***Mimosa aculeaticarpa* Ortega** wait-a-bit
FABACEAE

Synonyms: *Mimosa biuncifera* Benth.
M. lindheimeri Gray
M. warnockii B.L. Turner
Mimosopsis biuncifera (Benth.) Britt. & Rose

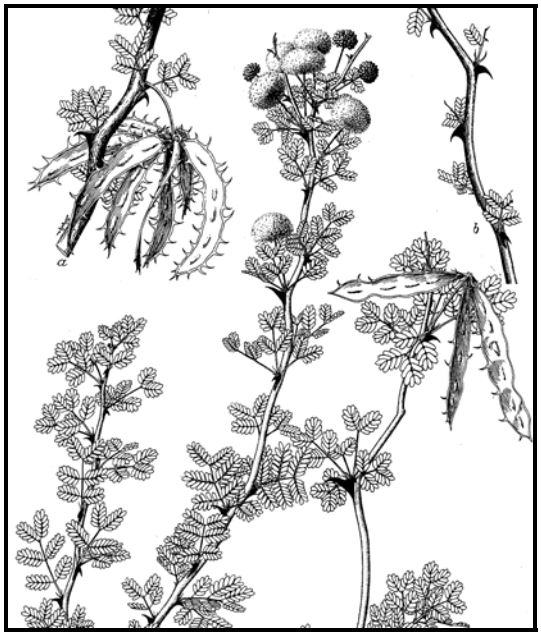

Illustration source: USDA-Forest Service collection, Hunt Institute

General Description.—*Mimosa aculeaticarpa* is a straggling, thicket-forming shrub typically armed with curved prickles that are responsible for the common names, wait-a-bit, Catclaw mimosa, Una de Gato and Gatura. The origin of the genus name is likely from the Spanish word Mimoso meaning "sensitive", which refers to the sensitive, thigmotactic leaf movement (Barneby 1991). An equally appropriate derivation may be from the Greek mimos that means "to mimic" and refers to the animal-like response of the leaf movements (Gledhill 1992, Vines 1986). Although plants may have straight prickles or be unarmed, they most commonly have two curved spines per node and spines on the leaves and pods (Barneby 1991, Bowers 1993, Carter 1997, Powell 1998). Shrubs are generally 1 to 3m tall with deciduous, divided leaves that may have as many as 300 tiny leaflets. The species has variable phenotypic and habitat characteristics and has been described as genetically and ecologically confusing (Carter 1997). Barneby (1991) recognized four variants of *Mimosa aculeaticarpa* of which var. *biuncifera* (Benth.) Barneby is a particularly common one. However, even within each variety he emphasizes that substantial variability exists. Varieties *glabrescens* and *lindheimeri* are synonymous with var. *biuncifera* (Kartesz 1994) and should not be confused with the variants described by Barneby (1991).

Range.—Catclaw mimosa occurs in central and southern Arizona, southern New Mexico, western and central Texas, and northern Mexico in Nuevo León, Tamaulipas, Durango, Coahuila, Puebla, San Luis Potosí, and Chihuahua (Carter 1997, Kearney and others 1960, Martin and Hutchins 1981, Vines 1986).

Ecology.—Catclaw mimosa grows at lower elevations, between 600 to 1,525 m (2,000 to 5,000 ft), frequently in limestone and igneous rock habitats (Powell 1998). It often becomes abundant on dry, rocky, open slopes (Pase and Brown 1982) although it can be equally profuse in washes where water availability is periodically copious. Catclaw mimosa is a member of various communities: Desert shrub, Texas savanna, Southwestern shrub steppe, Chaparral - mountain shrub, Pinyon – juniper woodlands, Plains, and Desert grasslands (Dick-Peddie 1993, Cable 1975, Uchytil 1990). Many authors have mentioned the importance and frequency of low shrubs, such as Catclaw mimosa, in a perennial-grass dominated matrix on rocky boulder-ridden terrain in Arizona (Shreve 1915, Whittaker and Niering 1965), Mexico (Muller 1939, 1947), New Mexico (Dick-Peddie and Moir 1970), and Texas (Gehlbach 1967).

Reproduction.—Flowering dates are variable (generally late April to September), and available moisture is the limiting factor for flowering (Carter 1997). The individual flowers are small (<4 mm) and they are massed in a pale-pink to whitish globose head. The flowers are fragrant and are pollinated by insects. Only a few flowers in each inflorescence produce pods (Bowers 1993).

The fruit is an elongated flattened legume (pod), the margins separate from the valves at dehiscence. The valves often break transversely into one-seeded sections. The seeds exhibit high germination rates over a relatively wide range of temperatures (Jordan and Haferkamp 1989). Livestock and wildlife are likely to disperse the seeds (Uchytil 1990).

Growth and Management.—Catclaw mimosa forms true brier patches that may become almost impenetrable to humans (author's personal observation). Plants can profusely re-sprout from protected buds following fire-induced mortality of aboveground tissue (Cable 1975, Carmichael and others 1978, McPherson 1995). However, in general, plants must be several years old before they have the ability to re-sprout. Re-sprouting decreases as soil-moisture decreases and is less common after fires that occur during the growing season compared with dormant-season fires (McPherson 1995). Stands can recover from burning in 5 years (Ahlstrand 1982, Kittams 1972). However, at least in Arizona, wildfire does not appear to stimulate sprouting (Pase and Pond 1964). Catclaw mimosa is moderately resistant to phenoxy herbicides and after only one application tend to re-foliate or re-sprout from the crown (Hibbert and others 1974). Successive applications kill the plants.

Benefits.—Catclaw mimosa thickets provide cover and food for a variety of small wildlife species, especially quail (Graham 1941, Powell 1998). The flowers are a good source of nectar for honey bees (Powell 1998, Vines 1986). Deer and pronghorn browse Catclaw mimosa and its palatability is rated good (Nichol 1938, Buechner 1950). Its livestock palatability is low (Dayton 1931). However, livestock use it when other forage is scarce, and by virtue of its abundance in New Mexico and Arizona it has been described as important cattle browse (Dayton 1931, Vines 1986). Both livestock and wildlife eat the pods (Dayton 1931, Cable 1975, Uchytil 1990). Because plants have a tendency to form thickets that effectively bind soil, Catclaw mimosa shows potential for erosion control (Kearney and others 1960, Vines 1986). In a comparison with 100 other plant species studied for the production of fuels and chemicals, it yielded substantial amounts of oils, polyphenols, and hydrocarbons (Carr and others 1986).

References

Ahlstrand, G.M. 1982. Response of Chihuahuan Desert Mountain Shrub Vegetation to Burning. Journal of Range Management. 35 (1): 62-65.

Barneby, R.C. 1991. Sensitivae Censitae. Memoirs of the New York Botanical Garden Vol. 65. The New York Botanical Garden, Bronx, NY.

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

Buechner, H.K. 1950. Life history, ecology, and range use of the pronghorn antelope in Trans-Pecos Texas. American Midland Naturalist. 43(2): 257-354.

Cable, D.R. 1975. Range management in the chaparral type and its ecological basis: the status of our knowledge. Research Paper RM-155. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. 30 p.

Carmichael, R.S., Knipe, O.D., Pase, C.P. and Brady, W.W. 1978. Arizona chaparral: plant associations and ecology. Research Paper RM-202. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. 16 p.

Carr, M.E., Mason, C.T., Jr., and Bagby, M.O. 1986. Renewable resources from Arizona trees and shrubs. Forest Ecology and Management.16: 155-167.

Carter, J.L. 1997. Trees and Shrubs of New Mexico. Johnson Books, Boulder, CO. 533 p.

Dayton, W.A. 1931. Important western browse plants. Miscellaneous Publication 101. U.S. Department of Agriculture, Washington, DC. 214 p.

Dick-Peddie, W.A. 1993. New Mexico Vegetation--past, present, and future. University of New Mexico Press, Albuquerque, NM. 244 p.

Dick-Peddie, W.A. and W.H. Moir. 1970. Vegetation of the Organ Mountains, New Mexico. Range Science Department Science Series 4. Colorado State University, Ft. Collins, CO.

Gehlbach, F.R. 1967. Vegetation of the Guadalupe Escarpment, New Mexico-Texas. Ecology 48: 793-806.

Gledhill, D. 1992. The names of plants. Second Ed. Cambridge University Press, Cambridge England. 202 p.

Graham, E.H. 1941. Legumes for erosion control and wildlife. Miscellaneous Publication 412. U.S. Department of Agriculture, Washington, DC. 153 p.

Hibbert, A.R., Davis, E.A., and Scholl, D.G. 1974. Chaparral conversion potential in Arizona: Part I: water yield response and effects on other resources. Research Paper RM-126. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. 36 p.

Jordan, G.L. and M.R Haferkamp. 1989. Temperature responses and calculated heat units for germination of several range grasses and shrubs. Journal of Range Management. 42(1): 41-45.

Kartesz, J.T. 1994. A synonymized checklist of the vascular flora of the United States, Canada and Greenland. Vol.1-Checklist. Second ed. Timber Press Portland, OR. 622 p.

Kearney, T.H., Peebles, R.H. and collaborators. 1960. Arizona flora. 2nd ed. University of California Press, Berkeley, CA. 1,085 p.

Kittams, W.H. 1972. Effect of fire on vegetation of the Chihuahuan Desert region. Proceedings: Tall Timbers Fire Ecology Conf. A Quest for Ecological Understanding 12: 427-444.

Martin, W. C. and C.R. Hutchins. 1981. A Flora of New Mexico. Volume 2. J. Cramer, Vaduz, Germany. p. 1,277-2,591.

McPherson, G.R. 1995. The role of fire in desert grasslands. In: M. P. McClaran and T. R. Van Devender, eds. The Desert Grassland. The University of Arizona Press, Tucson, AZ.

Muller, C.H. 1939. Relation of the vegetation and climatic types in Nuevo Leon, Mexico. American Midland Naturalist 21: 687-729.

Muller, C.H. 1947. Vegetation and Climate of Coahuila, Mexico. Madrono. 9: 33-57.

Nichol, A.A. 1938. Experimental feeding of deer. Technical Bulletin 75. Arizona Agriculture Experiment Station. 39 p.

Pase C.P. and F.W. Pond. 1964. Vegetation changes following the Mingus Mountain burn. Note RM-18. U.S. Department of Agriculture, Forest Service, Rocky Mountain Station, Fort Collins, CO. 8 p.

Pase, C.P. and D.E. Brown. 1982. Interior chaparral. In: D.E. Brown, ed. Biotic Communities of the American Southwest—United States and Mexico. Desert Plants. 4 (1-4): 95-99.

Powell, A.M. 1998. Trees & shrubs of Trans-Pecos and adjacent areas. (First Ed. copyright Big Bend Natural History Assoc.) University of Texas University Press, Austin, TX 498 p.

Shreve, F. 1915. The vegetation of a desert mountain range as conditioned by climatic factors. Publication 529. Carnegie Institute, Washington, DC. p. 1-45.

Uchytil, R.J. 1990. *Mimosa biuncifera*. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Fire Effects Information System. http://www.fs.fed.us/database/feis/.

Vines, R.A. 1986. Trees, shrubs, and woody vines of the Southwest. University of Texas Press, Austin, TX. 1,104 p.

Whittaker, R.H. and W.A. Niering. 1965. Vegetation of the Santa Catalina Mountains, AZ: a gradient analysis of the south slope. Ecology 46: 429-452.

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