

## CUPRESSACEAE CYPRESS FAMILY

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Trees or shrubs, evergreen, monoecious or dioecious. LEAVES decussate or tricussate (in whorls of three); awl- or needle-like to usually scale-like (juvenile leaves awl- or needle-like, sometimes present in more or less mature plants, especially in response to grazing or infection), decurrent, completely covering young stems. POLLEN CONES small, axillary or terminal. SEED CONES woody to more or less fleshy, usually hard at maturity; scales decussate or tricussate. SEEDS 1 to many per fertile scale usually angled or winged. --17 genera, ca. 120 spp.; worldwide, all N. Amer. genera cultivated. Dallimore, W., and A. B. Jackson. 1966. *A Handbook of Coniferae and Ginkgoaceae*. London, St. Martin's Press; Elias, T. S. 1980. *The Complete Trees of North America*. New York, Van Nostrand Reinhold Co.; Rushforth, K. D. 1987. *Conifers*. London, Christopher Helm; Siba, J. 1984. *An International Census of the Coniferae, I*. Phytologia Memoirs VII:1-79.

1. Seed cone woody, not berry-like; scales more or less free; seeds winged; leaves decussate ..... *Cupressus*  
1' Seed cones usually fleshy to fibrous, berry-like; scales fused; seeds unwinged; leaves decussate or tricussate ..... *Juniperus*

**Cupressus L. Cypress**

Trees or large shrubs, often pyramidal in youth; monoecious. STEMS: short shoots 4-angled or flat to usually cylindrical; in flat sprays or usually arrayed in 3 dimensions. LEAVES decussate, scale-like, closely appressed overlapping. POLLEN CONES terminal, usually yellow. SEED CONES terminal, 6-50 mm long, woody, more or less spheric to broad cylindrical, maturing first or second year, usually closed more than 2 years; scales 6-12, peltate, abutting, shield or wedge-shaped; scale projection often present, small, pointed, usually less visible with age. SEEDS 2-many per scale, more or less flat to angled, winged; cotyledons 2-5. ca. 22 spp.; w N. Amer, Medit. to e Asia. (Latin name for Cypress). Wolf, C. B. 1948. *Aliso* 1:1-250.

**Cupressus arizonica** Greene (of Arizona). Arizona Cypress. --Trees 5-25 m tall. STEMS short shoots 1-2 mm diameter, 4-sided; bark partially peeling in thin strips or plates to fibrous and furrowed, especially in age, smooth to furrowed, cherry-red to brown to gray. LEAVES dusty green to gray-green, often glaucous, often appearing blue-green, glandular, sometimes inconspicuous, sometimes sparsely to densely resin-covered. POLLEN CONES (2-)3-5 mm long, 2-2.5 mm diameter, more or less cylindrical to 4-sided; sporophylls 8-16, opposite; pollen sacs 3-6 per sporophyll. SEED CONES 10-25(-35) mm long, spheric to ovoid, often warty, dull gray to brown, opening upon maturation; scales 4-8; scale projection 0-4 mm long, often conspicuous conic. SEEDS (3-)4-8 mm long, light tan to dark brown, slightly warty, usually glaucous; attachment scar sometimes conspicuous.  $2n = 22(23,24)$ . --3 subspp. in AZ, CA, NM, TX, and n Mex.

subsp. **arizonica**. --Leaves gray-green, glaucous, appearing blue-green, sometimes sparsely resin-covered. SEED CONES 10-25 mm long. [*C. arizonica* var. *bonita* Lemmon; *C. arizonica* var. *reveliana* J. Silba; *C. glabra* Sudw.; *C. stephensonii* C. Wolf]. --Canyon bottoms and mountain slopes; Madrean evergreen woodland, chaparral, riparian woodland; Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Navajo, Pima, and Yavapai cos.; 900-2300 m (3000-7500 ft); Nov-Mar; s CA, sw NM, sw TX; Baja C. Norte, Chih., Coah., Dgo., Son., Tamp., and Zac. Mex. Widely planted as a windbreak.

**Juniperus L. Juniper**

Shrubs or trees, usually dioecious. STEMS: short shoots 4 angled to cylindrical; bark usually thin, peeling in strips or in one species thick, deeply fissured into rectangular plates. LEAVES decussate or tricussate; scale-like to less often awl- or needle-like. POLLEN CONES: 3-5 mm long; sporophylls 6-24, decussate or tricussate; pollen sacs 2-8 per sporophyll. SEED CONES 3-20 mm long, fleshy to fibrous to rarely obscurely woody, berry-like, dry or fleshy, flavorless to resinous (bitter) to sweet, usually glaucous, formed by fusion of scales, more or less spheric, surrounded at base by minute scale-like bracts; scales 3-8, decussate or tricussate. SEEDS 1-3 per scale, terete or angled, unwinged, usually dispersed by animals; cotyledons 2-6. --ca. 60 spp; N. Hemisphere. (Latin name for juniper). Adams, R.P. and T.A. Zanoni. 1979. Southw. Naturalist 24:323-329; Vasek, F.C. 1966. Brittonia 18:350-372; Zanoni, T.A. 1978. Phytologia 38:433-454.

1. Leaves awl- or needle-like, sub-erect to spreading; cones axillary; shrubs usually less than 1 m tall (sect. *Juniperus*) ..... *J. communis*
1. Leaves mostly scale-like, closely appressed; cones terminal; trees or shrubs more than 1 m tall (sect. *Sabina*)
  2. Bark thick, deeply fissured into rectangular plates; cones ("juniper berries") usually 4-5 seeded ..... *J. deppeana*
  - 2' Bark thin, vertically fissured, peeling in strips, fibrous; cones 1-3 seeded.
    3. Leaf margins entire under magnification, sometimes hyaline; trees 5-20 m tall ..... *J. scopulorum*
    - 3' Leaf margins denticulate or serrulate under magnification; shrubs to small trees 1-8(-18) m.
      4. Seed cones hard, fibrous to obscurely woody, dry, tasteless, not wrinkled upon drying, usually greater than 8 mm long.
        5. Leaf gland obvious; plants dioecious; short shoots terete; trunks several at base ..... *J. californica*
        - 5' Leaf gland obscure; plants usually monoecious; short shoots 3-or 4-sided; trunk usually 1 at base ..... *J. osteosperma*
      - 4' Seed cones soft, fibrous to usually fleshy, resinous, bitter to sweet, often wrinkled upon drying, usually less than 8 mm long.
        6. Seed cones rose to pink to yellow-orange to dark red; glands on awl-like leaves often (more than 25 percent) covered with conspicuous white resin ..... *J. coahuilensis*
        - 6' Seed cones red-blue to brown-blue; glands on awl-like leaves rarely (less than 20 percent) covered with conspicuous white resin ..... *J. monosperma*

**Juniperus californica** Carrière (of California). California Juniper. --Shrub or tree, multi-trunked at base, 1-4(-10) m tall; dioecious or rarely monoecious. STEMS: short shoots terete; bark gray. LEAVES usually tricussate, closely appressed, scale-like; gland obvious; margin denticulate or serrulate under magnification. POLLEN CONES terminal, 2-3 mm long, oblong. SEED CONES terminal, (7-)10-12(-16) mm long, spheric to ovoid bluish, maturing brown-blue to usually red-brown second year, dry, hard, fibrous. SEEDS 1(-3) per cone, 5-7 mm long, pointed, angled, brown. --Dry slopes and flats; pinyon-juniper woodland, Mojave desertscrub: Mohave and Yavapai cos.; 450-1200 m (1500-4000 ft); Nov-Feb; CA, s NV; Baja C. Norte (including Cedros and Guadalupe Island), Mex.

**Juniperus coahuilensis** (Martinez) Gaussen ex R. P. Adams (of Coahuila). Coahuila Juniper. --Shrub to small tree, 3-8 m tall, crown flattened or irregular; dioecious. STEMS: bark ashy gray to brown. LEAVES usually decussate, closely appressed, scale-like; glands on awl-like leaves often (more than 25 percent) covered with conspicuous white resin; margin denticulate or serrulate under magnification. POLLEN CONES terminal, 3-4 mm long, oblong. SEED CONES terminal, 6-7 mm long, spheric to ovate,

green with blooms, maturing rose, pink, yellow-orange, orange, or red in first year, glaucous, fleshy, soft, thin-skinned, somewhat sweet. SEEDS 1(-2) per cone, 4-5 mm long, ovate to pyriform, grooved, brown; tip acuminate. --Canyons and dry rolling hills; semidesert grassland, oak-juniper woodland: Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, Santa Cruz, and Yavapai cos.; 650-1700 m (2100-5500 ft); Oct-Nov; s NM, w TX; Chih, e N.L., Tamp. and n Zac. Mex.

According to Adams (Cupressaceae in *Flora of North America north of Mexico*, 2:420. 1993; *Phytologia* 74:450. 1993), the material in Arizona formerly referred to *J. erythrocarpa* Cory belongs to this species.

**Juniperus communis** L. (common). Common Juniper. --Shrub, decumbent or rarely upright, mostly less than 1(-4) m tall; usually dioecious. STEMS: bark red-brown, peeling in papery sheets. LEAVES usually tricussate, sub-erect to spreading, awl- or needle-like, jointed to decurrent nongreen base. POLLEN CONES axillary, 4-5 mm long. SEED CONES axillary, 5-13 mm long, more or less spheric, red, maturing bright blue to blue-black in second to usually third year, resinous, often obscurely woody. SEEDS (1-)2-3 per cone, 2-5 mm long, ovoid, acute, usually 3-angled.  $2n = 22$ . --5 vars., circumboreal.

var. **depressa** Pursh (flattened from above). --Prostrate. LEAVES to 1.6 mm wide, the glaucous band on upper surface about as wide as both green marginal bands. Rocky or wooded slopes; boreal forest and woodland: Apache, Coconino, Gila, Greenlee, and Navajo cos.; 2100-3650 m (6900-12000 ft); Apr-May; boreal regions of U.S.; Canada.

**Juniperus deppeana** Steud. (for F. Deppe). Alligator Juniper. --Shrub or more often a tree, usually single-trunked, 7-15(-30) m tall; dioecious. STEMS: bark ashy gray outside, dark brown to black inside, 1-20 cm thick, deeply fissured into rectangular plates. LEAVES usually decussate, closely appressed, scale-like, gland obvious. POLLEN CONES terminal, 3-4 mm long, oblong. SEED CONES terminal, 8-20 mm long, sub-spheric to broad-ellipsoid, green, maturing bluish to usually red-tan to red-brown in second year, glaucous, dry, hard, fibrous to obscurely woody. SEEDS (1)4-5(-7) per cone, 6-9 mm long, ovoid or oblong or irregular, often angled, brown. --5 vars. in AZ, NM, TX, and n Mex.

var. **deppeana**. --Tree, sometimes branched above base. SEED CONES 8-15 mm long, lightly glaucous. [*J. pachyphloea* Torr.]. --Hillsides and mountains; oak or pinyon-juniper woodland, ponderosa pine forests, interior chaparral: Apache, Cochise, Coconino, Gila, Graham, Greenlee, Navajo, Pima, Pinal, Santa Cruz, and Yavapai cos.; 1350-2900 m (4400-9600 ft); Feb-Mar; NM, TX; Coah. Pue. and ne Son. Mex.

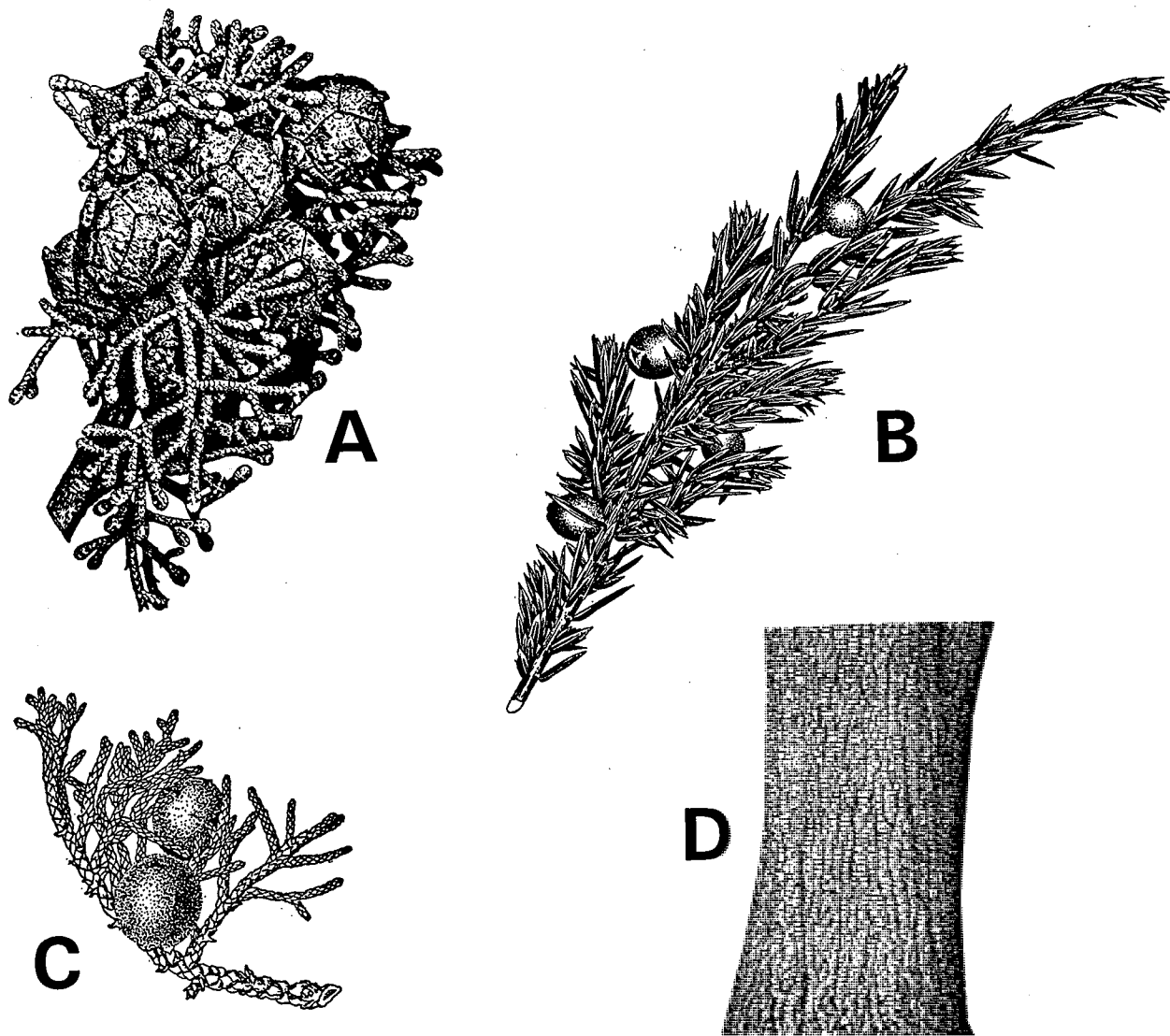
**Juniperus monosperma** (Engelm.) Sarg. (one-seeded). One-seeded or Cherrystone Juniper. --Shrub to small tree, 3-8(-18) m tall; dioecious. STEMS: short shoots 6-12 mm long, 1-2 mm wide, branching apart at 50° to 70° angle; bark red-brown weathering brown to gray. LEAVES decussate, closely appressed, scale-like, glaucous; glands on awl-like leaves rarely (less than 20 percent) covered with conspicuous white resin; margin denticulate or serrulate under magnification. POLLEN CONES terminal, about 2 mm long, oblong. SEED CONES terminal, (4-)6-8 mm long, spheric to ovoid, green with bloom, maturing red-blue to brown-blue in first year, fleshy, soft, thin-skinned, resinous. SEEDS 1(2-3) per cone, 4-5 mm long pointed, more or less 4-sided, light brown. 2 vars. in AZ, CO, NM, OK, TX, and n Mex.

var. **monosperma** --Short shoots usually 6-8 mm long, 1.5-2 mm wide, branching apart at about 50° angle. --Dry rocky plains, plateaus, and mountains; juniper or pinyon-juniper woodland, grassland: Apache, Coconino, Navajo, and Yavapai cos.; 1500-2300 m (4900-7500 ft); Mar-Apr; CO, NM, OK, TX.

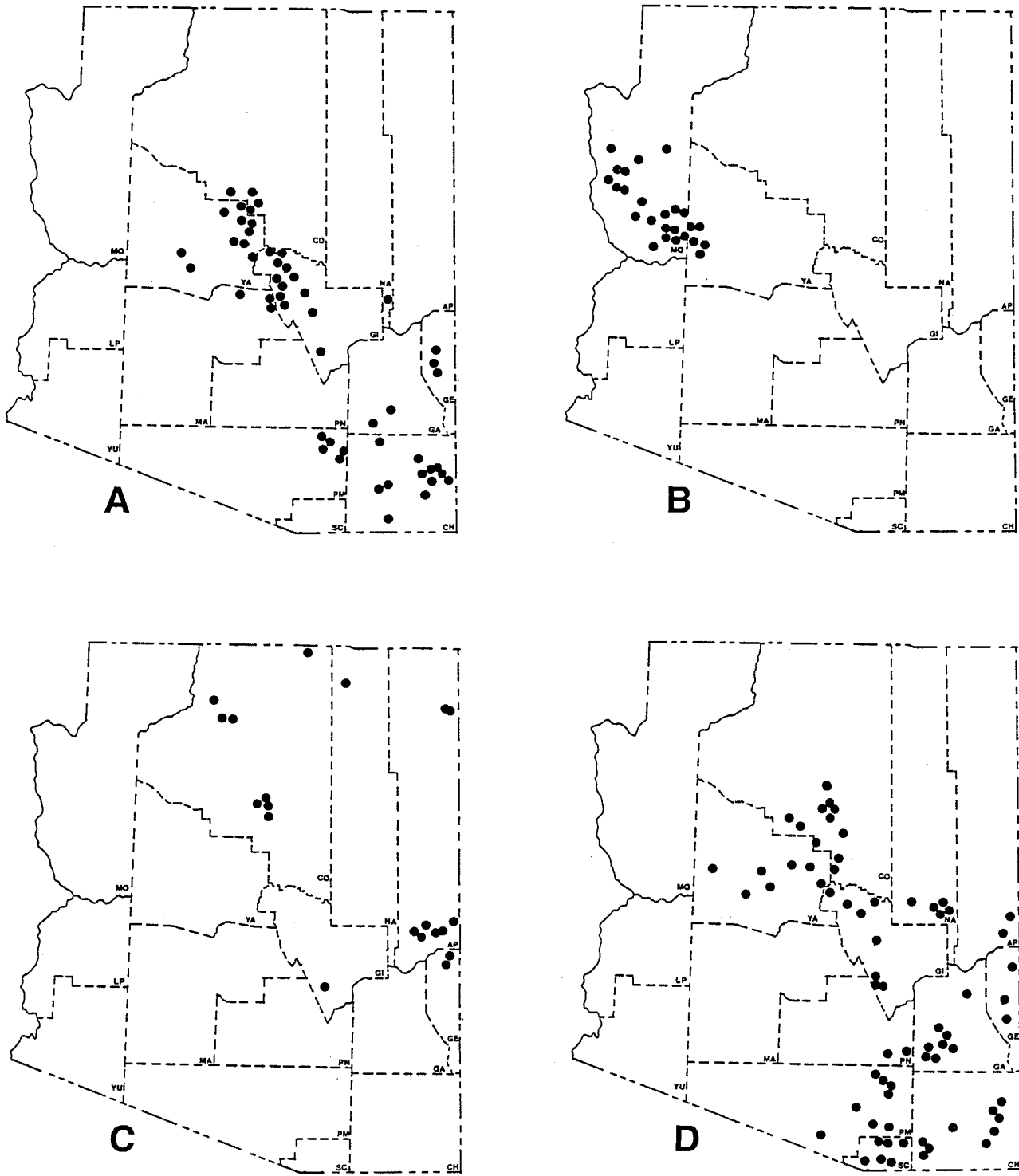
**Juniperus osteosperma** (Torr.) Little (bony-seeded). Utah Juniper. --Small tree, usually single-trunked, less than 8 m tall; usually monoecious. STEMS: short shoots 3- or 4-angled; bark gray-brown, weathering ash-white. LEAVES decussate or tricussate, closely appressed, scale-like; gland obscure; margin denticulate or serrulate under magnification. POLLEN CONES terminal, 2-3 mm long, cylindrical. SEED CONES terminal, (5-)8-13 mm long, spheric, green, maturing brown-blue to usually red-brown in second year, dry, hard, fibrous. SEEDS 1(-2) per cone, 3-5 mm long, ovoid, strongly angled. --Dry rocky plains

and plateaus; juniper and pinyon-juniper woodland, pine-oak forest, grassland: Apache, Coconino, Gila, Maricopa, Mohave, Navajo, and Yavapai cos.; (350-)900-2400 m [(1150-)3000-7800 ft]; Mar-Apr; abundant throughout the Great Basin. [*J. californica* Carrière var. *utahensis* Engelman].

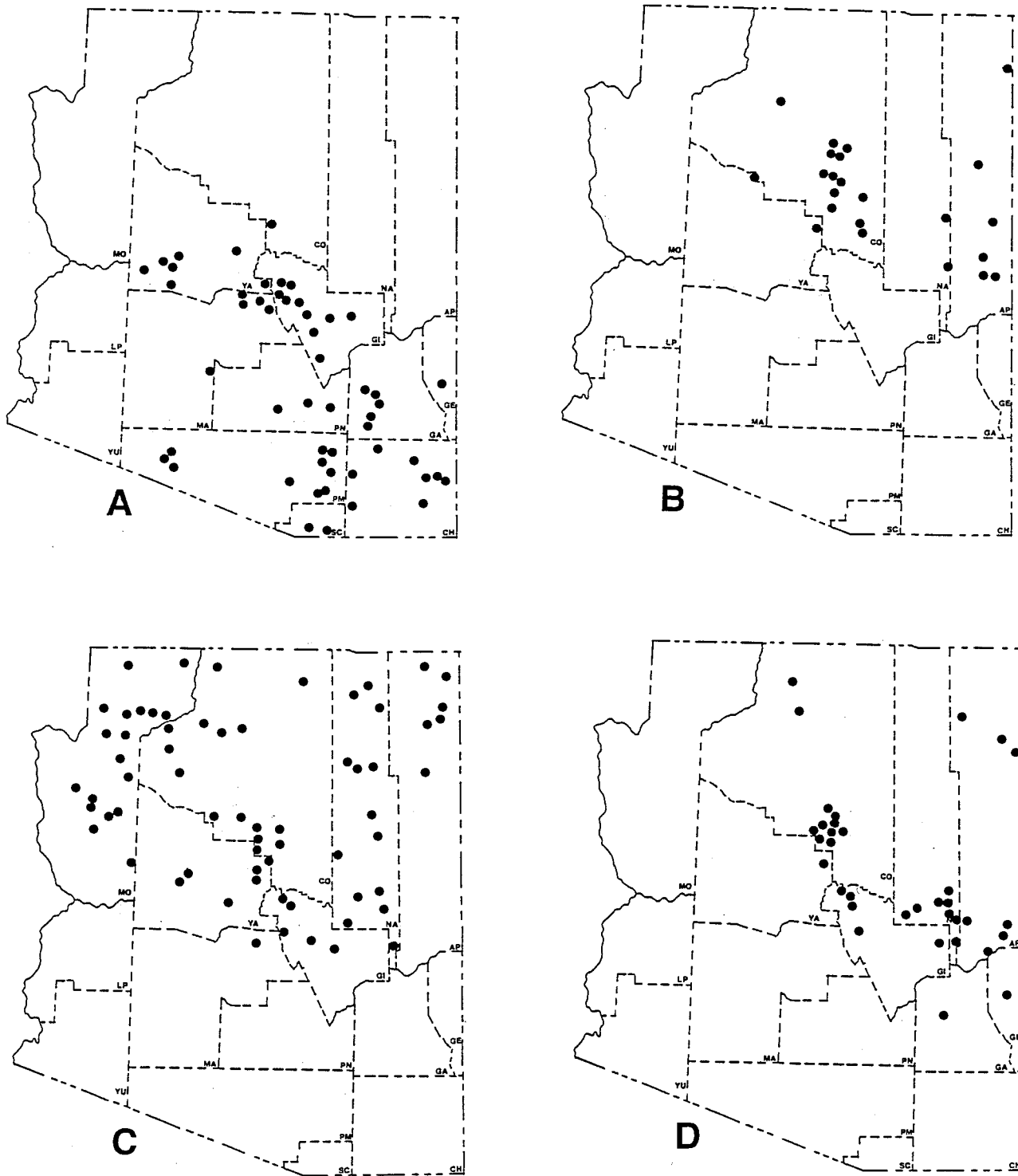
***Juniperus scopulorum* Sarg.** (of rocky habitats). Rocky Mountain Juniper. --Tree, 5-20 m; dioecious. STEMS; bark dark red-brown weathering grayish, scaly, furrowed. LEAVES decussate, closely appressed, scale-like; gland obscure; margin entire under magnification, sometimes hyaline. POLLEN CONES terminal, about 2 mm long, oblong. SEED CONES terminal, (4)6-9 mm, spheric to ovoid, green with bloom, maturing blue-black usually with waxy white bloom in second year, usually resinous to sweet. SEEDS (1-)2(-3) per cone, 4-5 mm long, pointed, grooved, angled, light brown.  $2n = 22$ . --Canyon bottoms or mountains; juniper or conifer woodland, ponderosa pine forest, grassland, montane riparian: Apache, Coconino, Gila, Greenlee, Navajo, and Yavapai cos.; 1100-2750 m; (3600-9000 ft); Apr-Jun; widespread throughout the Rocky Mtns.



Cupressaceae Figure 1. A, *Cupressus arizonica* subsp. *arizonica*, pollen and seed cones, and leaves; B, *J. communis* var. *depressa*, seed cones and leaves; C, *Juniperus californica*, seed cones and leaves; and D, *J. deppeana* var. *deppeana*, bark. A & D from Sudworth (1915), *The Cypress and Juniper Trees of the Rocky Mountain Region*; B & C, from Sudworth (1908), *Forest Trees of the Pacific Slope*. A, B, & C = 1X; D = 1/10X.



Cupressaceae Figure 2. Distribution of: A, *Cupressus arizonica* subsp. *arizonica*; B, *Juniperus californica*; C, *J. communis* var. *depressa*; and D, *J. deppeana* var. *deppeana*.



Cupressaceae Figure 3. Distribution of: A, *Juniperus coahuilensis*; B, *J. monosperma*; C, *J. osteosperma*; and D, *J. scopulorum*.