

## SIMMONDSIACEAE JOJOBA FAMILY

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Dioecious shrubs, wind-pollinated, rigidly much-branched, 1-2(-4) m tall, bearing simple, appressed, multicellular trichomes, these especially dense on newer growth. STEMS greenish tan, aging reddish brown to gray, the branches arching upward, the bark smooth; internodes 1.5-4 cm long. LEAVES opposite, the pairs erect-ascending, dull green, simple, entire, coriaceous, evergreen, obscurely pinnately veined, estipulate, elliptic to lanceolate or oblanceolate to oblong-ovate, 2-4(-6) cm long, 1-2 (-4) cm wide; apices acute to rounded; bases obtuse to acute or attenuate. STAMINATE INFLORESCENCES dense bracteate heads, on peduncles 2-30 mm long, pendant from leaf axils; flowers actinomorphic, with 4-6 distinct pubescent sepals, these mostly equal, 2-5 mm long, 1-3 mm wide; petals 0; stamens 8-12(-16), free, 2-4 mm long. PISTILLATE INFLORESCENCES usually of solitary flowers on recurved bracteate peduncles, these 2-5 mm long; flowers rarely perfect, actinomorphic, the sepals usually 5, pubescent, overlapping, 8-12 mm long but enlarging to 20 mm long in fruit; ovary superior, glabrous, 3(-4)-locular; styles 3; ovules 1 per locule, some usually aborting. FRUIT a coriaceous capsule, acorn-like, slightly 3-angled, 13-25 mm long, loculicidal. SEEDS 1(-3), brown to black, puberulent, 13-17 mm long. --1 monotypic genus; arid regions of southwestern U. S. and northwestern Mex. (for F. W. Simmonds, English naturalist).

*Simmondsia* Nutt. Jojoba, Goatnut

*Simmondsia chinensis* (Link) C. Schneider (of China). --Characters of the family. [*Buxus chinensis* Link, *Simmondsia californica* Nutt.].  $2n = 52$ . --Commonly found in arid zones of southern half of Arizona: Cochise, Gila, Graham, Greenlee, La Paz, Maricopa, Pima, Pinal, Yavapai, Yuma cos.; below 1500 m (4900 ft); Dec-Jul; CA; Baja C., Son., Mex.

Jojoba is an important forage plant for wild and domesticated animals. Commercially grown for the seed which contains a high-quality liquid wax used in cosmetics and for lubricating industrial machinery.

Classification of *Simmondsia chinensis* is problematic, having been placed in Buxaceae, Euphorbiaceae, and its own monotypic family, Simmondsiaceae, as treated here. Tobe et al. (1992) summarize that comparative evidence from seed coat structure and wood anatomy indicate a placement in the family Buxaceae, whereas serology and leaf architecture suggest alignment to Euphorbiaceae. However, characteristics of embryology, palynology, and sieve-element plastid morphology imply segregation into a monotypic family.

This species was originally named *B. chinensis* by Link due to a confusion with collected material brought from China (McMinn 1951).

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## LITERATURE CITED

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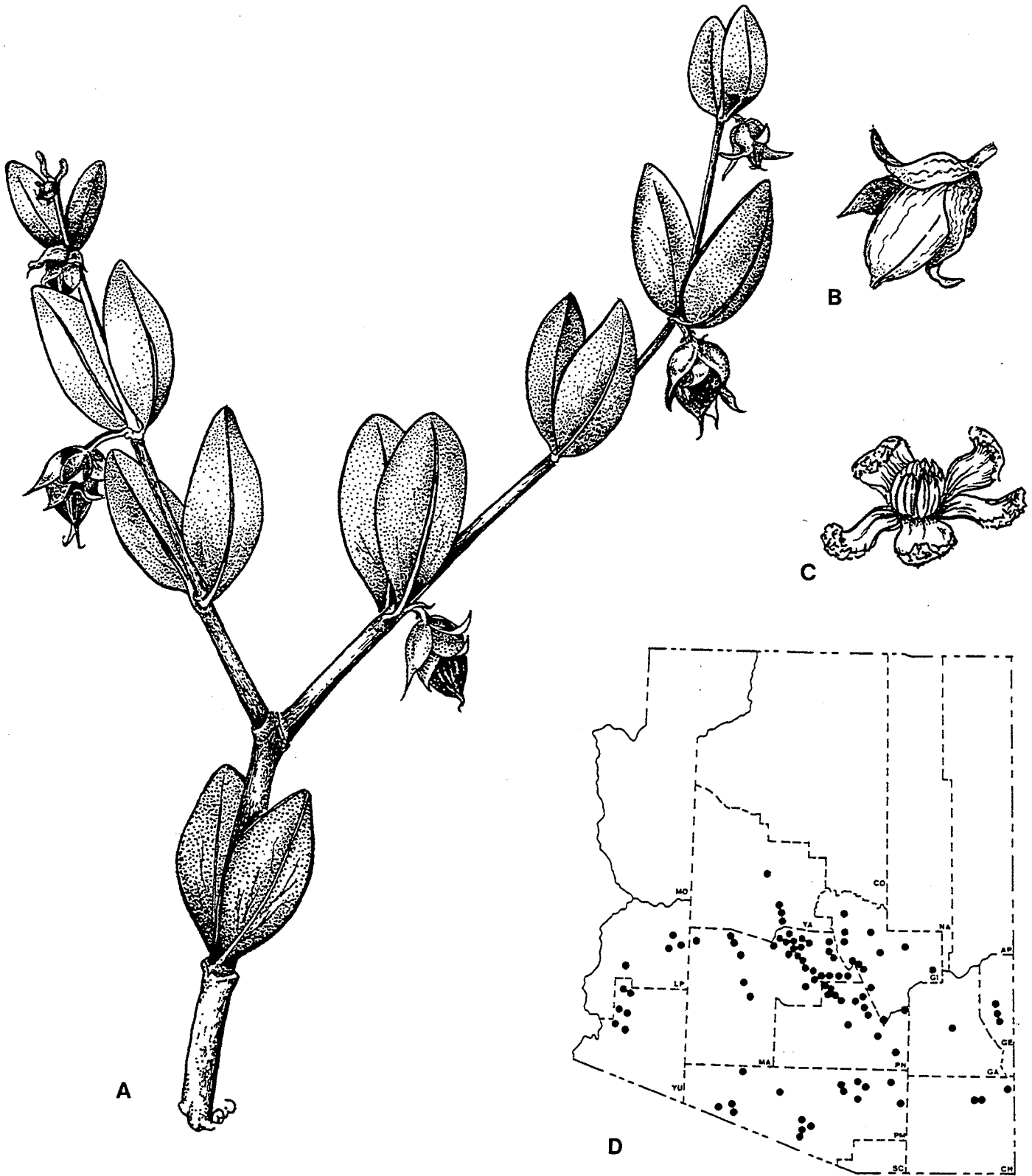


Figure 1. *Simmondsia chinensis*. A, pistillate branch; B, fruit; C, staminate flower; D, distribution in Arizona.