

Cercocarpus intricatus Wats.
ROSACEAE

littleleaf mountain-mahogany

Synonyms: *Cercocarpus ledifolius* var. *intricatus* (Wats.) Jones
Cercocarpus arizonicus Jones



General Description.—Littleleaf mountain-mahogany, also known as little leaf cercocarpus and dwarf mountain-mahogany, is a long-lived, unarmed, intricately branched and occasionally tree-like, evergreen shrub. Height of mature plants varies from 0.5 to 2.5 m. Mature bark is smooth and light gray. Dark brown heartwood is dense and extremely hard. Persistent leaves are 3 to 18 mm long, 0.8 to 1.4 mm wide (oblong to linear) and leathery with strongly revolute margins (Welsh and others 1987). Leaf pubescence varies from glabrous to villous. Perfect, apetalous flowers, 3 to 9 mm long, occur singularly or in small clusters arising primarily from short spur branchlets on

second-year growth. Hard, light brown fruits are cylindrical achenes, approximately 1 mm wide and 4 to 10 mm long with a persistent twisted or spiraling tail (style) 1 to 3 cm long (Welsh and others 1987). Fruit body and especially the tail are covered with short (1 mm) hairs that extend from the axis when dry and facilitate wind dispersal.

Taxonomy.—The evolutionary process by which Littleleaf mountain-mahogany segregated from curlleaf mountain-mahogany (*C. ledifolius* Nutt. var. *ledifolius*) appears to still be in progress with intermediates between the species widespread (Stutz 1990). The shorter and more compact littleleaf mountain-mahogany is more drought tolerant, has fewer stamens and shorter tails on fruits than does curlleaf mountain-mahogany (Stutz 1990). Although hybridization occurs between the two species, littleleaf mountain-mahogany appears to exhibit much greater reproductive isolation from true mountain mahogany (*C. montanus* Raf.) than does its ancestral species (Stutz 1990). Walker and Turley (1999) cited examples of hybrids between littleleaf and true mountain-mahogonies, suggesting that a lack of hybridization may be due, at least in part, to limited interspecies contact.

Range.—Littleleaf mountain-mahogany is found throughout most of Nevada and Utah and in parts of eastern California, northern Arizona, and extreme western Colorado at elevation of 900 to 3,000 m (Davis 1990). Limited populations have also been reported for New Mexico and Wyoming (NatureServe Explorer 2002).

Ecology.—Within desert shrub, pinyon-juniper, and mountain brush communities, littleleaf mountain mahogany is typically found rooted in cracks and crevices of exposed sedimentary and metamorphic rocks; commonly limestone, dolomite, and quartzite in the Great Basin and sandstone in the Colorado Plateau (Davis 1990). It is also found in shallow, poorly developed soils derived from these substrates. It grows best in full sun. Soil pH of littleleaf mountain-mahogany habitat is neutral to slightly basic, (Fairchild and

Brotherson 1980). Annual precipitation is 200 to 500 mm. Although undocumented, it is believed that this species possesses nitrogen fixing root nodules similar to those reported for close relatives (Davis 1990). Littleleaf mountain-mahogany is browsed heavily by wild ungulates and domestic sheep when it can be reached.

Reproduction.—Flowering occurs from mid-May to late June (Walker and Turley 1999). Fruits ripen and disperse in July and August. Years of abundant seed production are rare. A high percentage of empty fruits is common. Plummer and others (1968) reported 112,000 cleaned seeds (fruits with tails removed) per kg. Seed dispersal is by wind.

Growth and Management.—Although information on seed germination for this species is lacking in the literature, primary dormancy at seed dispersal is probably similar to that of curlleaf mountain-mahogany. Kitchen and Meyer (1990) observed almost no germination for this species without prechill (1 °C). They reported germination of six seed collections after 6 weeks of prechill ranged from 53 to 96 percent of viable. Seedling growth rate is slow, and plants require 10 to 30 years to reach maturity. Management alternatives for littleleaf mountain-mahogany are limited due to the nature of the sites it occupies.

Benefits.—Littleleaf mountain-mahogany provides cover and year-round forage on harsh landscapes. It is of particular value to native ungulates that depend on rugged escape terrain such as mule deer (*Odocoileus hemionus*), bighorn sheep (*Ovis Canadensis*), and mountain goat (*Oreamnos americanus*).

References.

Davis, J.N. 1990. General ecology, wildlife use, and management of the mountain mahoganies in the Intermountain West. In: K.L. Johnson, ed. Proceedings of the Fifth Utah Shrub Ecology Workshop: The Genus *Cercocarpus*; 1988 July 13-14; Logan, UT. College of Natural Resources, Utah State University, Logan, UT. p. 1-13.

Fairchild, J.A. and J.D. Brotherson. 1980. Micro-habitat relationships of six major shrubs in

Navajo National Monument, Arizona. Journal of Range Management 33: 150-156.

Kitchen, S.G. and S.E. Meyer. 1990. Seed dormancy in two species of mountain-mahogany (*Cercocarpus ledifolius* and *Cercocarpus montanus*). In: K.L. Johnson, ed. Proceedings of the Fifth Utah Shrub Ecology Workshop: The Genus *Cercocarpus*; 1988 July 13-14; Logan, UT. College of Natural Resources, Utah State University, Logan, UT. p. 27-42.

NatureServe Explorer. 2002. An online encyclopedia of life [web application]. Version 1.6. NatureServe. Arlington, VA, USA. <http://www.natureserve.org/explorer>. [not paged].

Plummer, A.P., D.R. Christensen, and S.B. Monsen. 1968. Restoring big-game range in Utah. Publ. No. 68-3. Utah division of Fish and Game, Ephraim, UT. 183 p.

Stutz, H.C. 1990. Taxonomy and evolution of *Cercocarpus* in the western United States. In: K.L. Johnson, ed. Proceedings of the Fifth Utah Shrub Ecology Workshop: The Genus *Cercocarpus*; 1988 July 13-14; Logan, UT. College of Natural Resources, Utah State University, Logan, UT. p. 15-25.

Walker, S.C. and D. Turley. 1999. Characteristics of mountain mahogany (*Cercocarpus*) species and hybrids in Utah hybrid zone. In: E.D. McArthur, W.K. Ostler, and C.L. Wambolt, comps. Proceedings: Shrubland Ecotones; 1998 August 12-14; Ephraim, UT. Proceedings RMRS-P-11. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Ogden, UT. p. 32-34.

Welsh, S.L., N.D. Atwood, L.C. Higgins, and S. Goodrich. 1987. A Utah Flora. Brigham Young University Print Services, Provo, UT. 894 p.

Stanley G. Kitchen, Research Botanist, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Shrub Sciences Laboratory, 735 N. 500 E. Provo, UT 84606-1856