



## Arizona Agave Proposed Delisting Questions & Answers

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### **What is the Arizona agave?**

Arizona agave (*Agave arizonica*) was first described in 1970 as a unique species from specimens collected in the New River Mountains of central Arizona. The 8 to 14-inch diameter and 12 to 16-inch tall succulent sprouts a flower stalk up to 13 feet tall. Fewer than 100 plants are known in the wild. Most are on the Tonto National Forest and a few on private land, in chaparral and juniper grasslands in Gila, Yavapai and Maricopa counties between 3600-5800 feet in elevation. We now know that the plant described as Arizona agave is actually a hybrid of Tourney's agave and the golden-flowered agave.

### **Why was this plant ever listed as endangered?**

When the Arizona agave was added to the list of endangered species in 1984, it was believed to be a unique species. Historically 19 populations were known from the Tonto National Forest. At the time of the final rule that number had decreased to 13. Fewer than 100 plants were known from the wild, and it was thought that any loss of habitat would endanger the species. The majority of Federal land that was occupied by the species was subject to authorized livestock grazing. Livestock grazing was thought to have a negative effect on the species due to cattle trampling plants, eating flowering stalks, and modifying the habitat of the species. This agave is quite attractive and was believed to be threatened by collectors seeking to cultivate the species for commercial trade. The low numbers of Arizona agave individuals known at the time of listing was of concern because of the increased likelihood of small populations going extinct from natural stochastic events. Reproduction was known to be low, and there were very few young plants.

### **Why is the Service proposing to remove the Arizona agave from the Endangered Species Act's list of threatened and endangered species?**

Since 1985, a growing body of evidence has led to the determination that the succulent – found only where the range of Toumey's agave (*A. toumeyana* var. *bella*) and the golden-flowered agave (*A. chrysantha*) overlap and able to reproduce only by budding/cloning (unable to produce viable seed) – is indeed a hybrid of the two parent-species. Controlled experiments on the reproductive limitations of the Arizona agave conducted at the Desert Botanical Garden in Phoenix have confirmed that the plant is a hybrid. Hybrid plants do not qualify for protection under the Act. The term "species", as defined in the Act, includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife *which interbreeds when mature*. Arizona agave does not meet this definition because it is not known to interbreed outside of confinement (in situ).

**What actions led to proposing the removal of this plant species from the list of threatened and endangered plant species?**

In 1985, a year after Arizona agave was listed, the USDA Forest Service petitioned us to delist Arizona agave because of its hybrid status. We convened a peer review panel to assess all the taxonomic and ecological information on Arizona agave. On June 12, 1986, we announced that delisting was unwarranted at that time. The Desert Botanical Garden, in Phoenix, initiated ecological studies of Arizona agave in the late 1980's through 1994. They conducted numerous surveys on the Tonto National Forest, collected seeds in situ, conducted experimental crosses in situ and ex situ, and started an ex situ collection. DBG's work has shown that Arizona agave can produce viable seed; however, some of those germinated seeds produced plants resembling Arizona agave while others did not. DBG also conducted controlled crosses of Toumey's agave (*A. toumeyana* var. *bella*) and the golden-flowered agave (*A. chrysantha*). The seeds produced from this cross resulted in Arizona agave plants. These results support the hypothesis that Arizona agave is a hybrid.

**Are there other levels of protection in place for this species?**

Once delisted, the Arizona agave would receive limited protection under Arizona Native Plant Law, A.R.S., Chapter 7, Section 3-901, which prohibits collection except for scientific or educational purposes under permit.

**If the Arizona agave is removed from the list of endangered plants, how will land management practices be affected?**

Federal agencies which permit, carry out or fund projects or programs will no longer be required to consult with the Fish and Wildlife Service, under section 7 of the Endangered Species Act, to avoid impacts to Arizona agave. Land management practices of private landowners will not be affected.