ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDMAL020E0
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Abutilon parishii* Wats.
COMMON NAME: Pima Indian Mallow, Parish Indian Mallow, Tortoise Food
SYNONYMS:
FAMILY: Malvaceae

AUTHOR, PLACE OF PUBLICATION: Watson, S. 1885. Proc. Amer. Acad. 20:357.

TYPE LOCALITY: Arizona: Santa Catalina Mountains.

TYPE SPECIMEN: ARIZ, no number. C.G. Pringle. April 1884.

TAXONOMIC UNIQUENESS: The genus *Abutilon* contains approximately 160 species. Ten species of *Abutilon* are recognized by Lehr (1978) as occurring in Arizona. Kearney et al. (1960:539) relegated *A. parishii* to synonymy with *A. palmeri*, but in the supplement to Kearney et al. Peebles (1960:1060) separated the two species. Lehr (1978) recognizes both species. Shreve and Wiggins (1964) consider *A. parishii* more closely related to *A. wrightii* than *A. palmeri*. P. Fryxell retains this species in the revision of the Malvaceae completed in 1991 for the Vascular Plants of Arizona project. Currently, 13-14 species of Abutilon occur in Arizona (McNair et al. 2018).

DESCRIPTION: A suffrutescent plant (woody base, herbaceous branches) up to 190 cm (75 in.) tall from a woody rootstock; **1-11 stems per plant (average 2.5)**; branches and petioles densely stellate-tomentose (star-shaped hairs) and somewhat hirsute (coarse hairs), with slightly reflexed, simple hairs; petioles slender to 7.0 cm (2.8 in.) long; **leaf blades heart-shaped, usually with a long "drip tip"**, densely velvety on both surfaces, **dark green above, nearly white beneath**, 2.0-5.0 cm (0.8-2.0 in.) wide, 3.0-7.0 cm (1.2-2.8 in.) (up to 10.0 cm (4.0 in.)) cm long, corrugated appearance and indented veins, teeth irregular in size; average length:width ratio of leaf = 3:2; fruit 7.0-8.0 mm (0.28-0.32 in.) high, 8.0-10.0 mm (0.3-0.4 in.) wide, with aristate tip on carpel, thinly pubescent with simple spreading hairs along dorsal sutures of oblong carpels; **5-10 carpels with fine tips about 2.0 mm (0.08 in.) long**; three seeds in each carpel, brown, irregularly puberulent (minute pubescence). Petals light orange to orange-yellow, extend beyond the sepals.

AIDS TO IDENTIFICATION: Tall stem mostly naked. Larger leaves rarely over 10.0 cm (4.0 in.) long. Dead stems are up to 1.0 m (3.3 ft.) high, with empty fruit capsules which persist throughout the winter. Distinguishable from *A. wrightii* by the shorter calyx lobes which are less than half as long as the carpels in fruit. Distinguished from *A. palmeri* in having corollas only about 10.0 mm (0.4 in.) long (15.0-25.0 mm (0.6-1.0 in.) in *A. palmeri*),

a more paniculate (branching) inflorescence and longer stem hairs mostly reflexed. *A. parishii* has only a superficial resemblance to *A. palmeri*. *A. sonorae* is usually single-stemmed and has carpels with 1.0 mm (0.04 in.) long tips. *A. reventum* is usually single-stemmed.

McNair et al. (2018) published a visual aid to identifying *A. parishii* and its congeners.

ILLUSTRATIONS:
Color photo of flower (Van Devender et al. 1991:5)
Color photo of leaf (Van Devender et al. 1991:6)
Line drawing. USFWS.

TOTAL RANGE: Presently known from 84 populations in 17 mountain ranges (Van Devender et al. 1994). Plants found from Bagdad to Nacapule Canyon and Rio Mayo area, Sonora, Mexico. A historic collection (1884) by Marcus Jones also puts this plant as occurring in New Mexico (Stein's Pass, Hidalgo Co.) (SEINet 2022).

Kearney et al. (1960:1060) refer to locality at Mercury Mine in Mazatzal Mountains, collection by Eastwood in 1929. Confusion in his field notes as to collection site location. Identification needs verification. This location disjunct from Tucson area populations and in questionable habitat. T. Van Devender searched area in September, 1991. Did not find appropriate habitat (Van Devender et al. 1994). Identification of the Little Shipp Wash specimen (coll. P Schneider) confirmed by T. Van Devender who relocated a few scattered plants in field, September, 1991. Presence of this small population disjunct from Tucson Mountain area populations suggest plant may also occur in other scattered localities.

Despite not being relocated in the Mazatzal Mountains, *A. parishii* is known from several localities in the Superstition Mountains, just south of the Mazatzal Mountains (SEINet 2022).

First collected in Mexico in 1992 in five localities in the Municipios de Hermosillo(2) and Guaymas (3) (Van Devender et al. 1994).

RANGE WITHIN ARIZONA: Maricopa County: Superstition Mountains; Pima County: Santa Catalina, Rincon, Silverbell, and Tucson Mountains; Pinal County: Mineral Hills, Superstition, Picacho, Tortolita, and Dripping Springs Mountains; Santa Cruz County: Santa Rita, Tumacacori, Ruby Mountains; Yavapai County: Little Shipp Wash and Cottonwood Creek near Bagdad.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous perennial.

PHENOLOGY: Flowers open only from 3:30 to 4:30 pm only when sunny. If it clouds over, flowers close. A relatively weak spring flowering is followed by a longer late summer-

fall bloom. Plants can flower spring through fall, in response to rain. Plants are expected to be self-fertile; flowers do not have to open to produce seed.

BIOLOGY: Plants "may occasionally live 8 to 10 years although most plants in a population may be less than 5 years in age" (T. Van Devender, C.D. Bertelsen and J.F. Wiens 1994). Individual plants appear to come up each year. In 1990, in Pontatoc Canyon (Santa Catalina Mountains), 13 plants found in area about 1.5 meters square. Of these, 3 were mature plants estimated to be at least 2 years old, 2 were about 1 year old, and 8 were very small plants that probably germinated that year. This is only "concentration" of new seedlings known. Arizona-Sonora Desert Museum germinated seeds, had at least 4 mature plants in 1991. Seeds seem to germinate along areas where water has flowed (e.g. along trails). Seedlings seem to do best when they grow at base of rocks in full sun (Bertelsen 1990). Two growth forms: summer, elongate from a basal rosette; winter, basal rosette dies back. Persistent (dead fruits stay on plants good part of year).

Under water stress, leaves fold along midvein. In extreme drought, portions of leaves dry, die and fall off. This may give remaining portion of leaf roundish appearance. Plant responds rapidly to available moisture.

HABITAT: Mesic situations in full sun within higher elevation Sonoran desertscrub. On rocky hillsides, cliff bases, canyon bottoms, lower side slopes and ledges of canyons among rocks and boulders. Slopes can exceed 45°. In riparian zones, occurs on flat secondary terraces but typically not in canyon bottoms. Often found near trails, probably due to the influence of the trail on the light, heat and water of the micro-habitat.

Santa Rita's - desert grassland on slate. South of Hermosillo volcanics to coast of Sonora.

Likes rocky substrate. Higher bajadas or low in washes. Little Shipp Wash northernmost location. Some Mojave plants. (Desert tortoise habitat). Lot of grasses. To Silver Bells, Tucson.

ELEVATION: In Arizona: 1,720 to 4,900 feet (525-1495 m). In Mexico: 394 to 1,952 feet (120-595 m).

EXPOSURE: Usually in canyons with southern or western exposure; plants prefer a southern exposure even when in east- or west-facing canyons. Fifty percent of sites on slopes of 45% or more.

SUBSTRATE: Bouldery, rocky shallow soils. Found on rhyolite, granite, gneiss and Pleistocene alluvium. Granite, rhyolite, limestone, slate at cliff base.

PLANT COMMUNITY: Lower Sonoran desertscrub, transition zone of Upper Sonoran grassland communities, and Sonoran deciduous riparian forest to Arizona Upland Desertscrub.

POPULATION TRENDS: Plant widespread. Status survey conducted from 1991 to 1994 discovered numerous new populations in several mountain ranges in south-central Arizona and central Sonora. This is substantial expansion of known range with much unsurveyed potential habitat between known sites. Population numbers appear to increase in wet years and decline in dry years (Van Devender and Bertelsen 1994). Bertelsen (1990) stated half of 94 plants known to him in 1990 germinated in last two years. Areas where this observation made seemed to have greater than average rainfall.

Total of 270 plants located in Arizona during 1991. Of these, 199 (73%) were in Santa Catalina Mountains. Bertelsen reports that the same plants were only 38% of their height in 1990 (1990 was a relatively dry year). Of the 199 plants, 150 plants were less than 20.0 cm (8.0 in.) tall. Of all the plants, 57-63% were non-reproductive. Largest population in Ventana Canyon, Santa Catalina Mountains (Bertelsen 1991).

Populations appear to be cyclical: between 1992 and 2000, six populations monitored on at least a yearly basis in the Rincon, Tucson, and Santa Catalina Mountains declined 80 to 95%, most likely because of drought (Bertelsen 2000).

Bertelsen (2000) reports, two populations in Mexico (Batamonte and Cerro Yeso) have been eliminated because of the spread of buffel grass (*Pennisetum ciliare*), which has burned several times.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2 USDI, FWS 1990, 1993]

STATE STATUS: Salvage Restricted (ARS, ANPL accessed 2011)
[Salvage Restricted (ARS, ANPL 1993)]

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1990, 1999, 2007,2013)
Bureau of Land Management Sensitive (USDI, BLM AZ 2005, 2008, 2010, 2017)

MANAGEMENT FACTORS: Potentially mining and related activities. Recreation; some plants immediately adjacent to existing trails subject to trampling by people who wander from trail. Plants must be considered during trail maintenance activities. Livestock trampling and habitat degradation due to livestock overuse. Bertelsen (1991) noted that everywhere plant found, immediate area not heavily grazed; sites very steep. Palatability unknown but expected to be highly desirable to cattle. Deer and rabbits appear to browse plants. Trampling by bighorn sheep has occurred in Silverbell Mountains, but sheep do not appear to eat plant.

In Arizona, no real threats. Grows on steep habitat, eliminating grazing pressures. Freezing or light fires do not hurt plant. However, Sonoran conditions different: buffelgrass, introduced for grazing, and thornberry are threats.

CONSERVATION MEASURES TAKEN: Bertelsen has had some trails diverted in the Santa Catalina Mountains.

SUGGESTED PROJECTS: Some trail diversions may be necessary. Education of organizations and businesses such as the Coronado National Forest trail crew, Southern Arizona Hiking Club and Canyon Ranch Resort, as well as signs warning of rare plant presence and importance of remaining on trails might help. Studies to determine seed dispersal (by birds?) and duration of seed viability in the soil.

LAND MANAGEMENT/OWNERSHIP: BLM - Safford and Tucson Field Offices; NPS - Saguaro National Park; USFS - Coronado and Tonto National Forests; State Land Department; Tucson Mountain County Park; Private.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Plant known by several names creating confusion. Plant collected as tortoise food at Little Shipp Wash under a different name and Desert Botanical Garden also had specimens with other names.

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1991-10-10 (BKP)
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1994 10-14 (PLW)
1997-07-28 (SMS)
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2022-02-18 (TME)

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