Pima pineapple cactus

(Coryphantha scheeri var. *robustispina)*

5-Year Status Review:

Summary and Evaluation

Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) – Photo credit U.S. Fish and Wildlife Service

U.S. Fish and Wildlife Service

Arizona Ecological Services Office

Tucson, Arizona

August 2024

5-YEAR REVIEW

Pima pineapple cactus (Coryphantha scheeri var. robustispina)

1.0 GENERAL INFORMATION

1.1 Listing History

Species: *Coryphantha scheeri* var. *robustispina*
Date listed: September 32, 1993
FR citation(s): 58 FR 49875
Classification: Endangered

Critical habitat/4(d) rule/Experimental population designation/Similarity of appearance listing: No critical habitat.

1.2 Methodology used to complete the review:

In accordance with section 4(c) (2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a 5-year review is to assess each threatened species and endangered species to determine whether its status has changed, whether it should be classified differently, or whether it should be removed from the List of Threatened and Endangered Wildlife and Plants. In 2018, the U.S. Fish and Wildlife Service (Service) evaluated the biology and status of the Pima pineapple cactus as part of a Final Recovery Plan (U.S. Fish and Wildlife Service 2018a) and the Final Recovery Plan was used to inform our evaluation in this 5-year review.

1.3 FR Notice citation announcing the species is under active review:

83 FR 25034-38

2.0 REVIEW ANALYSIS

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of "endangered species" or "threatened species." The Act defines an "endangered species" as a species that is "in danger of extinction throughout all or a significant portion of its range," and a "threatened species" as a species that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The Act requires that we determine whether a species meets the definition of "endangered species" or "threatened species" due to any of the five factors described below.

Section 4(a) of the Act describes five factors that may lead to endangered or threatened status for a species. These include: A) the present or threatened destruction, modification, or curtailment of its habitat or range; B) overutilization for commercial, recreational, scientific, or educational purposes; C) disease or predation; D) the inadequacy of existing

regulatory mechanisms; or E) other natural or manmade factors affecting its continued existence.

The identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an "endangered species" or a "threatened species." In assessing whether a species meets either definition, we must evaluate all identified threats by considering the expected response of the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species—such as any existing regulatory mechanisms or conservation efforts. The Service recommends whether the species meets the definition of an "endangered species" or a "threatened species" only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

2.1 Distinct Population Segment (DPS) policy (1996):

N/A

2.2 Updated Information and Current Species Status

2.2.1 Biology and Habitat:

In August 2018, a final Recovery Plan for Pima pineapple cactus was released and in August 2018, a 5-Year Status Review for Pima pineapple cactus was submitted (U.S. Fish and Wildlife Service 2018a, 2018b). Please refer to the final Recovery Plan for a complete review of the taxon's status (including biology, population trends, and habitat), threats, and recovery actions. *Coryphantha scheeri var. robustispina* is a taxon of lower Sonoran desert-scrubland, desert-grassland, and the ecotone (transition area) between desert-scrubland and desert-grassland in southeastern Arizona and adjacent Sonora, Mexico. The primary habitats of *Coryphantha scheeri* var. *robustispina* are open areas on flat ridge tops or areas with less than 10 percent slope, which are also areas very well suited for human development. The vulnerability of its habitats to the impacts of development, nonnative plant invasion, and drought exacerbated by climate change, along with other lesser stressors, keep the taxon at risk to these ongoing threats. We are aware of roughly 8,000 individuals and 152,920 ha (377,873 ac) of habitat within the Altar and Santa Cruz Valleys in Pima and Santa Cruz Counties, Arizona, including acreage of some lands that connect the two valleys. Maintaining linkages for pollinators and lands dominated by native plants are important for the survival of the taxon. Criteria developed in the final Recovery Plan to downlist or delist *Coryphantha scheeri* var. *robustispina* focus on the protection of quality habitat, which supports the plants, their seedbanks, and their pollinators.

2.2.2 Threats Analysis (threats, conservation measures, and regulatory mechanisms):

As determined in the final Recovery Plan, there are many threats to Pima pineapple cactus and its habitat. The loss or reduction of habitat (Factor A) is a complicated threat in that there are many sources, both historical and current, that impact Pima pineapple cactus habitat. These include commercial development, nonnative plant invasion and alteration of fire regimes, livestock activity, and recreation and border activity, all of which have led to changes in Pima pineapple cactus habitat. Overutilization for commercial, recreational, scientific, or educational purposes (Factor B) has led to an increase in mortality. Illegal collection of Pima pineapple cactus is difficult to detect and the determination to not designate critical habitat for the species helped reduce this threat by not making maps of areas where Pima pineapple cacti occur publicly available. Predation or herbivory by vertebrates or invertebrates during the flowering and fruiting season (Factor C) increases during times of drought and can impact Pima pineapple cactus reproduction by unknown sources and kills individual plants (Factor C). Even though predation and herbivory may be natural phenomena, when coupled with other threats, they can have a greater impact on the species. Disease (Factor C) is spread through tunneling activity by invertebrates through the flesh of the cactus, which can introduce fungus or other diseases. Because most Pima pineapple cactus occur on private and State Trust lands (Factor D), they and their habitats are not subject to Federal protection unless there is a Federal nexus to a proposed action. Habitat loss due to urbanization remains a substantial threat to Pima pineapple cactus on these lands. Drought and climate change impact Pima pineapple cactus habitat, germination, growth, and reproduction (Factor E). Drought and increased temperatures increase Pima pineapple cactus stress, reduce defenses to predation and disease, and reduce reproduction, among other impacts. These impacts will continue to affect Pima pineapple cactus and its habitat throughout its range into the foreseeable future.

2.3 Synthesis:

Monitoring of Pima pineapple cactus indicates overall decreases in the number of individuals monitored over time and attempts at transplanting individuals out of the path of development has resulted in a mix of successes and failures. We are aware of at least 1,837 individuals and tens of thousands of acres of habitat that have been lost, primarily due to development. During the December 2022 survey located within the Palo Alto Pima Pineapple Cactus Conservation Bank, a total of 14 Pima pineapple cacti were found; 11 of which were plants found in the original survey in 2001, which documented 76 individuals (AVCA 2023). Only 3 of the 11 plants found from the original 2001 survey were found alive and 8 were found dead, with 3 new individuals found during the 2022 survey (AVCA 2023). In January 2021 on The Pascua Yaqui Reservation in Pima County, the 18 remaining living Pima Pineapple cacti of the original 31 living cacti discovered were transplanted to the Pascua Yaqui Tribal Refuge Area (Transcon Environmental 2023). 7 Pima pineapple cactus plants of the 18 total have perished since transplantation and there are many factors contributing to this ~38 percent mortality rate, such as drought, lack of pollinators, and pedestrians and domesticated animals accessing the Tribal Refuge (Transcon Environmental 2023). The loss of so many individuals and a significant amount of habitat, coupled with the ongoing threats of development,

nonnative plant invasion, and drought, among others, demonstrate a continued danger of extinction throughout its range for the foreseeable future. There has not been sufficient progress toward achieving the recovery criteria as outlined in the Recovery Plan such that an improvement to the species' status is evident at this time (U.S. Fish and Wildlife Service 2018a). Therefore, after reviewing the best available scientific information, we conclude that the Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) remains an endangered species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the Act and analysis of the status of the species in our August 2018 5-Year Status Review (U.S. Fish and Wildlife Service 2018b) remains an accurate reflection of the species current status.

3.0 RESULTS

3.1 Recommended Classification:

No change is needed.

3.2 New Recovery Priority Number:

No change recommended.

Brief Rationale:

See discussion above and in the Recovery Plan (U.S. Fish and Wildlife Service 2018a)

3.3 Listing and Reclassification Priority Number: N/A

Reclassification (from Threatened to Endangered) Priority Number:
Reclassification (from Endangered to Threatened) Priority Number:
Delisting (Removal from list regardless of current classification) Priority Number:

Brief Rationale:

N/A

4.0 RECOMMENDATIONS FOR FUTURE ACTIONS

The principal recovery strategy is to conserve the habitat of *Coryphantha scheeri var. robustispina* by protecting habitat, restoring habitat, and protecting *Coryphantha scheeri var. robustispina* individuals, their seedbanks, and habitat for their pollinators. Providing conservation and restoration of the taxon and its habitat will allow a stable, self-sustaining population to persist with some level of connectivity and opportunities for expansion and dispersal. Additional actions needed include monitoring, surveying, scientific study, outreach and partnership development, augmentation and introduction, and reduction or removal of stressors. Several recovery actions listed in the Recovery Plan (U.S. Fish and Wildlife Service 2018) are already under way, including protection of land from development. If in the future the Recovery Plan becomes necessary to revise, the U.S. Fish and Wildlife Service will follow the

protocol for a Recovery Implementation Strategy and include interested parties and cooperatives.

5.0 REFERENCES

Transcon Environmental, Inc. 2023. Pima Pineapple Cactus Annual Report 2023.

U.S. Fish and Wildlife Service. 2018a, August. Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*) Final Recovery Plan.

U.S. Fish and Wildlife Service. 2018b, August 30. 5-Year Review: Summary and Evaluation for Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*).

WestLand Engineering & Environmental Services (AVCA). 2023, March 31. 2022 Palo Alto Pima Pineapple Cactus Conservation Bank Monitoring.

U.S. FISH AND WILDLIFE SERVICE

5-YEAR REVIEW of Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*

Current Classification: Endangered

Recommendation resulting from the 5-Year Review:

No change needed

Appropriate Listing/Reclassification Priority Number, if applicable: N/A

FIELD OFFICE APPROVAL:

Lead Field Supervisor, Fish and Wildlife Service, [Arizona Ecological Services Office]

Approve HEATHER WHITLAW Digitally signed by HEATHER WHITLAW Date: 2024.08.05 15:33:51 -07'00'