

SANTALACEAE SANDALWOOD FAMILY

Joseph E. Laferrière
 Arnold Arboretum of Harvard University
 22 Divinity Ave.
 Cambridge, MA 02138

Trees, shrubs, or perennial herbs, photosynthetic but often root-parasitic, usually terrestrial but rarely occurring on branches of other plants. LEAVES opposite or sometimes alternate, simple, entire, estipulate, well developed or sometimes reduced to scales. FLOWERS small actinomorphic usually epigynous but sometimes hypogynous, perigynous or half-epigynous, perfect or unisexual, often greenish; perianth of 1 whorl forming a (3-)4-5(-8)-lobed tube, often fleshy; stamens fused to perianth tube, as many as the lobes and opposite them; anthers opening by longitudinal slits or sometimes a single apical pore; lobed nectary-disk often surrounding the ovary, or lining the perianth tube; ovary unilocular or partitioned at the base, of (2-)3(-5) united carpels; placenta free-central; style simple, terminal; stigma capitate or lobed; ovules 1-4 pendulous. FRUIT a nut or drupe. SEED solitary; endosperm copious, fleshy, oily, or starchy. --35 genera, 400 spp., mostly tropical and subtropical.

Comandra Nutt. Bastard Toadflax

Perennial, erect, glabrous, rhizomatous herbs or sub-shrubs 7-50 cm tall, root-parasitic on a variety of angiosperms. STEMS striate, branching freely at base but sparingly above, 5-40(-45) cm tall; rhizomes 1-5 mm thick; rhizome cortex (in ours) bluish when fresh, often blackish when dry. LEAVES alternate, narrowly linear-lanceolate to ovate-oblong, entire, acute, firm, subsessile to short petiolate, 5-40(-60) mm long, 1-10(-16) mm wide; base acute to attenuate; tip acute to obtuse. INFLORESCENCE of terminal and subterminal clusters of 3-6-flowered cymes, each subtended by a foliaceous bract. FLOWERS perfect, epigynous, 3-7 mm across; pedicels 0-4 mm long, each subtended by a bracteole; perianth rotate to turbinate or campanulate, the (3-)5(-7) lobes 3-4 mm long, white to pink or purplish, spreading to suberect, ciliolate, with long erect hairs below the middle of the inner surface which adhere to the anthers, the tube green persistent, usually shorter than the lobes; stamens 1 mm long, the anthers ovate, 0.4-0.7 mm long, opening by longitudinal slits; ovules (2-)3(-4); style filiform, 2-3 mm long; stigma capitate. FRUIT ovoid to subglobose drupes, smooth to slightly roughened, 4-8(-10) mm long, yellowish or brown at maturity; exocarp thinly fleshy or succulent; endocarp thin, hard, brittle. SEEDS globose. $2n=28$. --A monotypic genus with 4 subspp. (Greek *come* = hair + *aner* = man, alluding to hairs of perianth lobes attached to anthers). Peihl, M. A. 1965. Mem. Torrey Bot. Club 22(1):1-97.

Comandra umbellata (L.) Nutt. (umbellate). --Characters of the genus. Widespread over most of the U.S., s Can., n Mex., and the Balkans. Two intergrading subspp. in Arizona.

Subsp. *californica* (Eastw. ex Rydb.) Peihl (of California). --Subshrubs or herbs 15-40 cm tall, the lower part of aerial stem often overwintering. LEAVES broadly elliptic or subovate, rarely lanceolate or linear, greenish, somewhat glaucous, sometimes with a slight gray or bluish tinge, often paler beneath, rather thin, 1.5-5.5 cm long; lateral veins apparent and often somewhat protruding below. FLOWERS: perianth lobes ovate to ovate-lanceolate, (1.5)2.0-2.5(-3.5) mm long. FRUIT smooth, 4-6 mm long. [*Comandra californica* Eastw. ex Rydb.] --Open montane conifer forests and oak woodlands: Cochise, Coconino, Gila, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai cos; 1200-2450 m (3900-8000 ft); CA, NV, OR, WA; British Columbia, Can.; Son., Mex.

Subsp. *pallida* (A. DC.) Peihl (pale). --Herbs 5-34 cm tall, the aerial stem not overwintering. LEAVES linear or lanceolate, rarely elliptic, gray-green above and below, thick and succulent, very glaucous, 0.5-4.5 cm long; lateral veins obscure. FLOWERS: perianth lobes narrowly lanceolate, (2.5-)3-4 mm long. FRUIT sometimes slightly roughened, 6-9 mm long. [*Comandra pallida* A. DC.; *C. linearis* Rydb.] --Open rocky slopes, occasionally in desert areas; all cos. except Yuma and La Paz; 650-2500 m (220-8200 ft); Manitoba and British Columbia, Can., s to NM, TX; Coah., Son., Mex.