***Prosopis glandulosa* Torr.** honey mesquite
FABACEAE

Synonyms: *Prosopis chilensis* (Molina) Stuntz
Prosopis odorata Torr. & Frém.

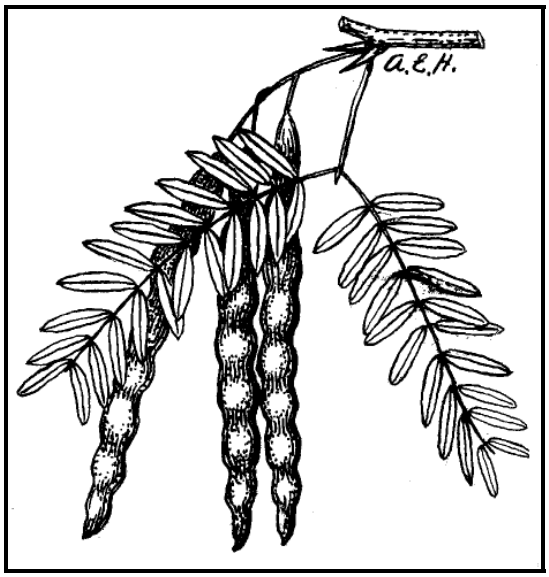

Illustration source: USDA-Forest Service Collection, Hunt Institute

General Description.—*Prosopis glandulosa* is commonly known as honey mesquite, mesquite, glandular mesquite, prairie mesquite, algarobo, and la péchita. The Spanish conquistadores named it "algaroba" as it reminded them of the algarroba, or carob tree of Spain (USDAFS 1988). Mesquite are deciduous shrubs, or small trees, armed with one or two, rarely absent, straight, stout, stipular spines and pinnately twice-compound leaves. Flowers are in fragrant, globose heads and the fruits are straight, slightly curved, long (approximately 20 cm) pods with partitioned and embedded seeds (Barneby 1989, Vines 1986). Typically the plants are 1- to 2-m high shrubs but may develop into 10 m tall trees (Bowers 1993). An unusually large individual in Texas was reported to be 12.8 m tall with a 15.8 m crown spread and 2.4 m girth (Powell 1998). In some habitats the plants remain less than 0.5 m tall (USDAFS 1988). Three varieties of *P. glandulosa* are recognized: var. *torreyana,* var. *prostrata*, and var. *glandulosa* (Kartesz 1994). *Prosopis glandulosa* has been known erroneously as *P. juliflora* (Kartesz 1994) that grows in the West Indies. Inter- and intraspecific hybridization within mesquites is common and identification of the intermediate forms may be difficult (Uchytil 1990). The mesquite introduced into Hawaii is also called "algarroba" but is a different species (Sohmer and Gustafson 1987).

Range.—Honey mesquite is a common shrub in Oklahoma, southern Kansas, Texas, New Mexico, extreme southwestern Utah, Arizona, southeastern California, and southern Nevada, and in Nuevo Leòn, Tamaulipas, and Coahuila in Mexico (Barneby 1989, Powell 1998).

Ecology.—Honey mesquite grows at elevations below 1,800 m in a variety of soils and habitats. It is an aggressive plant and will occupy disturbed soils. It has a very deep (to 20 m) and wide root system that confers drought tolerance (Dayton 1931, Kearney and others 1960). It grows in areas of Death Valley that receive only 5 cm annual rainfall (Bainbridge and others 1990). It is moderately frost tolerant. It has always had a wide geographical range but has been reported as being historically restricted to moist, rather narrow habitats such as arroyos, floodplains, and canyons (Dick-Peddie 1993, Powell 1998). However, contrary to these reports mesquite was not totally restricted to these more moist habitats but was a component of upland communities prior to European settlement and may have been overlooked by early explorers as it tended to be a low, small shrub obscured in thick grasslands (Smiens and others 1992). This breadth of habitat is consistent with its hardiness to adverse environmental conditions.

Reproduction.—Honey mesquite flowers in March to May, and the fruits mature before the summer rains in June through September (Bowers 1993, Vines 1986). However, depending upon environmental conditions, flowering may extend into September (Everitt and Drawe 1993, Vines 1986). The fragrant, creamy-yellow to yellowish-green flowers are insect pollinated (Everitt and Drawe 1993, Uchytil 1990). The fruit is a many-seeded, brown, shiny, dehiscent pod (legume). Scarified seeds germinate readily and can remain undigested and viable as they pass through animal digestive tracts (Wright 1982). The germination

rate typically ranges from 75 to 90 percent (Vines 1986). Seeds frequently contain weevil larvae (Vines 1986). The pollen is reported responsible for some hay fever (Kearney and others 1960) implying that it is also disseminated by wind.

Growth and Management.—Since livestock grazing was introduced in the Southwestern United States and Northern Mexico, honey mesquite has increased to such an extent as to be considered a pest. However, mesquite is a valuable soil binder and slows erosion of otherwise denuded land. The increase in honey mesquite has been attributed to a variety of factors. The two most often cited are a reduction in perennial grasses, which when healthy and dense reduces mesquite seedling establishment, and the reduced incidence of fire due to livestock over-grazing and fire suppression (Bahre 1995, Humphrey 1958, Fisher 1977). Other reasons include: reduced effectiveness of invertebrate seed predators, increased dissemination of seed by livestock and/or kangaroo rats, land clearing and cultivation, soil compaction by livestock that hinders grass establishment, decreased activity of jackrabbits and wood rats, and climate change (Bahre 1995, Glendening 1952). Depending upon the situation, herbicide and mechanical treatments are often both economical and effective in controlling scattered and dense stands of mesquite (Schmutz and others 1992). Chaining and burning the trees destroy above-round tissue, but old stumps of honey mesquite readily resprout. Burning is effective only on small mesquite plants and where fuel is adequate to carry a fire (Schmutz and others 1992).

Benefits.—Honey mesquite plants bind soils, and plantings are recommended for erosion control (Graham 1941, Rorabaugh 1995). Mesquite, particularly var. *torreyana,* is tolerant of saline soils and is a particularly useful cover in degraded areas (Rorabaugh 1995, Schmutz and others 1992). It has been used, with limited success, in revegetating copper mine wastes (Norem and others 1982). Mesquite has been used in riparian restoration projects and provides excellent habitat for many species of wildlife and birds (Rorabaugh 1995). In one study, the number of quail using an area decreased as a consequence of mesquite removal (Goodwin and Hungerford 1977). Honey mesquite also provides shelter for the germination and development of forbs, grasses, and cacti such as *Peniocereus greggii* Britt. and Rose (Tull 1987, author's personal observation). It is not clear whether this is due to a favorable microclimate or a response to grazing pressures. Seeds of mesquite are nutritionally rich and are important food for a large number of wildlife species (Graham 1941, Tull 1987). Honey mesquite seeds may constitute 5 to 37 percent of scaled quails' diets year round (Davis and others 1975). Deer, javelina, and smaller wildlife species such as jackrabbits, feed on both pods and vegetation. It is important livestock feed, especially in times of drought. However, if livestock eat too large amounts, rumen stasis, impaction, and death may result (Stubbendieck and others 1993). It is an important "honey plant" and bees that forage its flowers produce excellent quality honey (Dayton 1931). It provides a good source of nectar and food for butterfly adults and larvae (Taylor and others 1997). The wood is resistant to termites and decay, and is used for building. It is also prized as bar-b-cue fuel as it is a hard, close-grained wood that burns hot and slowly (Barneby 1989, CWAR 2002). Honey mesquite was essential to Native Americans who made breads from the pods, fuel and utensils from the wood, medicines from the stems and leaves, rope from the roots, and dye from the black pitch of the trunks (Moerman 1998, Tull 1987). The gum exudates of the bark may be a substitute for gum arabic and have been used to mend pottery (Powell 1998). An intoxicating beverage is made from fermented meal (Bowers 1993).

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