡ *Mosiera wrightii* Borhidi, Acta Bot. Hung. 37(1–4): 79. 1992.

Psidium corymbosum Cambess. = *Campomanesia pubescens* (A. P. de Candolle) Berg

Psidium crenulatum Urb. & Ekman, Symb. Antill. (Urban). 9(4): 460. 1928. TYPE. Cuba. "Prov. Santa Clara prope Casilda", *Ekman 18889* (HOLOTYPE: B, lost; ISOTYPE: NY-1288042!) =*Mosiera bullata* (Britton & P. Wilson) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.

Psidium crispulum Urb., Ark. Bot. 17(7): 44. 1921. TYPE. Haiti. "Morne de la Hotte in declivibus australibus montium occidentalium ad Ma Blanche". TYPE. *Ekman H598* (HOLOTYPE: B, lost; LECTOTYPE: S-05-3128, designated by Flickinger [Flickinger et al. 2020]) ≡ *Eugenia crispula* (Urb.) Flickinger, Taxon 69(3): 469. 2020.

Psidium cuspidatum Alain, Brittonia 20: 159. 1968), (non *Psidium cuspidatum* (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 483. 1941.) TYPE. Dominican Republic. "Boca de Infierno, Los Haitises, Samana Prov.", 24 Jun 1930 (fr), *Ekman H15427* (HOLOTYPE: US-117657) ≡ *Mosiera cuspidata* Salywon, J. Bot. Res. Inst. Texas 1(2): 899. 2007.

Psidium desertorum A. P. de Candolle ≡ *Campomanesia eugenioides* var. *desertorum* (DC.) Landrum

Psidium dubium Kunth, Nov. Gen. Sp. [H.B.K.] vi. 152. TYPE. Venezuela, prope C (Missiones del Orinoco) Humboldt & Bonpland s.n. (HOLOTYPE: P-679434). ≡ *Myrciaria dubia* (Kunth) McVaugh, Fieldiana, Bot. 29: 501. 1963.

Psidium dulce Vell. Fl. Flumin. 213. 1829. Unassignable name. = *Campomanesia*?

Psidium elegans (Blume) Miquel ≡ *Macropsidium elegans* Blume ≡ *Rhodomyrtus elegans* (Blume) Scott

Psidium elegans (DC.) O. Berg ≡ *Accara elegans* (DC.) Landrum

Psidium erianthum Cambess. = *Campomanesia pubescens* (A. P. de Candolle) Berg

Psidium erosum Miquel = *Campomanesia pubescens* (A. P. de Candolle) Berg

Psidium eugenioides Cambess. ≡ *Campomanesia eugenioides* (Cambess.) Berg

Psidium ferrugineum C. Presl, Isis (Oken) 21: 274. 1828. Nomen nudum mentioned in a list, possibly referring to *P. cattleyanum* from the Mauritius Islands

Psidium fragrans Macfad., Fl. Jamaica 2: 108. 1850. Jamaica. "Salt Hill, Port Royal Mountains," *Macfadyen s.n*. (no specimen found). Might be *P. montanum* or some other species of *Psidium*.

Psidium fruticosum Vell. Fl. Flumin. 213. 1829. Unassignable name.

Psidium globosum Larrañaga, Escritos Damaso Antonio Larranaga ii. 168. 1923. No type specimen found; description inadequate.

Psidium gracilipes Alain, Phytologia 25: 269. 1973. TYPE. Dominican Republic. "Loma Redonda, Ciénaga de la Culata, Constanza", 1700-2000 m, 30 Nov 1969, *Liogier 17138* (HOLOTYPE: NY; ISOTYPES: JBSD!, US-1920027) ≡ *Mosiera gracilipes* (Alain) Salywon, J. Bot. Res. Inst. Texas 1(2): 899. 2007.

Psidium grandiflorum Aublet ≡ *Campomanesia grandiflora* (Aublet) Sagot

Psidium guaviroba A. P. de Candolle ≡ *Campomanesia guaviroba* (DC) Kiaersk.

Psidium guazumifolia Cambess. ≡ *Campomanesia guazumifolia* (Cambess.) Berg

Psidium guildingianum Griseb. = *Myrcia guildingiana* (Griseb.) E. Lucas & C. E. Wilson

Psidium havanense Urb., Symb. Antill. (Urban). 9(4): 461. 1928. TYPE. Cuba. "Prov. Habana in Loma Coca solo serpentino", 18 Jun 1922 (bud), *Ekman 14061* (HOLOTYPE: B, lost; ISOTYPES: A-69290!, BM-616930, G-222533) ≡*Mosiera havanensis* (Urb.) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 4. 1985.

Psidium herbaceum O. Berg, in Mart., Fl. Bras. 14(1): 410. 1857. TYPE. Brazil. "Rio Grande do Sul," *Sellow s.n.* (HOLOTYPE: B, lost). Described from a sterile specimen that seems to have been non-woody sprout; might be *P. australe* or *P. guineense*.

Psidium humile Vell. Fl. Flumin. 211. 1829. Unassignable name.

Psidium inaequilaterum O. Berg, in Mart., Fl. Bras. 14(1): 399. 1857. TYPE. Brazil. "Rio de Janeiro: Pr. de Neuwied; nec non ad Jacaruaba in prov. S. Paulo." *Sellow s.n*. (SYNTYPES: B, Nees). Perhaps *P. guineense*.

Psidium indicum Raddi, Mem. 6. 1821. This seems to be a name tentatively proposed in the discussion of *P. littorale* Raddi for a plant growing in the gardens of Rio de Janeiro. No type has been found; it may be a synonym of *P. cattleyanum*.

Psidium insulanum Alain, Phytologia 47: 187. 1980. TYPE. Puerto Rico, Vieques Island, East Point, 24 May 1978 (yfr), *Woodbury s.n.* (HOLOTYPE: UPR; ISOTYPES: NY-1795717, US-1050093) =*Mosiera longipes* Small, Man. S. E. Fl. [Small]: 937. 1933*).*

Psidium itanareense O. Berg, in Mart., Fl. bras. 14(1): 402. 1857. TYPE. Brazil. "campus ad Itanaré," Sellow s.n. (HOLOTYPE: B, lost). Compared to *P. variabilis*, a synonym of *P. cattleyanum*.

Psidium jackii Urb., Symb. Antill. (Urban). 9(4): 467. 1928. TYPE. Cuba. "Prov. Oriente in Sierra Maestra....ad Arroyo del Cristo in Río Yara", *Ekman 14751* (HOLOTYPE: B, lost; ISOTYPE: S-R-8389! [seen at S site]) =*Mosiera calycolpoides* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 78. 1992.

Psidium jacquinianum (O. Berg) Mattos, Loefgrenia 116: 2. 2001. ≡ *Myrtus jacquiniana* O. Berg, Linnaea 27(4): 406. 1856. TYPE. "v. In hb. Jacquini filii." "Patria Ignota." Specimen at W!, designated here as LECTOTYPE, annotated by Berg, = F neg. 31403, = photo specimen at ASU. Probable HOLOTYPE or ISOTYPE: W! Annotated by Berg as *Myrtus jacquiniana*; annotated by Landrum in 1983 as *Psidium* sp.; it now appears to me to be be *Myrtus communis* L. based in my photographs at ASU and F Neg. 31403 of the same specimen, which Mattos cites.

Psidium jollyanum A. Chev., Explor. Bot. Afrique Occ. Franc. 1: 266 (1920). TYPE. Ivory Coast. Bingerville. 13-14 Dec 1906. *Chevalier 16007*. No specimen found. Probably *Psidium cattleyanum* or *P. guineense*.

Psidium kuakuense Baker f. = *Austromyrtus kuakuensis* (Baker f.) Burret

Psidium lacteum O. Berg, in Mart., Fl. bras. 14(1): 403. 1857. TYPE. Brazil. Rio Grande do Sul. *Sellow s.n.* (HOLOTYPE: B, lost). Perhaps a synonym of *P. grandifolium* or *P. australe*.

Psidium langsdorffii O. Berg, in Mart., Fl. bras. 14(1): 599. 1859. TYPE. Brazil. Minas Gerais. *Riedel s.n*. (HOLOTYPE: LE, not found). Placed after *P. myrsioides* by Berg and perhaps similar.

Psidium latifolium Link, Enum. Hort. Berol. Alt. 2: 27. 1822. No type found; description minimal of sterile material. Nomen nudum.

Psidium leiophloeum (Urb.) Urb., Symb. Antill. (Urban). 9(4): 459. 1928. ≡ *Eugenia leiophloea* Urb., Symb. Antill. (Urban). 9(1): 108. 1923. (TYPE. Cuba. "Prov. Oriente in Sierra de Nipe ad Río Piedra in charrascales 200 m alta et supra", *Ekman 10012* (HOLOTYPE: B lost; ISOTYPE: S-R-8366! [at S site]) =*Mosiera bullata* (Britton & P. Wilson) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.

Psidium lineatifolium (R. & Pav.) Persoon ≡ *Campomanesia lineatifolia* Ruiz & Pavon

Psidium longipes (O. Berg) McVaugh, J. Arnold Arbor. 54: 312. 1973. ≡ *Eugenia longipes* O. Berg, Linnaea 27(2): 150. 1856. ≡ *Mosiera longipes* Small, Man. S. E. Fl. [Small] 937. 1933. TYPE. United States. Florida. *Leitner* [ex Salywon 2003]*"Cabanis" s.n.* (HOLOTYPE: B, lost).

Psidium longipes var. *orbiculare* (O. Berg) McVaugh, J. Arnold Arbor. 54: 314. 1973. ≡ *Eugenia orbicularis* O. Berg, Linnaea 30: 678. 1861. TYPE. "in insula Barbados….in herb Rich.", *L. Cl. Rich. s.n.* (HOLOTYPE: P-258322).

Psidium loustalotii Britton & P. Wilson, Bull. Torrey Bot. Club 48: 342. 1922. TYPE. "Sabana de Motembo, Santa Clara, Cuba." *León & Loustalot 9394* (HOLOTYPE: NY, not found). = *Ottoschmidtia microphylla* (Griseb.) Urb. (Rubiaceae) Ark. Bot. 21A(5): 85. 1927. ≡ *Stenostomum microphyllum* Griseb. Cat. Pl. Cub. 133. 1866. TYPE. Cuba. Prov. Pinar del Rio, San Marcos, *Wright 3184* (HOLOTYPE: GOET, ISOTYPES: GH, HAC, US-138403)

Psidium malifolium (Berg) F. Muell. = *Campomanesia xanthocarpa* O. Berg

Psidium mediterraneum Vell. Fl. Flumin. 212. 1829. Unassignable name.

Psidium moense (Britton & P. Wilson) McVaugh, J. Arnold Arbor. 54: 313. 1973. ≡ *Eugenia moensis* Britton & P. Wilson, Mem. Torrey Bot. Club 16: 88. 1920. ≡ *Mosiera moensis* (Britton & P. Wilson) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 4. 1985. TYPE. Cuba. "Camp La Gloria, south of Sierra Moa, Oriente", December 24-30, 1910 (yfr), *J. A. Shafer 8100* (HOLOTYPE: NY-84753; ISOTYPE: US-118065).

Psidium mouririoides (Lundell) McVaugh, Fieldiana, Bot. 29. 521. 1963. = *Chamguava schippii* (Standl.) Landrum, Syst. Bot. 16(1): 27. 1991.

Psidium multiflorum Cambess. = *Campomanesia pubescens* (A. P. de Candolle) Berg

Psidium munizianum Borhidi, Acta Bot. Acad. Sci. Hung. 21: 225. 1975. TYPE. Cuba. "Prov. Habana; in fruticetis litoralibus La Rotila pr. pag. Santa Cruz del Norte", 10 Oct 1959, *Alain 6805* (HOLOTYPE: HAC). Compared by Borhidi to *P. crenulatum*, which equals *Mosiera bullata.* =*Mosiera bullata*?

Psidium musarum (Standl. & Steyerm.) McVaugh, Fieldiana, Bot. 29. 521. 1963. ≡ *Chamguava musarum* (Standl. & Steyerm.) Landrum, Syst. Bot. 16(1): 27. 1991.

Psidium myrtifolium Lodd. ex Loudon, Hort. Brit. [Loudon] 197. 1830. Nomen nudum mentioned in a list only.

Psidium navasense Britton & P. Wilson, Mem. Torrey Bot. Club 16: 85. 1920. TYPE. Cuba. "Between Navas and Camp Buena Vista, Oriente, 650 m", 23 Mar 1910, *J. A. Shafer 4444* (HOLOTYPE: NY-1288063!). =*Eugenia*?

Psidium nigrum Lour., Fl. Cochinch. 1: 311. 1790. Loureiro reports the common name as "Cây Trâm" which is used for *Melaleuca cajuputi* R. Powell in Vietnamese. The description is compatible with that species.

Psidium nummularioides Britton & P. Wilson, Mem. Torrey Bot. Club 16: 85. 1920. ≡ *Mosiera nummularioides* (Britton & P. Wilson) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1986. TYPE. Cuba. "Guantanamo Bay, Oriente", *Britton 2046* (HOLOTYPE: NY; ISOTYPE: US-731223).

Psidium obversum Miquel = *Campomanesia pubescens* (A. P. de Candolle) Berg

Psidium ophiticola Britton & P. Wilson, Mem. Torrey Bot. Club 16(2): 86. 1920. ≡ *Mosiera ophiticola* (Britton & P. Wilson) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985. TYPE. Cuba. "near mouth of the Río Yamanigüey, Oriente", *J. A. Shafer 4278* (HOLOTYPE: NY-4205531-seen at NY virtual herbarium).

Psidium oligospermum Link, Enum. Hort. Berol. Alt. 2: 27. 1822. No type found; description minimal of sterile material. Nomen nudum.

Psidium orbifolium Urb., Symb. Ant. 9: 462. 1928. TYPE. Cuba. "Prov. Oriente in Sierra Maestra in sylvis ad rivulum Corojo prope Nagua," *Ekman 14922* (HOLOTYPE: B, lost; ISOTYPES: G-227728!, HAC, NY-1288068!, NY-1288069!, S-R-8383 [annotated as lectotype by A. J. Urquiola, 1997, formally designated here as LECTOTYPE]).[Compared to *P. rotundatum* by Urban, but probably not that species]. Type sterile, could be another genus.

Psidium pigeum Arruda, nomen nudum that appears with an inadequate description in the Index of Koster's Travels in Brazil, 1816., p. 492. And later is listed as *Psidium pygmaeum* Steud., Nomencl. Bot. [Steudel], ed. 2. 2: 406. 1841. From "Pernam."

Psidium pilosum Vell. Fl. Flumin. 212. 1829. Unassignable name.

Psidium pirayuense Barb. Rodr. Bull. Herb. Boissier ser. 2, 7: 798. 1907. Nomen nudum unassignable to an accepted species.

Psidium prostratum O. Berg, Linnaea 27: 364. 1856. Nomen nudum added as a synonym of *P. guajava.*

Psidium pubescens A. P. de Candolle ≡ *Campomanesia pubescens* (DC.) Berg

Psidium pulverulentum Krug & Urb., Bot. Jahrb. Syst. 19(4): 567. 1894. = *Guapira obtusata* (Jacq.) Little, Phytologia 17: 368. 1968 (Nyctaginaceae) according to Acevedo & Strong (2012).

Psidium punctulatum A. P. de Candolle = *Campomanesia guaviroba* (DC.) Kiaersk.

Psidium racemosum Vell. Fl. Flumin. 212. 1829. Unassignable name.

Psidium radicans O. Berg = Sterile specimen from Rio Grande do Sul, Brazil, type at B lost

Psidium raimondii Burret, Repert. Spec. Nov. Regni Veg. 50: 56. 1941. TYPE. PERU. Hualgayóc, Montana de Nancho, 2300–2600 m, Jul-Aug 1874, *A. Raimondi 4752.* No type found, perhaps = *P. pedicellatum*

Psidium reversum Urb., Symb. Antill. (Urban). 9(1): 84. 1923. ≡ *Calycolpus reversus* (Urb.) Bisse, Revista Jard. Bot. Nac. Univ. Habana 4(1): 6. 1983. . ≡ *Eugenia reversa* (Urb.) Z.Acosta & García-Beltrán, Phytotaxa 644(4): 295. 2024. TYPE. Cuba. "Prov. Oriente prope Baracoa in Lomas de Cuaba", *Ekman 4295* (HOLOTYPE: B: lost; LECTOTYPE: NY-1288080!, designated by Landrum [2010]).

Psidium rivulare A. P. de Candolle = *Campomanesia lineatifolia* Ruiz et Pavon

Psidium robustum O. Berg, in Mart., Fl. bras.14(1): 400 (1857). *TYPE*. Brazil. Minas Gerais, "Serra do Caraça," *Sello* [*1393/1409* at K, P] (HOLOTYPE: B, lost; ISOTYPES: P-258385!, K-170096, LE-7002). The description and presumed isotypes of this species agree in the calyx being of short truncate lobes, and therefore open in the bud. And the presumed isotypes, annotated by Berg seem to be glabrous as described. The description states that the twigs and peduncles are 4-angled (apparently not the case in the isotypes). The leaves are rather large and thick on the specimens. All these characteristics do not fit any species I can think of. If the peduncles and twigs were not 4-angled, *P. salutare var. pohlianum* might be considered.

Psidium roseum Mart. ex DC., Prodr. 3: 264. 1828. Nomen nudum mentioned as a synonym of *Eugenia rosea* DC.

Psidium roseum Barb. Rodr., Bull. Herb. Boissier ser. 2, 7: 798. 1907. Nomen nudum unassignable to an accepted species.

Psidium rubrum Lour., Fl. Cochinch. 1: 311. 1790. TYPE. Loureiro? Cochinina [southern Viet Nam]. No specimen found. Congested inflorescence and 4-merous flowers suggest *Syzygium* or *Eugenia*.

Psidium rufinervum Barb. Rodr. Myrt. Paraguay 15. Tab. XVIII. 1903. TYPE. Paraguay. "Sierra de Maracayú, in campo prope Ipé Hú", *Hassler 5232* (HOLOTYPE: G-72801!) = *Campomanesia pubescens* (DC.) O. Berg

Psidium saxicola Britton & P. Wilson, Mem. Torrey Bot. Club 16: 86. 1920. TYPE. Cuba. Santiago Bay, Oriente…El Morro*, Britton and Cowell 12544* (HOLOTYPE: NY-3376848; ISOTYPES: F-361158, GH-375222, US-117678). =*Myrtus elliptica* C. Wright, Anales Real Acad. Ci. Méd. Fís. Nat. Habana Revista Ci. 5: 410. 1868. ≡ *Mosiera elliptica* (C. Wright) Bisse, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.

Psidium sericeum O.Berg, in Mart., Fl. Bras. 14(1): 389. 1857. TYPE. Brazil. São Paulo. "in campis ad Carambey," *Sellow s.n.* (HOLOTYPE: B, lost; LECTOTYPE: P-258371!, designated by Landrum [2005]; ISOLECTOTYES: BR-843774, F-65715-fragments, LE-7007). Apparently belongs to the *P. grandifolium* complex. Perhaps *P. australeXgrandifolium*

Psidium sorocabense O. Berg, in Mart., Fl. Bras. 14(1): 398. 1857. TYPE. Brazil. São Paulo. "in campis ad urbem Sorocaba," *Sellow s.n.* (HOLOTYPE: B, lost). Probably belongs to the *P. grandifolium* complex.

Psidium speciosum Diels ≡ *Campomanesia speciosa* (Diels) McVaugh

Psidium stictophyllum (Kiaersk.) Mattos, Loefgrenia 64: 1. 1975. = *Accara elegans* (DC.) Landrum

Psidium suaveolens Cambess. = *Campomanesia pubescens* (Cambess.) Berg

Psidium subrostrifolium Mattos, Loefgrenia 90: 3. 1986. TYPE. Brazil. São Paulo. "Alto da Serra. 10 Jan 1919, 10 Jan 1919, *F. C. Hoehne s.n*. (HOLOTYPE: SP-3030). No type found and description inadequate for identification.

Psidium terminale Vell. Fl. Flumin. 212. 1829. Unassignable name.

Psidium tenuifolium A. P. de Candolle = *Campomanesia aromatica* (Aublet) Griseb.

Psidium tobatyense Barb. Rodr. = *Calycorectes psidiflorus* (O. Berg) Sobral

Psidium tomentosum D. Parodi**,** Anales Soc. Ci. Argent. 7: 64. 1879. No type specimen found. Perhaps *P. grandifolium* DC.

Psidium transalpina Vell. Fl. Flumin. 213. 1829.= Unassignable name. = *Campomanesia*?

Psidium velutina Cambess. ≡ *Campomanesia velutina* (Cambess.) Berg

Psidium versicolor Urb., Symb. Antill. (Urban). 9(1): 85. 1923. TYPE. Cuba. "Prov. Oriente in Sierra de Nipe ad Río Piedra", *Ekman 4811* (HOLOTYPE: B, lost; ISOTYPE: S-R-8381, annotated as lectotype by A. J. Urquiola, 1997, formally here designated as LECTOTYPE). =*Mosiera calycolpoides* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 78. 1992.

Psidium vicentinum Urb., Symb. Antill. (Urban). 9(4): 463. 1928. TYPE. Cuba. "Prov. Pinar del Río in Sierra de San Vicente (de Viña) in declivibus umbrosis prope dorsum montis", *Ekman 18692* (HOLOTYPE: B, lost; ISOTYPE: S-R-8379) =*Eugenia cristata* C. Wright, Fl. Cub. (Sauvalle) 41. 1869. [ex Urquiola annotation of isotype.]

Psidium vulgare Rich., Actes Soc. Hist. Nat. Paris 1: 110. 1792. Nomen nudum in list of plants from Cayenna [French Guiana].

Psidium willemetianum DC., Prodr. 3: 237 (err. typ. 337). 1828. Nomen nudum of a plant from Mauritius.

Psidium wrightii Krug & Urb., Bot. Jahrb. Syst. 19(4): 570. 1894, nom. illeg (non *Psidium wrightii* Lamb. ex W.Wright, Memoir W. Wright 278. 1828.) ≡ *Mosiera wrightii* Borhidi, Acta Bot. Hung. 37(1–4): 79. 1992. See *Psidium cordatum* var. *parvifolium* Griseb.

Table 6. List of exsiccatae.

Abbott, J. R., 15905, kennedyanum	Abraham 254, acutangulum	Acevedo 3409, acutangulum
Abbott, W. L., 1247, acranthum	Acevedo 273, amplexicaule	Acosta Solis, 14654, guineense
Abdo & Campbell, 2610, harrisianum	Acevedo 1901, amplexicaule	Acuña 12613, parvifolium
Abdo & Campbell, 2614, harrisianum	Acevedo 1915, amplexicaule	Acuña 12614, parvifolium

Acuña 12618, parvifolium
Acuña 13261, minutifolium
Acuña 17274, rotundatum
Adams 11677, cattleyanum
Adsersen 1417, oligospermum
Agudelo 42, oligospermum
Aguilar 85, oligospermum
Aguilar 112, guineense
Aguilar 735, acutangulum
Aguilar 735, acutangulum
Ahumada 2462, kennedyanum
Alain 498, rotundatum
Alain 625, rotundatum
Alain 6782, nummularia
Alain 948, parvifolium
Alain 1194, rotundatum
Alain 1392, rotundatum
Alain 1448, rotundatum
Alain 1486, rotundatum
Alain 2575, rotundatum
Alain 3021, rotundatum
Alain 3610, parvifolium
Alain 3656, parvifolium
Alain 3843, parvifolium
Alain 4232, rotundatum
Alain 4631, parvifolium
Alain 4633, parvifolium
Alain 6101, rotundatum
Alain 6143, rotundatum
Alain 6782, nummularia
Alain 7568, minutifolium
Allen 231, guineense
Allen 710, guajava
Allen 813, acutangulum
Allen 1007, guineense
Allen 1536, guineense
Allen 2524, guineense
Allen & van Severen 7087, oligospermum
Almeda 6202, guineense
Almeida 204, oblongatum
Altamirano 3381, acutangulum
Alvarado 167, guajava
Alvarenga 264, rufum
Alvarenga 838, cf. guineense
Alvarenga 876, myrsinites
Alvarez (Ecuador) 89, guajava
Alvarez 219, pedicellatum
Alvarez 436, pedicellatum
Alvarez (Cuba) 27137, urquiolanum
Alvarez 32614, rotundatum
Alvarez 35676, parvifolium
Alvarez 33784, urquiolanum
Alvarez 35937, guajava
Alvarez 42244, urquiolanum
Alvarez 42690, minutifolium
Alvarez 43559, rotundatum
Alvarez 51175, rotundatum
Alvarez 54302, salutare var. salutare
Alvarez 54334, rotundatum
Alvarez 54505, oligospermum
Alvarez 56316, parvifolium
Alvarez 56596, parvifolium
Alvarez 56626, parvifolium
Alvarez 56661, parvifolium
Alvarez 56770, parvifolium
Alvarez 57042, parvifolium
Alvarez 57638, parvifolium
Alvarez 56316, parvifolium
Alves 2, schenckianum
Amante 21251, appendiculatum
Amaral 81, australe var. australe
Amaral 133, riparium
Amith 1446, guajava
Amorim 349, cattleyanum
Amorim 8407, brevipedunculatum
Anderson 6512, myrsinites
Anderson 7338, guajava
Anderson 9870, guajava
Anderson 10968, densicomum
Anderson 11647, cattleyanum
Anderson 36053, rufum
Anderson & Laskowski 3733, guajava
Andrade 209, oblongatum
Andrade 485, oblongatum
Andrade 495, oblongatum
Andrade 673, oblongatum
Andrade 752, oblongatum
Andrade 1036, guineense
Andrade 1038, guineense
Andrade 1093, myrtoides
Andrade 1133, myrsinites
Andrade & Emmerich 533, riparium
Andrade & Emmerich 1199, firmum
Andrade & Santos 1, myrsinites
Anthony 396, oligospermum
Antonio & Hahn 4275, guajava
Aparecida da Silva 1840, myrsinites
Aparecida da Silva 1908, rufum
Aparecida da Silva 3622, myrsinites
Aparecida da Silva 4200, riparium
Apolinar-Maria, Bro. 261, pedicellatum
Araque & Correa 471, guajava
Araquistain 203, guajava
Araquistain 215, guajava
Araquistain 337, guajava
Araquistain 3153, friedrichsthalianum
Araujo 64, firmum
Araujo 41, guineense
Araujo 115, schenckianum
Araujo 137, appendiculatum
Araujo 179, guajava
Araujo 209, bahianum
Araujo 371, bahianum
Araujo 685, cattleyanum
Araujo 1262, brownianum
Araujo 1266, ganevii
Araujo 1800, amplexicaule
Araujo 1928, myrtoides
Araujo 2629, guineense
Arbo 1239, guineense
Arbo 1505, nutans
Arbo 1754, grandifolium
Arbo 1925, australe var. australe
Arbo 1926, salutare var. sericeum
Arbo 5516, oligospermum
Arbo 5522, schenckianum
Arbo 5627, grandifolium
Arbo 6402, salutare var. sericeum
Arbo 7724, rufum
Arbo 9009, guajava
Arbocz 889, rufum
Areces, A. 25764, urquiolanum
Areces, A. 29060, rotundatum
Areces, A. 29060, rotundatum
Areces, A. 29101, salutare var. salutare
Areces, A. 30467, parvifolium
Areces, A. 30602, parvifolium
Areces, A. 30732, parvifolium
Areces, A. 35962, parvifolium
Areces, A. 40095, urquiolanum
Arias (Colombia) 77, guajava
Arias 95, guajava
Arias (Cuba) 49144, parvifolium
Arias 49256, parvifolium
Arias 49321, guineense
Arias 50001, guineense
Arias 50203, guineense
Arias 50246, parvifolium
Arias 50304, parvifolium
Arias 50454, parvifolium
Arias 50556, parvifolium
Arias 50671, minutifolium
Arias 52593, parvifolium
Arias 52887, parvifolium
Arias 53224, parvifolium
Arias 53366, parvifolium
Aristeguieta 1631, guineense
Aristeguieta 1635, salutare var. salutare
Aristeguieta 4686, maribense
Aristeguieta 5547, salutare var. salutare
Aristeguieta 5578, salutare var. salutare
Aristeguieta 7066, acutangulum
Aristeguieta & Lourteig 6114, salutare var. salutare
Aristeguieta & Virrueta 7510, oligospermum
Aristeguieta & Zabala 7066, acutangulum
Aristeguieta & Zabala 7081, maribense
Arnoldo 2114, oligospermum
Arnoldo 2268, oligospermum
Arostetegui 55, densicomum
Arouck 148, guineense
Arroyo 125, oligospermum
Arroyo, L. 1341, acutangulum
Arroyo 1363, acutangulum
Arroyo 1363, acutangulum
Arroyo 24046, oligospermum
Arsène 2758, guajava
Arsene 10236, guajava
Arvigo 239, guajava
Asplund, E. 15254, guajava
Assis 7, myrsinites
Assis 33, guineense
Assis 160, guineense
Assis 180, guineense
Assis 719, oligospermum
Assis 11441, guineense
Atchison 5, guajava
Atwood 2681, guineense
Atwood 3428, guajava
Atwood 4890, guajava
Austin 7248, acutangulum
Ayala, G. 310, densicomum
Ayala 613, oligospermum
Ayala 2038, guajava
Ayala 2296, acidum
Ayala 2860, guajava
Ayala 3353, acutangulum
Aymard 7604, oligospermum
Aymard 8816, oligospermum

Aymard 8892, oligospermum
Azevedo 124, firmum
Azevedo 1098, myrsinites
Azevedo 1157, myrsinites
Azevedo 1217, myrsinites
Bahia 144, densicomum
Bailey 1635, maribense
Baitello 414, cattleyanum
Baker 2046, guajava
Balderrama 161, guineense
Balee 1893, striatulum var. striatulum
Ballick 1576, myrsinites
Balslev 97404, acidum
Bandeira 131, schenckianum
Bang 253, guajava
Bang 287, guineense
Bang 1688, guajava
Bang 2830, guineense
Bang 2831, guineense
Bang 2832, guineense
Barajas 14, guajava
Barbour 4391, guajava
Barbour 5221, acutangulum
Barbour 5263, guajava
Barclay 514, guajava
Barclay 3446, guineense
Barclay & Juajibioy 6875, guineense
Barfod 41335, guajava
Barkley 14180, guajava
Barkley & Gutierrez V. 1762, friedrichsthalianum
Barkley, F. A. 40174, guineense
Barreto 1847, cattleyanum
Barreto & Fernandes 1455, rufum
Barreto & Viegas 7200, rufum
Bartholomew 2532, guineense
Bartholomew 2533, guajava
Bartholomew 2534, guineense
Bartholomew 2596, oligospermum
Bartholomew 2611, oligospermum
Bartholomew 2762, guajava
Bartholomew 2762, guajava
Bartholomew 2947, oligospermum
Bartholomew 2947, oligospermum
Bartlett 21162, salutare var. cuspidatum
Bartlett 21279, salutare var. cuspidatum
Basil Stergios 14855, acutangulum
Basil Stergios 15434, acutangulum
Bassler 47827, parvifolium
Bassler 48235, rotundatum
Basualdo 784, guajava
Basualdo 862, missionum
Basualdo 1010, grandifolium
Basualdo 1027, guineense
Basualdo 1030, missionum
Basualdo 1103, australe var. australe
Basualdo 1197, guajava
Basualdo 1365, guajava
Basualdo 1510, guajava
Basualdo 1514, guajava
Basualdo 1713, australe var. australe
Basualdo 1732, grandifolium
Basualdo 1734, australe var. australe
Basualdo 2074, australe var. australe
Basualdo 2076, missionum
Basualdo 2315, guineense
Basualdo 2316, australe var. australe
Basualdo 2597, guajava
Basualdo 2672, guajava
Basualdo 2673, guajava
Basualdo 2675, guineense
Basualdo 2724, australe var. australe
Basualdo 3186, guajava
Basualdo 3303, guineense
Basualdo 4862, australe var. australe
Basualdo & Yoshizake 766, guajava
Batista 18645, laruotteanum
Bautista 742, schenckianum
Bautista 1610, oligospermum
Bautista 3085, brownianum
Bautista & Jost 1710, oligospermum
Bautista & Pinto 828, guineense
Bawa 189, oligospermum
Bayma 513, guineense
Becerra Gonzales 1184, guajava
Beck, H. 1205, cattleyanum
Beck, S. G. 2531, guineense
Beck 2672, guineense
Beck 3451, guineense
Beck 5487, acutangulum
Beck 5672, acutangulum
Beck 10046, nutans
Beck 15137, acidum
Beck 31843, guineense
Belem 111, guineense
Belem 112, guineense
Belem 3912, grandifolium
Belem & Mendes 167, guineense
Belem & R. S. Pinheiro 2691, myrtoides
Belem & Pinheiro 3230, cattleyanum
Beltran 10, occidentale
Benitez de Rojas 565, guineense
Benitez de Rojas 2612, appendiculatum
Bennett 3326, guajava
Berazaín 43459, rotundatum
Berendsohn & Berendsohn 366, friedrichsthalianum
Berg 18619, acutangulum
Berg & Henderson 660, riparium
Berlin 1574, guajava
Bernacci 373, rufum
Bernardi 1743, friedrichsthalianum
Bernardi 6319, guineense
Bernardi 6539, guyanense
Bernardi 18306, australe var. australe
Bernardi 18348, salutare
Berry 646, guineense
Berry 3517, guineense
Bertoni 1236, kennedyanum
Besse 48988, rotundatum
Betancur 1792, pedicellatum
Betancur & Porras 1517, salutare var. salutare
Bianchini 907, ovale
Bicudo 336, australe var. australe
Bicudo 1606, australe var. australe
Bicudo 1660, australe var. australe
Bicudo 1691, australe var. australe
Bima 60726, guineense
Bisse 284, guajava
Bisse 765, salutare var. salutare
Bisse 919, guajava
Bisse 6818, urquiolanum
Bisse 9518, salutare var. salutare
Bisse 15740, parvifolium
Bisse 15772, parvifolium
Bisse 15854, parvifolium
Bisse 15911, parvifolium
Bisse 16722, parvifolium
Bisse 16753, parvifolium
Bisse 16764, parvifolium
Bisse 16967, urquiolanum
Bisse 16987, parvifolium
Bisse 17073, urquiolanum
Bisse 17082, parvifolium
Bisse 17121, minutifolium
Bisse 20212, parvifolium
Bisse 20247, parvifolium
Bisse 21450, urquiolanum
Bisse 21979, parvifolium
Bisse 22208, parvifolium
Bisse 22249, guineense
Bisse 22627, parvifolium
Bisse 23405, rotundatum
Bisse 26901, minutifolium
Bisse 27000, urquiolanum
Bisse 31027, rotundatum
Bisse 31123, salutare var. salutare
Bisse 39439, parvifolium
Bisse 39927, minutifolium
Bisse 39950, minutifolium
Bisse 40109, minutifolium
Bisse 41418, salutare var. salutare
Bisse 41520, oligospermum
Bisse 44046, parvifolium
Bisse 44059, parvifolium
Bisse 44537, parvifolium
Bisse 44808, parvifolium
Bisse 44882, parvifolium
Bisse 46641, salutare var. salutare
Bisse & Kohler 5291, urquiolanum
Bisse & Kohler 5492, minutifolium
Bisse & Kohler 5618, parvifolium
Bisse & Kohler 6158, minutifolium
Bisse & Kohler 6661, parvifolium
Bisse & Kohler 6774, urquiolanum
Bisse & Kohler 6909, parvifolium
Bisse & Kohler 7219, parvifolium
Bisse & Kohler 7314, parvifolium
Bisse & Kohler 7387, parvifolium
Bisse & Kohler 7394, parvifolium
Bisse & Kohler 7459, parvifolium
Bisse & Kohler 7474, parvifolium
Bisse & Kohler 7475, parvifolium
Bisse & Kohler 7609, parvifolium
Bisse & Kohler 7928, guineense
Bisse & Kohler 7987, parvifolium
Bisse & Kohler 8754, parvifolium
Bisse & Kohler 8761, parvifolium
Bisse & Kohler 9298, parvifolium
Bisse & Lippold 11817, parvifolium
Bisse & Lippold 11888, urquiolanum
Bisse & Lippold 18072, parvifolium
Bisse & Lippold 18109, parvifolium
Bisse & Lippold 18677, rotundatum
Bisse & Rojas 1980, rotundatum
Bisse & Rojas 2746, parvifolium
Bisse & Rojas 3016, guajava
Bisse & Rojas 3186, parvifolium
Bisse & Rojas 3527, parvifolium
Bisse & Rojas 3528, parvifoliumX minutifolium
Bisse & Rojas 3957, parvifoliumX minutifolium
Bisse & Rojas 4028, parvifolium
Bisse & Rojas 4162, parvifolium

Bisse & Rojas 4176, parvifolium
Bisse & Rojas 4247, parvifolium
Bisse & Rojas 4289, parvifolium
Bisse & Rojas 4454, salutare var. salutare
Bisse & Rojas 4470, parvifolium
Bisse & Rojas 4578, rotundatum
Bisse & Rojas 4923, rotundatum
Bisse Lippold 11345, minutifolium
Bisse Lippold 11590, minutifolium
Bisse Lippold 12000, parvifolium
Bisse Lippold 17691, parvifolium
Bisse Lippold 17982, parvifolium
Bisse Lippold 18038, parvifolium
Bisse Lippold 18283, rotundatum
Black 8035, riparium
Black 14060, striatulum var. striatulum
Black 14199, guineense
Black 17703, oligospermum
Blackmore & Chorley 3610, guineense
Blackmore & Chorley 4048, friedrichsthalianum
Blackmore & Heath 1620, guajava
Blackmore & Heath 1748, guineense
Blanchet 317, bahianum
Blanchet 2815, rhombeum
Blanchet 2916, striatulum var. striatulum
Blanchet 3114, oligospermum
Blanchet 3310, salutare var. salutare
Blanchet 6881, oligospermum
Blanchoud 2243, kennedyanum
Blanco 731, oligospermum
Blasido 221, friedrichsthalianum
Blasido 223, guajava
Boege 475, guajava
Boege 2443, guineense
Boelcke 4669, cattleyanum
Bohlin 1240, guineense
Bonilla 97, guineense
Bono 4886, guineense
Boom 2552, guajava
Boom 4068, guajava
Boon 1083, striatulum var. striatulum
Bordas 4013, guineense
Bordas 4260, guineense
Bordo 5414, rufum
Botanical Dept. 5003, montanum
Boudet Fernandes 1572, guineense
Bourdeth 67, guajava
Box 1095, guajava
Brade 6790, grandifolium
Brade 7404, australe var. australe
Brade 10545, guineense
Brade 13005, grandifolium
Braga 19437, oblongatum
Brandbyge 32865, acidum
Brasil 2, guineense
Brass 33215, cattleyanum
Brazao 167, schenckianum
Brazil 2, guineense
Breckon 2102, guajava
Breedlove 6066, guineense
Breedlove 6118, guajava
Breedlove 9722, guajava
Breedlove 11412, guajava
Breedlove 11653, guineense
Breedlove 11740, guajava
Breedlove 12026, guajava
Breedlove 14787, guajava
Breedlove 29155, oligospermum
Breedlove 34726, guineense
Breedlove 36344, acutangulum
Breedlove 45259, oligospermum
Breedlove 46511, oligospermum
Breedlove 52781, oligospermum
Breedlove & Raven 8339, guineense
Breedlove & Raven 8357, guineense
Brenes 5989, oligospermum
Brenes 23183, oligospermum
Brenes 23196, oligospermum
Bresolin 519, cattleyanum
Bresolin 637, cattleyanum
Bresolin 747, myrtoides
Breteler 3399, guineense
Breteler 4804, striatulum var. striatulum
Bridgewater 212, myrsinites
Brigada Vazquez 278, friedrichsthalianum
Britez 1047, cattleyanum
Britton 766, amplexicaule
Britton 1096, montanum
Britton 6450, salutare var. salutare
Britton 7309, salutare var. salutare
Britton 7832, amplexicaule
Britton 10093, salutare var. salutare
Britton 14401, salutare var. salutare
Britton 15160, salutare var. salutare
Britton & Britton 7220, oligospermum
Britton & Britton 7548, salutare var. salutare
Britton & Hess 2824, oligospermum
Britton & Shafer 324, amplexicaule
Broadway 458, schenckianum
Brumbach 7893, guajava
Brunner 1377, guajava
Buchanan-Smith 78, guajava
Buchtien 630, guineense
Buchtien 7391, guineense
Bufrem & Ziller 2, cattleyanum
Bullock 992, oligospermum
Bullock 1407, oligospermum
Bunting 5469, salutare var. salutare
Bunting 9597, guajava
Bunting & Alfonzo 10603, guineense
Bunting & Litch 700, guineense
Bunting & Stoddart 9231, salutare var. salutare
Bunting & Stoddart 9238, salutare var. salutare
Bunting & Stoddart 9248, guineense
Bunting & Stoddart 9348, guineense
Burch 6149, guineense
Burch 6180, salutare var. salutare
Burgos & Chan 372, guajava
Burkart 30989, guajava
Burkart 31006, guineense
Buttura 1004, australe var. australe
Caballero 40, guajava
Caballero Marmori 893, kennedyanum
Caballero Marmori 1234, australe var. australe
Caballero Marmori 1413, salutare
Caballero Marmori 1878, australe var. australe
Cabral 186, grandifolium
Cabral 199, missionum
Cabrera 2802, laruotteanum
Cabrera 3720, guajava
Cabrera 4055, oligospermum
Cabrera 4681, oligospermum
Cabrera 4681, oligospermum
Cabrera 7296, guineense
Cabrera 8754, oligospermum
Cabrera 9316, oligospermum
Cabrera 9549, oligospermum
Cabrera 9818, cattleyanum
Cabrera 28988, guineense
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Caffrey 2, friedrichsthalianum
Caffrey 2, friedrichsthalianum
Caffrey 2, friedrichsthalianum
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Calderon 1105, friedrichsthalianum
Calderon 1215, oligospermum
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Callejas Posada 1733, amplexicaule
Calónico 25562, guajava
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Calzada 2428, guineense
Calzada 3641, oligospermum
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Cardoso 16, schenckianum
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Cardoso 1968, cauliflorum
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Carvalho 613, brownianum
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Carvalho 1957, guineense
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Carvalho 2449, cattleyanum
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Carvalho 6859, cattleyanum
Carvalho & Gatti 455, guineense
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Castillo & Tapia 686, oligospermum
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Castro 16, oligospermum
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Castro 2466, guajava
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Catharino 1711, guineense
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Ceron 11149, guajava
Ceron 11343, guajava
Ceron 11660, guajava
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Ceron 18260, guayaquilense
Ceron & Iguago 5655, guajava
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Chase 7269, guajava
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Chavelas 4942, friedrichsthalianum
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Chiea 480, australe var. argenteum
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Ching-en Chan 8544, cattleyanum
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Chung 1637, guajava
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Clarke 2094, guineense
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Clarke 2707, acutangulum
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Clarke 3355, striatulum var. striatulum
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Croat 8385, guajava
Croat 16584, friedrichsthalianum
Croat 18680, densicomum
Croat 18780, densicomum
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Hatschbach 43870, grandifolium
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Hatschbach 44082, guineense
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Hatschbach 44566, grandifolium
Hatschbach 44706, australe var. argenteum
Hatschbach 44866, cattleyanum
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Hatschbach 45864, grandifolium
Hatschbach 46755, brownianum
Hatschbach 46762, brownianum
Hatschbach 46926, brownianum
Hatschbach 47309, grandifolium
Hatschbach 47837, grandifolium
Hatschbach 48356, firmum
Hatschbach 48362, cattleyanum
Hatschbach 48362, cattleyanum
Hatschbach 48414, suffruticosum
Hatschbach 48817, cattleyanum
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Hatschbach 49420, rufum
Hatschbach 50275, myrtoides
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Hatschbach 51652, guineense
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Hatschbach 51987, myrtoides
Hatschbach 52449, guajava
Hatschbach 52495, kennedyanum
Hatschbach 52614, grandifolium
Hatschbach 52653, australe var. argenteum
Hatschbach 53505, oligospermum
Hatschbach 53638, laruotteanum

Hatschbach 54567, grandifolium
Hatschbach 54569, grandifolium
Hatschbach 54613, laruotteanum
Hatschbach 54712, myrsinites
Hatschbach 54720, nutans
Hatschbach 54810, salutare var. cuspidatum
Hatschbach 55798, australe var. australe
Hatschbach 55874, grandifolium
Hatschbach 56024, salutare var. salutare
Hatschbach 56953, brownianum
Hatschbach 58745, grandifolium
Hatschbach 59014, myrsinites
Hatschbach 60018, grandifolium
Hatschbach 60043, myrsinites
Hatschbach 60043, myrsinites
Hatschbach 60177, guineense
Hatschbach 61858, guineense
Hatschbach 63184, oligospermum
Hatschbach 67410, rufum
Hatschbach 71188, oligospermum
Hatschbach 71498, myrtoides
Hatschbach 71567, brownianum
Hatschbach 75267, oligospermum
Hatschbach 75625, oligospermum
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Hatschbach & Barbosa 56148, cattleyanum
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Hatschbach & Cordeiro 52644, australe var. australe
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Heringer 2960, rufum
Heringer 3435, australe var. argenteum
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Heringer 5129, firmum
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Heringer 6221, grandifolium
Heringer 7177, firmum
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Heringer 8773, grandifolium
Heringer 8815, salutare var. resiliens
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Heringer 8912, grandifolium
Heringer 8923, firmum
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Heringer 9635, australe var. agenteum
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Huamantupa 7739, acutangulum
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Huber 6289, salutare var. pohlianum
Huber 6436, salutare var. pohlianum
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Huber 11627, australe var. australe
Huber & Alarcon 6555, guineense
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Irwin 8737, firmum
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Irwin 9118, firmum
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Irwin 10699, salutare var. resiliens
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Irwin 12667, grandifolium
Irwin 12874, myrsinites
Irwin 13226, salutare var. pohlianum
Irwin 13334, laruotteanum
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Irwin 13434, laruotteanum
Irwin 13449, salutare var. pohlianum
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Irwin 13612, laruotteanum
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Irwin 14111, laruotteanum
Irwin 14393, australe var. australe
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Irwin 25326, myrsinites
Irwin 25600, salutare var. resiliens
Irwin 25696, grandifolium
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Irwin 25705, salutare var. pohlianum
Irwin 25733, salutare var. pohlianum
Irwin 25885, suffruticosum
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Irwin 26330, australe var. argenteum
Irwin 26671, salutare var. resiliens
Irwin 26706, myrsinites
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Irwin 26888, guineense
Irwin 28840, myrtoides
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Irwin 31261, schenckianum
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Irwin 34104, myrsinites
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Irwin 55388, acutangulum
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Irwin & Soderstom 6506, salutare var. salutare
Irwin & Soderstom 7173, grandifolium
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Jansen-Jacobs 1319, australe var. australe
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Jaramillo 1090, acidum
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Jardim 342, guineense
Jardim 2125, oligospermum
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Kawasaki 923, cattleyanum
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Keller 3554, australe var. australe
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Krapovickas 43513, cattleyanum
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Landrum 2904, cattleyanum
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Landrum 3909, australe var. australe
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Landrum 4104, araucanum
Landrum 4110, salutare var. resiliens
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Landrum 4184, cattleyanum
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Landrum 4242, laruotteanum
Landrum 4245, grandifolium
Landrum 4763, cattleyanum
Landrum 5479, guineense
Landrum 5676, guineense
Landrum 5677, guajava
Landrum 5678, guineense
Landrum 5679, guineense
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Landrum 5702, salutare var. sericeum
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Landrum 5705, grandifolium
Landrum 5706, grandifolium
Landrum 5707, grandifolium
Landrum 5708, guineense
Landrum 5709, grandifolium
Landrum 5717, grandifolium
Landrum 5718, missionum
Landrum 5723, guineense
Landrum 5726, guajava
Landrum 5727, guineense
Landrum 5730, missionum
Landrum 5731, grandifolium
Landrum 5732, guineense
Landrum 5733, grandifolium
Landrum 5734, guineense
Landrum 5735, missionum
Landrum 5738, missionum
Landrum 5740, missionum
Landrum 5741, australe var. australe
Landrum 5742, guajava
Landrum 5747, guajava
Landrum 6077, montanum
Landrum 6299, guajava
Landrum 6301, guajava
Landrum 6302, guajava
Landrum 6304, guajava
Landrum 6331, guajava
Landrum 6332, guajava
Landrum 6333, guajava
Landrum 6334, guajava
Landrum 6335, guajava
Landrum 6338, salutare
Landrum 6342, guineense
Landrum 6343, guajava
Landrum 6347, guajava
Landrum 6358, guajava
Landrum 6372, guajava
Landrum 6373, guineense
Landrum 6374, guineense
Landrum 6376, guajava
Landrum 6388, guineense
Landrum 6392, guineense
Landrum 6393, guineense
Landrum 6394, guajava
Landrum 6395, guineense
Landrum 6396, guajava
Landrum 6397, guineense
Landrum 6398, guajava
Landrum 6399, guineense
Landrum 6400, guineense
Landrum 6401, guineense
Landrum 6402, guajava
Landrum 6403, guineense
Landrum 6404, guajava
Landrum 6408, guineense
Landrum 6409, guineense
Landrum 6412, guajava
Landrum 6426, guajava
Landrum 6427, guineense
Landrum 6429, guajava
Landrum 6431, guineense
Landrum 6432, guineense
Landrum 6434, guineense
Landrum 6435, guajava
Landrum 6436, guineense
Landrum 6437, guineense
Landrum 6438, guineense
Landrum 6439, guineense
Landrum 6441, guineense
Landrum 6444, guineense
Landrum 6445, guineense
Landrum 6447, guajava
Landrum 6448, oligospermum
Landrum 6480, salutare var. salutare
Landrum 6486, guineense
Landrum 6495, guineense
Landrum 6496, guineense
Landrum 6497, guineense
Landrum 6498, salutare var. salutare
Landrum 6499, salutare var. salutare
Landrum 6500, salutare var. salutare
Landrum 6502, guineense
Landrum 6503, guineense
Landrum 6504, guineense
Landrum 6507, guineense
Landrum 6508, guineense
Landrum 6510, guineense
Landrum 6511, guajava
Landrum 6512, guajava
Landrum 6513, guineense
Landrum 6514, guineense
Landrum 6514, guineense
Landrum 6516, guajava
Landrum 6518, oligospermum
Landrum 6519, oligospermum
Landrum 6520, salutare var. salutare
Landrum 6521, salutare var. salutare
Landrum 6522, oligospermum
Landrum 6523, oligospermum
Landrum 6524, oligospermum
Landrum 6525, oligospermum
Landrum 6526, oligospermum
Landrum 6527, oligospermum
Landrum 6528, oligospermum
Landrum 6529, oligospermum
Landrum 6530, oligospermum
Landrum 6531, oligospermum
Landrum 6532, oligospermum
Landrum 6533, oligospermum
Landrum 6534, guajava
Landrum 6535, guineense
Landrum 6535, oligospermum
Landrum 6536, oligospermum
Landrum 6537, oligospermum
Landrum 6555, friedrichsthalianum
Landrum 6556, guajava
Landrum 6558, guineense
Landrum 6560, laruotteanum
Landrum 6565, friedrichsthalianum
Landrum 6566, cattleyanum
Landrum 6567, guajava
Landrum 6568, guajava
Landrum 6569, guajava
Landrum 6570, friedrichsthalianum
Landrum 6571, guajava
Landrum 6572, guajava
Landrum 6573, guineense
Landrum 6573, guineense
Landrum 6575, friedrichsthalianum
Landrum 6579, guajava
Landrum 7866, guajava
Landrum 8553, guajava
Landrum 8564, guajava
Landrum 8608, guajava
Landrum 8609, guineense
Landrum 8614, guineense
Landrum 8618, guajava
Landrum 8648, guineense
Landrum 8649, missionum
Landrum 8650, guajava
Landrum 8651, guineense
Landrum 8652, guineense
Landrum 8661, grandifolium
Landrum 8662, grandifolium
Landrum 8663, grandifolium
Landrum 8664, grandifolium
Landrum 8665, salutare var. cuspidatum
Landrum 8666, missionum

Landrum 8667, grandifolium
Landrum 8667, grandifolium
Landrum 8668, guineense
Landrum 8669, grandifolium
Landrum 8670, australe var. australe
Landrum 8671, guineense
Landrum 8672, guineense
Landrum 8675, guineense
Landrum 8692, guineense
Landrum 8700, australe var. australe
Landrum 8711, guajava
Landrum 8729, grandifolium
Landrum 8730, guajava
Landrum 8732, grandifolium
Landrum 8764, salutare var. sericeum
Landrum 8765, salutare var. sericeum
Landrum 8766, grandifolium
Landrum 8767, grandifolium
Landrum 8768, grandifolium
Landrum 8769, missionum
Landrum 8770, guineense
Landrum 8771, guineense
Landrum 8773, guineense
Landrum 8774, guajava
Landrum 8777, guineense
Landrum 8778, guineense
Landrum 8779, guineense
Landrum 8780, guineense
Landrum 8784, grandifolium
Landrum 8787, guajava
Landrum 8789, australe var. australe
Landrum 8790, salutare var. sericeum
Landrum 8791, australe var. australe
Landrum 8792, grandifolium
Landrum 8794, grandifolium
Landrum 8795, australe var. australe
Landrum 8796, salutare var. cuspidatum
Landrum 8797, missionum
Landrum 8798, australe var. australe
Landrum 8799, missionum
Landrum 8800, grandifolium
Landrum 8801, grandifolium
Landrum 8802, guineense
Landrum 8803, grandifolium
Landrum 8804, guineense
Landrum 8805, missionum
Landrum 8806, grandifolium
Landrum 8807, guineense
Landrum 8808, missionum
Landrum 8810, grandifolium
Landrum 8812, missionum
Landrum 8813, guineense
Landrum 8814, salutare var. cuspidatum
Landrum 8816, australe var. australe
Landrum 8817, grandifolium
Landrum 8818, guineense
Landrum 8819, missionum
Landrum 8821, missionum
Landrum 8823, grandifolium
Landrum 8824, missionum
Landrum 8825, australe var. australe
Landrum 8826, guineense
Landrum 8828, missionum
Landrum 8830, grandifolium
Landrum 8831, guineense
Landrum 8832, grandifolium
Landrum 8833, guajava
Landrum 8835, grandifolium
Landrum 8836, grandifolium
Landrum 8837, guineense
Landrum 8838, missionum
Landrum 8839, guineense
Landrum 8841, nutans
Landrum 8842, guineense
Landrum 8843, guajava
Landrum 8847, guineense
Landrum 8855, grandifolium
Landrum 8856, grandifolium
Landrum 8857, suffruticosum
Landrum 8858, grandifolium
Landrum 8859, australe var. australe
Landrum 8866, guineense
Landrum 8867, guajava
Landrum 8869, grandifolium
Landrum 8877, guajava
Landrum 8879, kennedyanum
Landrum 8913, guineense
Landrum 9269, cattleyanum
Landrum 9382, guajava
Landrum 9731, friedrichsthalianum
Landrum 9930, cattleyanum
Landrum 10044, guajava
Landrum 10124, guajava
Landrum 10127, guineense
Landrum 10474, guajava
Landrum 10864, guajava
Landrum 10879, guineense
Landrum 11050, guajava
Landrum 12043, myrtoides
Landrum 12045, montanum
Landrum 12046, guineense
Landrum 12306, myrtoides
Landrum 12307, friedrichsthalianum
Landrum 12308, guineense
Landrum 12309, guajava
Landrum 12311, friedrichsthalianum
Landrum 12321, friedrichsthalianum
Landrum 12323, oligospermum
Landrum 12325, guajava
Landrum & Basualdo 8860, laruotteanum
Landrum & Basualdo 8865, grandifolium
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Legrand 1502, guajava
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Legrand 2711, salutare var. sericeum
Legrand 3338, salutare var. cuspidatum
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Leite & Campos 30, cattleyanum
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Lent 1102, guineense
Lent 3496, oligospermum
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León 62, guineense
León 865, oligospermum
León 4217, friedrichsthalianum
León 11948, parvifolium
León 12028, parvifolium
León 12532, rotundatum
León 12547, rotundatum
León 12653, rotundatum
León 12692, rotundatum
León 13543, rotundatum
León 13806, rotundatum
León 13810, rotundatum
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León 13863, rotundatum
León 14336, salutare var. salutare
León 16822, rotundatum
León & Charles 4941, rotundatum
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León & Clemente 23164, minutifolium
León & Clemente 23264, parvifolium
León & Clemente 23276, parvifolium
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Lewis 1981, guajava
Lewis 2305, guajava
Lewis 6329, guajava
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Liesner 4540, guineense
Liesner 7772, guajava
Liesner 11064, salutare var. salutare
Liesner 24147, guineense
Liesner 24182, laruotteanum
Liesner 24211, laruotteanum
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Lima 54, sobralianum
Lima 71, oligospermum
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Lima 2903, brownianum
Lima, Haroldo de 8668, cauliflorum
Lima, de 58118, grandifolium
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Lindeman & Haas 3858, cattleyanum
Lindeman & Haas 4834, australe var. australe
Lindeman & Haas 5487, kennedyanum
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Liogier 16145, amplexicaule
Liogier 16473, amplexicaule
Liogier 16557, amplexicaule
Liogier 17378, nannophyllum
Liogier 17385, amplexicaule
Liogier 17895, amplexicaule
Liogier 18880, acranthum
Liogier 18963, acranthum
Liogier 18974, acranthum
Liogier 19342, amplexicaule
Liogier 19785, acranthum
Liogier 20001, amplexicaule
Liogier 20940, acranthum
Liogier 21278, amplexicaule
Liogier 21467, amplexicaule
Liogier 24466, amplexicaule
Liogier 24517, amplexicaule
Liogier 26323, acranthum
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Lombardi 2052, nutans
Lombardi 4259, grandifolium
Lombardi 4560, rufum
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Lopes 71, firmum
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Lopez 72, guajava
Lopez 344, oblongatum
Lopez 1164, guajava
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Lopez & Gutierrez 666, acutangulum
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Lopez, Laura 457, guineense
Lopez Lopez 290, guineense
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Luis Valenzuela 19273, guajava
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Lundell 800, guajava
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Lundell 2280, guineense
Lundell 2596, guajava
Lundell 3367, guineense
Lundell 3368, guineense
Lundell 6560, salutare var. salutare
Lundell 6902, guineense
Lundell 7494, oligospermum
Lundell 7785, guineense
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Macedo 1298, grandifolium
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Macedo 2628, guineense
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Macedo 3405, australe var. argenteum
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Macedo 4175, salutare var. salutare
Macedo 4853, grandifolium?
Macedo 5073, oligospermum
Macedo & Smith 4802, myrsinites
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Maguire 27319, striatulum var. striatulum
Maguire 28996, maribense
Maguire 29316, guajava
Maguire 36006, guineense
Maguire 36007, salutare var. salutare
Maguire 40214, guineense
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Martinez 4014, oligospermum
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Martinez 9436, oligospermum
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Martinez & Castillo 6, oligospermum
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Martinez Crovetto 9888, australe var. australe
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Mattos 8684, ovale
Mattos 8903, australe var. argenteum
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Mattos 9532, guineense
Mattos 9534, guineense
Mattos 9576, suffruticosum
Mattos 9624, guineense
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Mattos 9638, australe var. argenteum
Mattos 9655, grandifolium
Mattos 9801, guineense
Mattos 9970, guyanense
Mattos 10620, australe var.argenteum
Mattos 10647, australe var. australe
Mattos 10719, australe var. australe
Mattos 10805, brownianum
Mattos 11467, cattleyanum
Mattos 11620, acidum
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Mattos 15188, australe var. australe
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Mattos 15222, australe var. australe
Mattos 15236, rufum
Mattos 15290, australe var. australe
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Mattos & Bicalho 11536, guineense
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Mattos Filho 14401, cattleyanum
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Mattos Silva 2244, brownianum
Mattos Silva & da S. Brito 869, brownianum
Mattos Silva & Hage 320, guineense
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Matuda 5905, salutare var. salutare
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McPherson 5432, cattleyanum
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McPherson & Merello 8366, guineense
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Melo 1384, appendiculatum
Melo 1426, appendiculatum
Melo 1484, appendiculatum
Melo 1503, appendiculatum
Melo 1551, appendiculatum
Melo 1721, appendiculatum
Melo 1827, brownianum
Melo 1843, appendiculatum
Melo 1853, appendiculatum
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Melo 2110, appendiculatum
Melo 2128, appendiculatum
Melo 2402, appendiculatum
Melo 2625, myrtoides
Melo 2715, striatulum var. striatulum

Melo 2974, brownianum
Melo 3076, schenckianum
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Melo & França 2522, longipetiolatum
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Mereles 4218, guineense
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Mexia 686, guineense
Mexia 1301, oligospermum
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Meyer 11513, grandifolium
Meyer 18757, grandifolium
Meyer 21738, guineense
Meyer & Vaca 23541, guajava
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Miranda 759, guineense
Miranda 760, schenckianum
Miranda 893, guineense
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Miranda 2751, oligospermum
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Molina 299, salutare var. salutare
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Molina 2982, salutare var. salutare
Molina 7490, oligospermum
Molina 7596, oligospermum
Molina 10083, oligospermum
Molina 14168, salutare var. salutare
Molina 14360, oligospermum
Molina 14449, oligospermum
Molina 22041, oligospermum
Molina 22433, oligospermum
Molina 22595, oligospermum
Molina 22698, salutare var. salutare
Molina 22727, oligospermum
Molina 25763, oligospermum
Molina 26853, oligospermum
Molina 31067, oligospermum
Molina 33686, guajava
Molina 33955, cattleyanum
Molina R. 182, oligospermum
Molina R. 6334, guineense
Molina R. 7056, friedrichsthalianum
Molina R. 30604, friedrichsthalianum
Molina, A. 5798, guineense
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Montes 1260, missionum
Montes 1554, missionum
Montes 9520, guineense
Montes 10997, grandifolium
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Montes 14781, missionum
Montes 14782, australe var. australe
Montes 14785, guineense
Montes 14789, guineense
Montes 14794, grandifolium
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Montes 16212, missionum
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Moreno 2142, guineense
Moreno 2298, guajava
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Moreno 3015, guajava
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Moreno 8061, guineense
Moreno 13470, oligospermum
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Moreno 17137, oligospermum
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Moreno 21170, guineense
Moreno 21946, oligospermum
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Nee 27613, guajava
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Nee 40273, guineense
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Neill 7418, oligospermum
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Nelson 156, guineense
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Nelson 2575, guajava
Nelson 4078, guineense
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Nelson 4792, oligospermum
Nelson 5661, guineense
Nelson 6044, guajava
Nelson 6673, friedrichsthalianum
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Noblick 2729, schenckianum
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Oliveira 699, guineense
Oliveira 712, cattleyanum
Oliveira 719, cattleyanum
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Oliveira 14191, guineense
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Oliveira, M. V. M. 709, rhombeum
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Ortega U. 254, friedrichsthalianum
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Pedersen 4449, nutans
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Pedra do Cavalo 814, cauliflorum
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Pereira 3119, brownianum
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Pereira 4122, brownianum
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Pereira 4472, brownianum
Pereira 4657, grandifolium
Pereira 4975, brownianum
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Pereira & Hatschbach 8056, australe var. australe
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Pereira, B. A. S. & Mecenas 2095, oligospermum
Pereira da Silva, G. 3518, oligospermum
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Perez 823, oligospermum
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Pirani 830, grandifolium
Pirani 1180, acutangulum
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Pirani 2384, guineense
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Pires 3908, densicomum
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Pittier 3300, salutare var. salutare
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Pittier 3581, salutare var. salutare
Pittier 4429, guajava
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Pittier 5319, guineense
Pittier 6570, guineense
Pittier 7936, salutare var. salutare
Pittier 8587, guajava
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Pittier 9277, oligospermum
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Pittier 11689, salutare var. salutare
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Pittier 11889, oligospermum
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Plowman 8297, myrsinites
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Pohl 1020, myrsinites
Pohl 2154, guineense
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Prance 6064, densicomum
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Prance 6204, friedrichsthalianum
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Prance 9115, striatulum var. striatulum
Prance 10708, acutangulum
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Prance & Pennington 1740, acutangulum
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Proctor 20669, guineense
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Proctor 22738, harrisianum
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Proctor 24762, montanum
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Zardini 17281, guineense
Zardini 17425, guajava
Zardini 17878, guajava
Zardini 18503, guajava
Zardini 21076, guajava
Zardini 21157, guineense
Zardini 21421, guajava
Zardini 21971, grandifolium
Zardini 22329, guajava
Zardini 23214, guajava
Zardini 27725, guineense
Zardini 28735, guineense
Zardini 29061, guineense
Zardini 35346, guajava
Zardini 35371, guajava
Zardini 36818, guajava
Zardini 37378, australe var. argenteum
Zardini 37474, guajava
Zardini 37596, missionum
Zardini 37601, guajava
Zardini 37763, missionum
Zardini 38251, kennedyanum
Zardini 38496, nutans
Zardini 38840, guajava
Zardini 39026, australe var. australe
Zardini 39917, guineense
Zardini 40153, guajava
Zardini 41001, guajava
Zardini 41069, guajava
Zardini 41464, guajava
Zardini 45687, salutare var. salutare
Zardini 47569, guineense
Zardini 47580, guineense
Zardini 47698, salutare var. salutare
Zardini 47765, nutans
Zardini 47888, nutans
Zardini 47997, laruotteanum
Zardini 49116, australe var. australe
Zardini 49521, suffruticosum
Zardini 51202, suffruticosum
Zardini 51392, laruotteanum
Zardini 52192, grandifolium
Zardini 52777, australe var. australe
Zardini 52826, australe var. australe
Zardini 52836, australe var. australe
Zardini 53074, guineense
Zardini 53172, guineense
Zardini 53218, guineense
Zardini 53812, grandifolium
Zardini 54307, guajava
Zardini 55373, missionum
Zardini 55694, guineense
Zardini 59825, guineense
Zardini & Aguayo 8354, guajava
Zardini & Aguayo 10534, guineense
Zardini & Aguayo 10721, guajava
Zardini & Aguayo 14951, guineense
Zardini & D. Quintana 53882, grandifolium
Zardini & G. Garcete 29081, guineense
Zardini & Garcete 29111, salutare var. cuspidatum
Zardini & Guerrero 34974, grandifolium
Zardini & I. Chaparro 49442, grandifolium
Zardini & I. Chaparro 50729, grandifolium
Zardini & L. Guerrero 46493, grandifolium
Zardini & L. Guerrero 48007, grandifolium
Zardini & L. Guerrero 53956, grandifolium
Zardini & Velasquez 10168, guajava
Zardini & Velasquez 10249, guineense
Zardini & Velasquez 10785, guineense
Zardini & Velasquez 11662, guineense
Zardini & Velasquez 15360, guineense
Zardini & Velasquez 15653, guajava
Zardini & Velasquez 15871, guineense
Zardini & Velazquez 15533, guajava
Zardini & Velazquez 17336, kennedyanum
Zardini & Velazquez 19270, australe var. australe
Zardini & Velazquez 19797, kennedyanum
Zardini & Velazquez 19804, kennedyanum
Zardini & Velazquez 20132, guajava
Zardini & Velazquez 21849, kennedyanum
Zardini & Velazquez 22389, kennedyanum
Zardini & Velazquez 22767, guajava
Zardini & Velazquez 22991, kennedyanum
Zardini & Velazquez 23498, kennedyanum

Zardini & Velazquez 24372, kennedyanum
Zardini & Velazquez 24379, kennedyanum
Zardini & Velazquez 25759, kennedyanum
Zardini & Velazquez 25882, grandifolium
Zardini & Velazquez 25892, grandifolium
Zardini & Velazquez 26407, australe var. australe
Zardini & Velazquez 27492, kennedyanum
Zardini & Vera 41709, kennedyanum
Zarragatia 5303, salutare var. salutare
Zarucchi 2722, striatulum var. rondoniense
Zarucchi 2775, acutangulum
Zarucchi 4467, pedicellatum
Zarucchi 5419, guineense
Zarucchi 6259, guineense
Zarucchi & Barbosa 3402, maribense
Zarucchi & Barbosa 3749, salutare var. salutare
Zaruma 251, guajava
Zegarra 8, guajava
Zehntner 232, riparium
Zelaza 2270, guajava
Zetek 4228, guineense
Ziller & Abrao 131, cattleyanum
Ziller & Brand 715, cattleyanum
Ziller & Bufrem 330, australe var. australe
Ziller & Maschio 761, cattleyanum
Ziller & Soares 551, cattleyanum
Zola 445, guajava
Zola Baez 845, oligospermum

Table 7. List of 81 lectotypes with designator and publication indicated. (Landrum 2025 refers to this paper; page numbers are indicated).

Calycolpus parviflorus Sagot–Landrum 2003
Campomanesia suffruticosa O. Berg, in Mart.–Landrum 1986
Mitranthes O. Berg–Proença & Lucas 2023
Mitranthes eugenioides var. *ovata* O. Berg–Landrum 2025 (p. 123)
Mitropsidium oblanceolatum Burret–Landrum 2025 (p. 124)
Myrcianthes brunnea var. *grandifolia* O. Berg–Landrum 2025 (p. 129)
Myrtus acutata O. Berg –Landrum 2003
Myrtus blanchetiana O. Berg –Landrum 2003
Myrtus corynantha Kiaersk.–Landrum 2025 (p. 114)
Myrtus cuspidata O. Berg –Landrum 2003
Myrtus cuspidata var. *tetramera* O. Berg –Landrum 2003
Myrtus incana O. Berg –Landrum 2003
Myrtus jacquiniana O. Berg–Landrum 2025 (p. 181)
Myrtus mucronata Cambess. –Landrum 2003
Myrtus nivea O. Berg –Landrum 2003
Myrtus pubescens O. Berg –Landrum 2003
Myrtus rigida O. Berg –Landrum 2003
Myrtus sellowiana O. Berg –Landrum 2003
Myrtus sericea var. *fruticosa* O. Berg –Landrum 2003
Myrtus suffruticosa O. Berg –Landrum 2003
Pseudocaryophyllus uniflorus Burret–Landrum 2025 (p. 114)
Psidium acranthum Urb.–Landrum 2025 (p. 36)
Psidium albescens Urb.–Landrum 2025 (p. 43)
Psidium apiculatum Mattos–Tuler et al. 2019b
Psidium argenteum O. Berg –Landrum 2005
Psidium argenteum var. *angustifolium* O. Berg–Landrum 2025 (p. 51)
Psidium balium Urb.–Landrum 2025 (p. 131)
Psidium benthamianum O. Berg–Landrum 2025 (p. 89)
Psidium cattleyanum Sabine–Snow & Veldcamp 2010
Psidium cattleyanum Sabine–Tuler et al. 2018
Psidium cattleyanum var. *coriaceum* Kiaersk.–Landrum 2021b
Psidium celastroides Urb.–Landrum 2025 (p. 117)
Psidium cinereum var. *grandifolium* O. Berg –Landrum 2005
Psidium cinereum var. *intermedium* O. Berg –Landrum 2005
Psidium claraense Urb. –Landrum 2025 (p. 124)
Psidium coriaceum var. *longipes* O. Berg–Landrum 2025 (p. 57)
Psidium crispulum–Flickinger et al. 2020
Psidium cupreum O. Berg –Proença et al 2020
Psidium cymosum Urb.–Landrum 2025 (p. 141)
Psidium densicomum DC.–Landrum 2025 (p. 63)
Psidium galapagaeum Hook. f. Porter–1969
Psidium giganteum Mattos–Tuler et al. 2019b
Psidium glaziovianum Kiaersk.–Landrum 2025 (p.71)
Psidium grandiflorum Ruiz &Pav.–Landrum 2025 (p. 66)
Psidium grandifolium var. *intermedium* O. Berg –Landrum 2005
Psidium guajava L.–McVaugh 1989
Psidium guayabita A. Rich. –Landrum 2003
Psidium harrisianum Urb.–Landrum 2025 (p. 99)
Psidium hians DC. –Landrum 2025 (p. 89)
Psidium incanescens var. *rotundifolium* O. Berg–Landrum 2005
Psidium macrospermum O. Berg–Landrum 2025 (p. 144)
Psidium minutifolium Krug & Urb.–Landrum 2025 (p. 108)
Psidium minutiflorum Amshoff–McVaugh 1969
Psidium monticola O. Berg–Landrum 2025 (p. 89)
Psidium multiflorum Cambess.–Landrum 2025 (p. 89)
Psidium myrtoides O. Berg–Tuler et al. 2019b
Psidium oncocalyx Burret–Tuler et al. 2023
Psidium orbifolium Urb.–Landrum 2025 (p. 182)
Psidium parvifolium Griseb.–Landrum 2025 (p. 131)
Psidium paucinerve Urb.–Landrum 2025 (p. 131)
Psidium pohlianum O. Berg –Landrum 2003
Psidium reversum Urb.–Landrum 2010
Psidium ruizianum O. Berg–Landrum 2025 (p. 146)
Psidium rutidocarpum Ruiz & Pavon ex G. Don–Landrum 2025 (p. 146)
Psidium rypdocarpum Ruiz & Pavon –Landrum 2025 (p. 147)
Psidium salutare var. l*axum* O. Berg –Landrum 2003
Psidium salutare var. *subalternum* O. Berg–Landrum 2003
Psidium schenckianum Kiaersk.–Tuler et al. 2023
Psidium scopulorum Ekman & Urb.–Landrum 2025 (p. 117)
Psidium sect. *Albotomentosa* O. Berg–Proença et al. 2022
Psidium sect. *Apertiflora* –Proença et al. 2022
Psidium sect. *Clidopsidium* Griseb.–Landrum 2025 (p. 19)
Psidium sect. *Costata* O. Berg–Proença et al. 2022
Psidium sect. *Crenatifolia* O. Berg–Proença et al. 2022
Psidium sect. *Obversifolia* O. Berg–Proença et al. 2022
Psidium sect. *Rigidifolia* O. Berg–Proença et al. 2022
Psidium sericeum O. Berg –Landrum 2005
Psidium suffruticosum O. Berg –Landrum 2005
Psidium tenuirame Urb. –Landrum 2025 (p. 131)
Psidium thea Griseb. –Landrum 2021b
Psidium versicolor Urb.–Landrum 2025 (p. 182)