

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Plant Abstract**

**Element Code:**

PDSAL02080

**Data Sensitivity:**

No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Salix arizonica*  
**COMMON NAME:** Arizona Willow  
**SYNONYMS:** *Salix boothii*; *Salix pseudocordata* (Anders.) per A. Rydberg.  
**FAMILY:** Salicaceae

**AUTHOR, PLACE OF PUBLICATION:** Dorn. 1975. Canadian J. Botany 53:1499.

**TYPE LOCALITY:** Fort Apache Indian Reservation, Apache County.

**TYPE SPECIMEN:**

**TAXONOMIC UNIQUENESS:** Approximately 17 species of *Salix* in Arizona. A distinct species in a genus of about 500 species widely distributed throughout the north temperate and arctic zones and a few in the American tropics and Southern Hemisphere (NatureServe 2001).

**DESCRIPTION:** A shrub with a growth habit that ranges from a large hedge to a prostrate mat. Leaves ovate, broadly elliptic, or obovate (inversely ovate), 1.0-4.5 cm (0.4-1.8 in.) long, 5.0-22.0 mm (0.2-0.9 in.) wide, serrulate, glabrous (having a smooth surface) (except for midrib on top of leaf, which may be slightly hairy). Pistillate aments (catkins) 1.0-4.0 cm (0.4-1.6 in.) long. Leaves not glaucous (having a white, frosted appearance). Young stems are bright red.

**AIDS TO IDENTIFICATION:** The only small shrubby willow in the White Mountains with glabrous rather than glaucous leaves.

**ILLUSTRATIONS:** Line drawing (USFWS).  
Color photo (Fletcher in <http://nmrareplants.unm.edu/reports/salari.htm>)

**TOTAL RANGE:** White Mountains, Apache County, Arizona. Also found in New Mexico and southern Utah.

**RANGE WITHIN ARIZONA:** Apache County, White Mountains: Phelps Cabin RNA, head of Little Colorado River, Becker Creek, North Fork White River, Snake Creek, Lee Valley, and various cienegas.

**SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Woody perennial. Although most sources describe the plant as being at least 46 cm (1.5 ft.) tall, Galeano-Popp (1988) found that height varied from 1.3 cm to 3.0 m (0.5 in.-10.0 ft.), depending on growth form. Species exhibits several growth forms: a.) rounded shrub, b.) spindly, ragged shrub, c.) large hedges or thickets, and d.) prostrate mats with stems laying flat on the ground.

**PHENOLOGY:** Flowers April - July. Has also been reported flowering late May to June. Brooks (1999 draft) reports that plants reproduce vegetatively, making it difficult to determine if sexual reproduction is occurring.

**BIOLOGY:** Reproduces both sexually and asexually. Under stressed habitat conditions, often has a rust disease outbreak in clonal population (Brooks 1999 draft).

**HABITAT:** High elevation wet meadows, streamsides, and cienegas.

**ELEVATION:** 8,550 - 10,000 ft. (2,608 - 3,050 m)

**EXPOSURE:**

**SUBSTRATE:** Moist soils, generally not found in sites with extremely rocky substrates.

**PLANT COMMUNITY:** Rocky Mountain Subalpine Grassland; meadows in subalpine forest.

**POPULATION TRENDS:** Trend appears to be downward for populations exposed to livestock and wildlife browsing.

According to Brooks (1999 draft), "population trends have been improving as a result of more conservation-oriented management practices; a conservation strategy, assessment and agreement is being implemented."

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1996)  
[PE, with critical habitat (USDI, FWS 1993)]  
[C1 USDI, FWS 1990]  
[C2 USDI, FWS 1985]  
[3C USDI, FWS 1983]  
[C1 USDI, FWS 1980]

**STATE STATUS:** Highly Safeguarded (ADA 1993)

**OTHER STATUS:** Forest Service Sensitive (USDA, FS Region 3 1990, 1999)

**REASONS FOR ENDANGERMENT:** Browsing by wildlife and cattle; drying of habitat. An unidentified bright orange rust present in some populations of *S. arizonica* has caused defoliation and, in some cases, mortality. The rust may also predispose infected plants to frost damage.

**MANAGEMENT FACTORS:** According to NatureServe (2001), "Threats to the species, including cattle and elk grazing, timber harvest, and off-road vehicles, are being managed and reduced through multi-agency and White Mountain Apache Tribe conservation and management plans. The species remains vulnerable, however, due to its narrow geographic range and limited fragile habitat. Over-grazing in particular could easily and permanently degrade the cienega habitat through soil compaction and alteration of the local hydrology."

**PROTECTIVE MEASUREMENTS ALREADY TAKEN:** Some *S. arizonica* occur within Phelps Cabin Research Natural Area, which is surrounded by a cattle and wildlife enclosure. Also, three populations were introduced on the eastern slopes of Burro Mountain, just west of Crescent Lake.

### **PROJECTS RECOMMENDED TO SUPPORT CONSERVATION:**

- 1.) Studies investigating the biology and ecology of the orange rust, including its impacts on *S. arizonica* populations.
- 2.) Determine whether primary browsing damage to plants is caused by cattle, wildlife or some combination of the two, and take appropriate management.

**LAND MANAGEMENT/OWNERSHIP:** BIA - Fort Apache Indian Reservation; USFS - Apache-Sitgreaves National Forest.

**SOURCES OF FURTHER INFORMATION****LITERATURE CITATIONS:**

- Arizona Department of Agriculture. 1993. Appendix A. Protected group of plants - covered list of protected native plants by categories. p. 2.
- Brooks, A. 1999. *Salix arizonica* Dorn (Arizona Willow), Salicaceae. Draft abstract from Arizona Rare Plant Book, in prep.
- Dorn, R.D. 1975. Systematic study of *Salix* section *Cordatae* in North America. Can. J. Botany 53:1491-1501.
- Dorn, R.D. 1976. A synopsis of American *Salix*. Can. J. Bot. 54:2769-2789.
- Dorn, R.D. 1979. Willows of the Rocky Mountain States. Rhodora 79:390-424.
- Fletcher, R. 1978. Status report on *Salix arizonica* Dorn. Unpublished report for Apache-Sitgreaves National Forest.
- Galeano-Popp, R. 1988. *Salix arizonica* Dorn. on the Apache-Sitgreaves National Forest. Unpublished report for Apache-Sitgreaves National Forest, Contract No.: 43-8173-8-687.
- Granfelt C.E. 1989. Arizona willow (*Salix arizonica* Dorn.) populations on the Fort Apache Indian Reservation, Arizona. Unpublished report prepared for White Mountain Apache Game and Fish Department, White River, Arizona.
- Kearney, T.H. and R.H. Peebles. 1960. Arizona Flora. University of California Press. Berkeley, California. p.213.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: January 4, 2002).
- Phillips, B.G., N. Brian, J. Mazzoni and L.T. Green. 1982. Status report on *Salix arizonica* Dorn. Unpublished report prepared for USFWS, Albuquerque, New Mexico. 12pp.
- USDA, Forest Service Region 3. 1990. Regional Forester's Sensitive Species List.
- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDI, Fish and Wildlife Service. 1980. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species. Federal Register 45(242):82535.
- USDI, Fish and Wildlife Service. 1983. Endangered and Threatened Wildlife and Plants; Supplement to Review of Plant Taxa for Listing; Proposed Rule. Federal Register 48(229):53669.
- USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species. Notice of Review. Federal Register 50(188):00048.
- USDI, Fish and Wildlife Service. 1990. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 55(35):6223.
- USDI, Fish and Wildlife Service. 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 58(188):51184.
- USDI, Fish and Wildlife Service. 1993. Endangered and Threatened Wildlife and Plants; Notice of Public Hearings and Reopening of Comment Period on Proposed Endangered Status and Critical Habitat for the Plant "Salix Arizonica." 1993. Federal Register. 58(28):8249-8250.
- USDI, Fish and Wildlife Service. 1995. Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule to List the Plant *Salix arizonica* (Arizona willow) as Endangered with Critical Habitat. 1995. Federal Register. 60(82):20951-10952.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

- R. Dorn - University of Wyoming, Cheyenne, Wyoming.
- Reggie Fletcher - US Forest Service, Albuquerque, New Mexico.
- Renee Galeano-Popp - US Forest Service, Lincoln National Forest, New Mexico.
- C.E. Granfelt - Fort Apache Indian Reservation, White River, Arizona.
- Art M. Phillips - Private Consultant, Flagstaff, Arizona.

**ADDITIONAL INFORMATION:**

C.E. Granfelt (pers comm 1981-04-29): Granfelt said that his holotype collection is not the one under the Sunrise Ski Lodge parking lot, but rather the one from "a tributary of Snake Creek." He also said that all three specimens he collected were less than 2 ft tall and "barely made it out of the grass." They grew in *Deschampsia* along the rivulets running through wet meadows and cienegas.

Phillips 1982: Recommended dropping from consideration for federal listing.

**Revised:** 1989-12-18 (SST)  
1991-04-22 (BKP)  
1993-08-10 (DBI)  
2002-01-04 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 2002. *Salix arizonica*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 4 pp.