

***Lycium pallidum* Miers**
SOLANACEAE

pale wolfberry

Synonyms: None

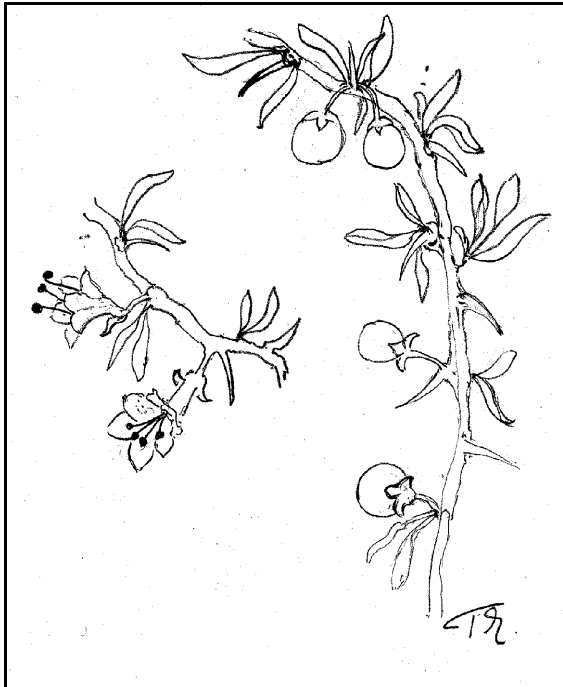


Illustration credit: Tonia Masaood

General Description.—*Lycium pallidum* is commonly known as pale wolfberry, pale lycium, rabbit thorn (Epple 1995), box thorn (Derig and Fuller 2001), chico, cambronera, and tomatillo (Elmore 1976). The latter name can be confusing because “tomatillo” also commonly refers to species of *Physalis* (Tull 1987). The epithet “pallidum” refers to the pale colored leaves. Pale wolfberry are thorny, intricately-branched shrubs that form loose thickets. Unlike other *Lycium* species it is seldom drought deciduous (Bowers 1993, Kearney and others 1960). The pale green, elongated-oblong leaves are adjacent to short, sharp thorns or spines. The flowers are greenish cream, sometimes tinged with purple, and funnellform in shape. The corolla tube is longer than 12 mm. The stamens are usually exerted (Vines 1986, Welsh and others 1993). The oval fruits are red colored and approximately 1 cm or less in diameter (Vines 1986). Typically the plants are 1 m high shrubs but may grow to 2 m (Elmore 1976, Carter 1997). Two varieties of *Lycium pallidum* are recognized: var. *oligospermum* C.L. Hitchc., and var. *pallidum* (Kartesz 1994). Variety *oligospermum* differs from var. *pallidum* in having smaller flowers (corolla tube less than 12mm), smaller anthers (1 to

1.5mm versus 1.8 to 3 mm) and fewer, only approximately seven seeds, per berry (Cronquist and others 1984, Baldwin and others 2002).

Range.—Pale wolfberry is a common shrub in Arizona, southern Colorado, southern California, Nevada, New Mexico, western Oklahoma, western Texas, and Utah in the U.S.A., and in Sonora, Chihuahua, Zacatecas, and San Luis Potosí in Mexico (McGregor and others 1986, Vines 1986, Carter 1988, Welsh and others 1993). Variety *oligosperma* occurs only in Nevada and California (Integrated Taxonomic Information System 2002).

Ecology.—Pale wolfberry grows at elevations of 910 m to 2,134 m in a variety of habitats and soils, including those derived from limestone and igneous formations. It often grows in sandy soils and is tolerant of saline soils (Kearney and others 1960). It is frequently a member, and may be a co-dominant, in blackbrush, sagebrush, four-wing saltbush, mesquite, greasewood, mountain brush, and pinyon-juniper communities (Dick-Peddie 1993, MacMahon 1988, Welsh and others 1993). However, it has never been reported as a dominant species. Pale wolfberry grows throughout the Sonoran, Chihuahuan, and Mohave Deserts. At higher elevations it grows on dry slopes and plains, but in the deserts it tends to grow in washes or other areas where run-off supplements rainfall (Bowers and McLaughlin 1987, Bowers 1993). Wolfberry species have tough and fibrous roots and the root systems are relatively extensive extending 25 to 30 feet (7.5 to 9.0 m) from the plant (Matthews 1994) that suggests they may be important in retarding soil erosion.

Reproduction.—Pale wolfberry generally flowers in April to June but in some regions may flower as early as February (Powell 1998, Epple 1995). The fruits mature in the late spring and summer (Bowers 1993, Vines 1986). The fragrant, creamy-yellow to yellowish-green flowers are insect-pollinated. The bright, shiny red berries contain 20 to 50 seeds.

Growth and Management.—Pale wolfberry sprouts readily when cut or broken (Van Dersal 1938). Once established, shrub longevity may be substantial. In one Arizona study 69 percent of individual shrubs of a related species, *Lycium berlandii*, survived for at least 50 years (Goldberg and Turner 1986). Seeds are

likely dispersed by birds and other animals that feed on the berries (Bowers 1993). It can be propagated from hardwood cuttings, suckers, layers, and seeds.

Benefits.— Pale wolfberry is an important source of food for wildlife, especially birds and rodents (Elmore 1987, Bowers 1993, Powell 1998). In many areas of degraded habitat in the Southwestern United States it frequently provides a source of berries and browse, in an otherwise depauperate landscape (authors personal observation). It has been reported to be locally important and valuable as browse for livestock especially on winter range (Van Dersal 1938). The berries also are eaten by humans, especially Native Americans, who have also used other parts of the plant as medicine and in ceremonials (Moerman 1998, Stevenson 1915). In times of famine the Native Americans of northern Arizona ate the dried berries mixed with saline clay (Kearney and others 1960). In this form they were called “food clay” by the Navajo or “potato clay” by the Hopi (Dunmire and Tierney 1997). As well as being an extender, the clay may have been used to reduce bitterness. With the recent interest in using native plants, more palatable recipes for sauces and jams using pale wolfberry berries are available (Derig and Fuller 2001). Medicinal uses include applying the soaked leaves to cuts and using the ground-up roots for toothaches. These hardy shrubs have been used as ornamentals since 1878 but on a limited scale (Vines 1986, Powell 1998). Stands of pale wolfberry are frequently associated with ancient Anasazi ruins in the Four Corners area of the Southwestern United States (Dunmire and Tierney 1995). Some stands have been speculated to be deliberate plantings and others the result of inadvertent seed dispersal. After a pueblo is abandoned, moisture tends to collect over decomposing subsurface floors and plazas and these conditions may make suitable habitat for seeds that were unintentionally dropped by the inhabitants of the ancient Pueblos (Dunmire and Tierney 1997).

References

- Baldwin, B.G., S. Boyd, B.J. Ertter, R.W. Patterson, T.J. Rosatti, D.H. Wilken, M. Wetherwax. 2002. The Jepson desert manual. University of California Press, Berkeley, CA. 626 p.
- Bowers, J.E. 1993. Shrubs and trees of the Southwest Deserts. Southwest Parks and Monuments Association Tucson, AZ. 140 p.
- Bowers, J. E. and S.P. McLaughlin. 1987. Flora and vegetation of the Rincon Mountains, Pima County, Arizona. Desert Plants. 8(2): 50-94.
- Carter, J.L. 1988 Trees and shrubs of Colorado. Johnson Books, Boulder, CO. 165 p.
- Carter, J.L. 1997 Trees and shrubs of New Mexico. Johnson Books, Boulder, CO. 534 p.
- Cronquist, A., A. H. Holmgren, N.H. Holmgren, J. L. Reveal and P. K. Holmgren. 1984. Intermountain Flora, Vascular Plants of the Intermountain West, U.S.A. Vol. 4, New York Botanical Garden, Bronx, NY. 279 p.
- Derig, B. B. and M. C. Fuller. 2001. Wild berries of the west. Mountain Press Publishing Company, Missoula, Montana. 235 p.
- Dick-Peddie, W.A. 1993. New Mexico Vegetation—past, present, and future. University of New Mexico Press, Albuquerque, NM. 244 p.
- Dunmire, W.W. and G.D. Tierney. 1995. Wild plants of the Pueblo Province. Museum of New Mexico Press, Santa Fe, NM. 290 p.
- Dunmire, W.W. and G.D. Tierney. 1997. Wild plants and native peoples of the Four Corners. Museum of New Mexico Press, Santa Fe, NM. 312 p.
- Elmore, F.H. 1976. Shrubs and Trees of the Southwest Uplands. Southwest Parks and Monuments Assoc. Tucson, AZ. 214 p.
- Epple, A.O. 1995. A Field Guide to the Plants of Arizona. Falcon Press Publishing Co., Helena, MT. 347 p.
- Goldberg, D.E. and R.M. Turner. 1986. Vegetation change and plant demography in permanent plots in the Sonoran Desert. Ecology 67(3): 695-712.
- Integrated Taxonomic Information System. 2002. *Lycium pallidum*. Plants, database <http://www.itis.usda.gov/> [not paged].
- Kartesz, J.T. 1994. A synonymized checklist of the vascular flora of the United States, Canada and Greenland. Vol.1 - Checklist. 2nd ed. Timber Press, Portland, OR. 622 p.
- Kearney, T.H., R.H. Peebles, and collaborators. 1960. Arizona flora. 2nd Ed. University of California Press, Berkeley, CA. 1,085 p.
- MacMahon, J.A. 1988. Warm deserts. In: M.G. Barbour, Billings and W. Dwight, eds. North

- American terrestrial vegetation. Cambridge University Press, New York. p 231-264.
- Matthews, R. F. 1994. *Lycium pallidum*. U.S.D.A. Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Fire Effects Information System. <http://www.fs.fed.us/databse/feis/plants>.
- McGregor, R. L., T.M. Barkley, RE Brooks, and EK Schofield. 1986. Flora of the Great Plains. University Press of Kansas, Lawrence KS, U.S.A. 1,402 p.
- Moerman, D.E. 1998. Native American Ethnobotany. Timber Press, Portland, OR. 927 p.
- Powell, A. M. 1998. Trees & shrubs of Trans-Pecos and adjacent areas. University of Texas Press, Austin, TX. 498 p.
- Stevenson, M. C. 1915. Ethnobotany of the Zuni Indians. Annual Report 30. Smithsonian Institution-Bureau of American Ethology. 102 p.
- Tull, D. 1987. Edible and Useful Plants of Texas and the Southwest. University of Texas Press. Austin, TX. 518 p.
- Van Dersal, W.R. 1938. Native woody plants of the United States, their erosion-control and wildlife values. Miscellaneous Publication 303. U.S. Deptment of Agriculture. Washington D.C.
- Vines, R.A. 1986. Trees, shrubs, and woody vines of the Southwest. University of Texas Press. Austin, TX. 1,104 p.
- Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins. 1993. A Utah Flora. Second Edition, revised. Brigham Young University, Provo, Utah. 986 p.

Juanita A.R. Ladyman, Botanist, *JnJ Associates*,
6760 S. Kit Carson Cir. E., Centennial, CO 80122