ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDCAC0D1N3
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Cylindropuntia whipplei*
COMMON NAME: Whipple Cholla
SYNONYMS: *Opuntia whipplei* var. *whipplei*, *Opuntia whipplei laevior*, *Cylindropuntia whipplei* var. *whipplei*
FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: Engelmann & J. M. Bigelow, Proc. Amer. Acad. Arts 3: 307. 1856 (for the species). Benson, Lyman David. The Cacti of Arizona 20. 1969 for the variety).

TYPE LOCALITY: Zuni, New Mexico (Britton and Rose 1963).

TYPE SPECIMEN: MO 178979. John N. Bigelow (s.n.). Nov. 22, 1853.

TAXONOMIC UNIQUENESS: NatureServe recognizes 70 species of *Opuntia* in the continental U.S. and Canada. There are an additional 54 varieties and another eight recognized hybrids. *Opuntia whipplei* is one of 31 species that can be found in Arizona, along with two of its varieties: *O.w. multigeniculata* and *O.w. whipplei*.

DESCRIPTION: For the species, *Opuntia whipplei*: Bushy, mat-forming, or sometimes erect and shrubby, 30-60cm (rarely 1.5-2m) high; stems numerous, erect, arranged compactly, the longer with numerous short lateral branches; larger terminal joints (2.5)7.5-15cm long, to 1-2cm diam; tubercles clearly raised, length 1.5-3 times breadth, 2.5-9mm long, 3-4.5mm broad, protruding 3-4.5mm; leaves conical, +/-1.5mm long; areoles 1.5-2.25mm diam; spines whitish-pink or pinkish-tan at maturity (sheaths becoming loose and flattening out, conspicuous, white, silvery, light tan, or yellow, usually persistent for a season), spines 4-14 per areole, mostly horizontal or deflexed, straight, the longer 2-2.5(5)cm long, basally to 0,.8mm diam, acicular, elliptic to nearly circular in corss section, not strongly barbed; glochids yellow, more prominent than those of most chollas, 1.5-2.25mm long; flower 2-3cm diam, 3-4cm long; sepaloids yellowish-green, cuneate-obovate, 6-9mm long, 6-8mm broad, rounded to nearly truncate, crenate; petaloids pale- to lemon-yellow, narrowly obovate, 10-15mm long, 6-8mm broad, acute or obtuse and mucronate, somewhat crenate; filaments +/- 6mm long; anthers yellow, 3mm long; style green or yellowish, 9-12mm long, 1.5-2mm diam; stigmas apparently 5, 1.5mm long; ovary in anthesis with a few slender spines; fruit yellow, fleshy at maturity, strongly tuberculate (except in parasitized fruits), spineless but at first with glochids, obovoid or subglobose, 2-3cm long, 1.2-1.9(2.2)cm diam, with a deep, cuplike umbilicus (except in

parasitized fruits), fruit persistent through winter, not proliferous; seeds pale tan, flattened, +/-3mm long, 2.5-3mm broad, +/-2mm thick (Benson 1982, p. 304).

AIDS TO IDENTIFICATION: The original key to the 22 species of the subgenus *Cylindropuntia* recognized by Benson is presented in Benson 1982. A more modern treatment is presented in Pinkava 1999.

The following distinguishing characteristics of the three varieties of *Opuntia whipplei* are taken from Benson 1982.

Characteristic	var. *whipplei*	var. *multigeniculata*	var. *viridiflora*
Larger terminal joints	7.5 – 15 cm long	2.5 – 5 cm long	5-7 cm long
Tubercle length	3-9mm, 2-3x breadth	4.5-6mm, 1-5x breadth	+/-2.5mm, 3x
Spine density	sparse to moderate	crowded	moderate
Spines per areole	4-7	10-14	5-7
Color of spine sheath	white to silvery or sometimes light tan or yellow	tan to yellowish pink	brown
Petaloid color	pale to lemon yellow	light greenish-yellow	green tinged with red
Altitude	1350-2400m 4500-8000 feet	1000-1400m 3300-4700 feet	1800-2100m 6000-7000 ft
Floristic Association	Various deserts, Grasslands, woodlands	Mohave Desert	Grasslands and S P-J woodland

According to the map in Benson 1982, *O. w. multigeniculata* is found in NW Arizona and S Nevada, *O.w.whipplei* is more broadly distributed from SW Utah, throughout much of Arizona, western New Mexico and the extreme SW corner of Colorado. *O.w.viridiflora* is found only in NE New Mexico around Santa Fe.

ILLUSTRATIONS:

B&W Photo: Benson 1982, p. 306-7, Line Drawing p. 308.
Photos and Herbarium Mounts:
http://swbiodiversity.org/seinet/taxa/index.php?taxon=Cylindropuntia%20whipplei%20var.%20whipplei.

TOTAL RANGE: Range information is somewhat confounded because not all treatments of this cactus address the variety *O.w. whipplei* and others use the synonym *Cylindropuntia w*. var *whipplei*. The most definitive distribution map, along with details of habitat parameters for the other recognized varieties is in Benson 1982. His distribution for the variety *whipplei* is from southwest Utah, throughout the northern half of Arizona (extending into Pinal County a little north of Tucson), into western New Mexico, and north into extreme southwestern Colorado. There is also an extension east to north-central New Mexico around Santa Fe. However, this broad distribution does not compare well to collection records from Arizona for. *O.w. whipplei*.

RANGE WITHIN ARIZONA: Collections have been made in northern Mohave County (Arizona Strip, north of the Colorado River) and from central and northern Apache County. If collections for the synonymous *Cylindropuntia whipplei* var. *whipplei* are included, the distribution becomes much broader and resembles that from Benson 1982.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial succulent. In most areas, this variety is low and mat-forming, making conspicuous cushions 1-2m in diameter. Elsewhere, it is erect, and in rich valley lands it may be 2m or more tall (Benson 1982).

PHENOLOGY: Not specified in literature, but Arizona collections exhibited flowers from May 29 to July 23, and fruits on May 29.

BIOLOGY:

HABITAT: Often in deep soils of flats, plains, valleys and gentle slopes. Chiefly in grasslands.

ELEVATION: 4425 – 7870 feet (1350-2400m) accordingly to Benson 1982. One Arizona collection was made at 1400 feet (427m).

EXPOSURE: Not specified, but one Arizona collection was on a NE slope, 5-20%.

SUBSTRATE: Often found in deep soils. One Arizona collection noted a rocky gravelly loam basalt.

PLANT COMMUNITY: Various grasslands, also Pinon-Juniper-Ponderosa Pine woodland. Other species associated at one collection site included *Artemisia, Cowania, Fallugia, Juniperus* and occasional *Opuntia erinaceae*.

POPULATION HISTORY AND TRENDS: Unknown for Arizona. Known from nine localities, and possibly many more if *Cyclindropuntia whipplei whipplei* collections are included. One of the collections sites noted the plant as "common." It is interesting that for another closely related variety, *O. w. multigeniculata,* which is definitely rarer and was also more intensely studied, it was noted that there is no indication that populations are declining or increasing in size. These two varieties overlap in NE Arizona.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.
STATE STATUS: Salvage Restricted (ARS, ANPL 1999)
OTHER STATUS: None.

MANAGEMENT FACTORS: None specified.

PROTECTIVE MEASURES TAKEN: Only the "Salvage Restricted" status afforded to all cacti in Arizona.

SUGGESTED PROJECTS: Resolve the taxonomy issue and its acceptance between *O. whipplei* var *whipplei* and *Cylindropuntia whipplei* var. *whipplei*.

LAND MANAGEMENT/OWNERSHIP: USDI Bureau of Land Management, Arizona Strip Field Office; USDI Bureau of Indian Affairs, Navajo Nation; and USDI National Park Service, Lake Mead National Recreation Area.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Arizona Revised Statutes. 1999. Arizona Native Plant Law, Appendix A.

Benson, Lyman. 1982. The Cacti of the United States and Canada. Stanford University Press, Stanford, CA. p. 1044.

Britton, N.L. and J.N. Rose. 1963. The Cactaceae. Four volumes bound as two. Dover Publications. New York. p. 55-56.

JSTOR| Global Plants, accessed 9/1/2015, http://plants.jstor.org/stable/10.5555/al.ap.specimen.mo-178979.

Pinkava, Donald J. 1999. Cactaceae Family, Part Three: Cylindropuntia. Jour. AZ-NEV Aca. Sci. 32(1): 32-47.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION: Antelope eat the fruit and young branches (Benson 1982).

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Game and Fish Department. Please use the following citation:

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