

Cercocarpus ledifolius Nutt.
ROSACEAE

curl-leaf mountain mahogany

Synonyms: None



General Description.—Curl-leaf mountain mahogany is a large-sized shrub to small or medium tree. Young stems are smooth and gray, becoming rough and brown in mature specimens, and often scaly in older trees. The evergreen leaves are narrowly lanceolate, often revolute, about 1 to 1.5 cm long with a 1- to 3-mm petiole. They are densely white-wooly underneath. (Lis 1993). The trees are extremely long lived in the absence of external sources of mortality and are often by far the oldest members of the communities in which they occur (Ross 1999).

Range.—Curl-leaf mountain mahogany is widely distributed in North America, from Montana to Baja California and from near the Pacific Coast in southwestern Oregon to the Bighorn Mountains in Wyoming and near Chadron, Nebraska. It occurs at elevations of 610 to 1,372 m in the north, and to 3,000 m or higher in the south (USDA USFS 1937, Martin 1950).

Ecology.—Curl-leaf mountain mahogany occurs in a variety of plant associations, including sagebrush, pinyon/juniper, scrub oak/mountain

brush, aspen, ponderosa, jeffrey and other pines, and spruce/fir (Martin 1950, Ross 1999). It occurs on a wide variety of soils (Davis and Brotherson 1991), including decomposed granite and limestone, altered andesites (Billings 1976) and others. Curl-leaf mountain mahogany often occurs in rock outcrops and talus slopes with no apparent soil development. In pine and spruce/fir forests it may eventually be overshadowed by tall trees and shaded out. It often forms dense, closed canopy stands that permit little understory or interspecific competition. Sapsuckers and other woodpeckers may attack intermediate age class trees, girdling the stems and causing extensive stand mortality in some cases (Ross 1999). Other predators include the bark beetle *Renoci's heterodoxus* (Kraft 1960) and the leaf defoliator *Anacamptodes clivnavia profanata* (Furniss and Barr 1969). A variety of other insects also attack the species at times.

Reproduction.—Flowers are one to three per inflorescence, axillary, and more or less sessile, with a straight stigma and 15 to 25 stamens. Fruits are unusual for a member of the rose family, 4 to 8 mm long, hard, with a 2.4 to 3.5 cm plume style (Lis 1993). Seed production is episodic but may be very heavy at times, with the seeds forming drifts beneath trees. Seed predation by insects in fall may be nearly complete at times (Dealy 1975). Reproduction is sporadic, occurring usually on bare mineral soil, including fresh road cuts, but very uncommon in established plant communities. The increase in cheatgrass (*Bromus tectorum* L.) and other annuals over its range has apparently reduced reproduction in many areas (Ross 1999). Under established stands, germination is common but the seedlings usually damp off and die (Ross 1999). Episodic regeneration and mortality, especially from fire and sapsuckers, may create even-aged stands with almost no diversity of age class.

Fire Effects.—Although curl-leaf mountain mahogany is sometimes referred to as a weak resprouter after fire, this is very uncommon. In the western Great Basin, it is invariably killed by fire regardless of intensity, and never resprouts. Even very light burns that do no apparent damage to mature trees result in full mortality within 1 year.

Closed mature stands may have insufficient understory to carry fire, so that the fire and resulting mortality are confined to the edges of the stands. Regeneration by seed may occur after fire if the soil is not colonized by other species. In some cases, the resulting stands occupy essentially the same area as the burned stand. Historic fire lines and burns are often clearly demarcated by the sharp boundaries of living stands. The wood is rarely consumed by fire and often persists for decades after, offering precise information about past distribution and age classes. With changes in fire intensity and return interval, usually related to increases in exotic annuals, curl-leaf mountain mahogany in many areas is decreasing and is increasingly restricted to higher elevations, steeper slopes, and cooler aspects (Ross 1999).

Growth and Management.—Although curl-leaf mountain mahogany is very long lived and eventually assumes a tree form, young specimens grow quickly as multistemmed shrubs. Stands are typically composed of a single age class, perhaps with younger specimens on the edges. It may be readily grown from seed for transplanting, although young transplants are attractive to rodents, lagomorphs, and large game. Seed collection is easily done, although the hairy styles are a strong respiratory and skin irritant. Management has focused on increasing the forage production of old, browsed stands via clipping and pruning (Davis and Brotherson 1991), although this may result in tree mortality (Garrison 1953, Thompson 1970).

Benefits.—Curl-leaf mountain mahogany has found extensive use in the past as a fuel and charcoal source. The very hard, beautiful wood has been used for lathe work and parts for musical instruments (Ross 1999). Living stands provide significant blue grouse nesting habitat (Stauffer and Petersen 1986). It is one of the few species that meet protein requirements for wintering deer (Welch and McArthur 1979) and is heavily favored by bighorn sheep in summer (Rominger et al. 1988). Where present in even small amounts in sagebrush, curl-leaf mountain mahogany allows greater wildlife diversity and abundance than would otherwise occur (Furniss et al. 1988). It is also used increasingly as a commercial, residential, and highway landscaping species.

References

Billings, W. D. 1976. Islands of sierran plants on the arid slopes of Peavine Mountain. *Mentzelia*

6: 32-39.

Davis, J.N. and J. D. Brotherson. 1991. Ecological relationships of curlleaf mountain mahogany (*Cercocarpus ledifolius* Nutt.) communities in Utah and implications for management. *Great Basin Naturalist* 51: 153-66.

Dealy, J.E. 1975. Ecology of curlleaf mountain mahogany (*Cercocarpus ledifolius* Nutt.) in eastern Oregon and adjacent areas. PhD. Dissertation. Oregon State University, Corvallis, OR.

Furniss, M.M. and W. F. Barr. 1969. Bionomics of *Anacamprodes clivinaria profanata* on mountain mahogany in Idaho. *Agricultural Experiment Station Research Bulletin* 73. University of Idaho, Moscow, ID. 24 p.

Furniss M.M., D.C. Ferguson, K.W. Boget, J.W. Burkhardt, A.R. Tiedemann, and J.L. Oledmeyer. 1988. Taxonomy, life history, and ecology of a mountain mahogany defoliator, *Stammnodes animata* Pearsall in Nevada. *Fish and Wildlife Research* 3, USFWS, Washington, D.C.

Garrison, G.A. 1953. Effects of clipping on some range shrubs. *Journal of Range Management* 6: 309-317.

Kraft, G.F. 1960. Insects affecting bitterbrush and other range plants. Office Report. Entomology Dept., Oregon State University, Corvallis, OR. 55 p.

Lis, R. 1993. *Cercocarpus* Mountain Mahogany. In: J.C Hickman, ed. 1993. *The Jepson Manual: higher plants of California*. U.C. Press, Berkeley and Los Angeles, CA.

Martin, F.L. 1950. A revision of *Cercocarpus*. *Brittonia* 7: 91-111.

Rominger, E.M., A.R. Dale, and J.A. Bailey. 1988. Shrubs in the summer diet of Rocky Mountain bighorn sheep. *Journal of Wildlife Management* 52: 47-50.

Ross, C. 1999. Population dynamics and changes in curlleaf mountain mahogany (*Cercocarpus ledifolius* Nutt.) in two adjacent Sierran and Great Basin mountain ranges. PhD. Dissertation, University of Nevada, Reno.

Stauffer, D.F. and S.R. Petersen. 1986. Seasonal microhabitat relationships of blue grouse in southeastern Idaho. *Great Basin Naturalist* 46: 117-22.

Thompson, R.M. 1970. Experimental top pruning of curlleaf mountain mahogany on the South Horn Mountain, Ferron Ranger District, Manti-LaSal National Forest, USDA Forest Service Range Improvement Notes, Vol. 15, No. 3.

USDA USFS. 1937. *Range Plant Handbook*. Washington D.C. U.S. Govt. Printing Office. p. 132 – 133.

Welch, B.L. and E.D. McArthur. 1979. Nutritive value of big sagebrush and other shrubs. In L.H. Stelter et al., eds. *Proceedings, Shrub Establishment on Disturbed Arid and Semi-arid Lands*, Wyoming Fish and Game Dept. p. 9-22.

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