***Rhus microphylla* Engelm. ex Gray** little-leaf sumac
ANACARDIACEAE

Synonym: *Rhoeidium microphyllum* (Engelm.) Greene

General Description.—Little-leaf sumac is sometimes referred to as desert sumac because of its occurrence in habitats that are drier than the habitats of other sumacs. Another name is correosa. This highly branched shrub may reach heights of up to 4 to 5 m and is frequently as broad as it is tall. Some twigs may be somewhat spiny-tipped. Leaves are odd-pinnately compound, alternate, with five to nine elliptic to oblong leaflets, which are sessile, 8 to 18 mm long, 2 to 6 mm wide, and generally not leathery or shiny. Leaflet margins are entire and may be somewhat revolute, and the rachis is winged (Carter 1997, Correll and Johnston 1970, Epple 1995, Great Plains Flora Association 1986, Kearney and others 1951, Martin and Hutchins 1980-81). Leaves persist on the plant until the first hard frost.

Range.—Little-leaf sumac occurs from western Texas, southwestern Oklahoma, through the southern half of New Mexico into southeastern Arizona, and south into Mexico. It occurs at elevations from about 1,060 m to 1,830 m.

Ecology.—This species is a common member of Chihuahuan Desert grassland vegetation although its distribution is not uniform. It may occur in canyons, along river banks, arroyos, rocky hillsides, even alkali flats. It grows on both limestone and sandy soils and can be a dominant in some sandy-dune soils forming extensive coppice conditions. Littleleaf sumac will often grow adjacent to arroyos but is considered a facultative or semiriparian species (Dick-Peddie 1993, Whitford 2002). It demonstrated a 46 percent nitrogen and phosphorus resorption efficiency from leaves prior to leaf drop in the autumn (Whitford 2002). This was lower than the obligate riparian shrubs, desert willow [*Chilopsis linearis* (Cavanilles) Sweet] and cutleaf brickellia (*Brickellia laciniata* A. Gray), but higher than the nitrogen fixing mesquite (*Prosopis glandulosa* Torrey). Hence, the greater resorption efficiencies of these shrubs may be due to their biology and ecology as it relates to plant nitrogen demand and nitrogen availability within their local habitats (Killingbeck and Whitford 2001). Littleleaf sumac as well as Torrey yucca (*Yucca torreyi* Shafer) and javelina bush (*Condalia warnockii* MC Johnston) were the most frequently used species for nesting birds in a Chihuahuan Desert location in south-central New Mexico (Kozma and Mathews 1997). This observation was made despite the fact that little-leaf sumac was lower in density (209 stems/ha in arroyo sites and six stems/ha in upland sites) than other shrub species. Twenty-seven bird species were monitored from 1993-1995. Large junipers may function as nurse plants, aiding the establishment of certain shrub species, including little-leaf sumac, in western Texas (McPherson and others 1988).

Reproduction.—Flowers are small, greenish white with five petals and five stamens. Flowers appear before the leaves in both axillary and terminal clusters. Blooming may occur from March through May depending on local environmental conditions and availability of moisture. Fruits are red to orange drupes, from 4.5 to 6 mm in diameter, with a covering of glandular hairs, and maturing in July to August.

Seed Dormancy.—Seed dormancy appears to be caused by a water impermeable endocarp (Li and others 1999). After incubation on moist substrate for 4 weeks, 29 to 34 percent of all seeds had imbibed water, and after 1 year imbibition had climbed to 93 to 100 percent among all of the seeds. This type of physical dormancy occurs in other members of the genus *Rhus* (Young and Young 1992), and some members of the genus also have physiological dormancy (Baskin and Baskin 2001). There is a high proportion of species with physical dormancy in savannas, hot

deserts, and similar climates with distinct dry and wet seasons, the wet season being the season favorable for germination. The impermeable endocarp in the genus *Rhus* may have evolved as long ago as the Middle Eocene epoch (Baskin and Baskin 2001).

Growth and Management.—Little-leaf sumac is not one of the faster growing shrubs. It produces numerous stems and resprouts readily. Tebuthiuron, an herbicide often used for brush control on rangelands, proved effective in little-leaf sumac control (Emmerich and others 1984). Tebuthiuron was applied at 0.84 kg/ha to rangeland in both pelleted and dissolved forms. After 21 months there was a 100 percent kill of little-leaf sumac, tarbush (*Flourensia cernua* DC.), and four-wing saltbush [*Atriplex canescens* (Pursh) Nutt.], all dominant species on the test site. Tebuthiuron moved to a soil depth of 15 cm within 8 months, and after 21 months 38 percent of the application was remaining, while only 0.47 percent was detected in runoff water.

Benefits.—The fruits are readily eaten by many birds. Little-leaf sumacs are also important nesting sites for birds. The fruits may be steeped in warm or cold water to make soothing tea-like drinks that can sooth sore throats (Bowers and Wignall 1993, Warnock 1974).

References

Baskin, C.C. and J.M. Baskin. 2001. Seeds: Ecology, Biogeography, and Evolution of Dormancy, and Germination. Academic Press, San Diego. 666 p.

Bowers, J.E. and B. Wignall. 1993. Shrubs and Trees of the Southwest Deserts. Southwest Parks and Monuments Association, Tucson, AZ. 140 p.

Carter, J.L. 1997. Trees and Shrubs of New Mexico. Johnson Books, Boulder, CO. 534 p.

Correll, D.S. and M.C. Johnston. 1970. Manual of the Vascular Plants of Texas. Texas Research Foundation, Renner, TX. 1,881 p.

Dick-Peddie, W.A. 1993. New Mexico Vegetation: Past, Present and Future. University of New Mexico Press, Albuquerque. 244 p.

Emmerich, W.E., J.D. Helmer, K.G. Renard, and L.J. Lane. 1984. Fate and effectiveness of tebuthiuron applied to a rangeland watershed. J. of Environmental Quality 13(3): 382-386

Epple, A.O. 1995. A Field Guide to the Plants of Arizona. Falcon Publishing Inc., Helena, MT. 347 p.

Great Plains Flora Association. 1986. Flora of the Great Plains. University Press of Kansas. 1,392 p.

Kearney, T.H., R. Peebles, and Collaborators. 1951 with 1960 supplement. Arizona Flora. University of California Press, Berkeley, CA. 1,085 p.

Killingbeck, K.T. and W.G. Whitford. 2001. Nutrient resorption in shrubs growing by design, and by default in Chihuahuan Desert arroyos. Oecologia, Berlin 128(3): 351-359.

Kozma, J.M. and N.E. Mathews 1997. Breeding bird communities and nest plant selection in Chihuahuan desert habitats in south-central New Mexico. Wilson Bulletin 109(3): 424-436.

Li, Xiaojie, J.M. Baskin, and C.C. Baskin. 1999. Seed morphology and physical dormancy of several North American *Rhus* species (Anacardiaceae). Seed Science Research 9(3): 247-258.

Martin, W.C. and C.E. Hutchins. 1980-1981 (reprinted 2001). A Flora of New Mexico. 2 volumes. Bishen Singh Mahendra Pal Singh, India and Koeltz Scientific Books, Germany. 2,591 p.

McPherson, G.R., H.A. Wright, and D.B. Wester. 1988. Patterns of shrub invasion in semiarid Texas USA grasslands. American Midland Naturalist 120(2): 391-397.

Warnock, B.H. 1974. Wildflowers of the Guadalupe Mountains and the Sand Dune Country, Texas. Sul Ross State University, Alpine, TX. 176 p.

Whitford, Walter G. 2002. Ecology of Desert Systems. Academic Press, San Diego, CA. 343 p.

Young, J.A. and C.G. Young. 1992. Seeds of Woody Plants in North America. Dioscorides

Press, T. R. Dudley, general editor, Portland, OR. 407 p.

James E. Nellessen, Botanist, Biologist and Environmental Scientist, Taschek Environmental Consulting, 8901 Adams St., NE, Albuquerque, NM 87113