

**5-Year Review: Summary and Evaluation**  
***Lilaeopsis schaffneriana* ssp. *recurva* (Huachuca water umbel)**  
**Current Classification: *endangered***

**U.S. Fish and Wildlife Service**  
**Ecological Services Office**  
**Tucson, AZ**

**1.0 GENERAL INFORMATION**

**1.1 Reviewers:** Scott Richardson (Arizona Ecological Services Field Office (AESO), Tucson), Bill Radke (Refuges), Julie McIntyre (AESO, Tucson), and Laurel Barnhill (AESO, Phoenix)

**Lead Field Office:** Julie Crawford, Plant Ecologist, 928-556-2021

**1.2 Methodology:** In 2015, the US Fish and Wildlife Service initiated the writing of a Draft Recovery Plan for *Lilaeopsis schaffneriana* ssp. *recurva*. This plan was opened for public comment for a 60-day period in 2016, and received peer review from three outside reviewers, including one from Mexico. A Final Recovery Plan was published in November, 2017, that contains objective and measureable criteria for downlisting to threatened status and recovery of the taxon (delisting). The Final Recovery Plan contains the most current and complete evaluation of the status of this species and is the basis for this 5-year Review.

**2.0 REVIEW ANALYSIS**

**2.1 Review Summary:** Please refer to the Recovery Plan for a complete review of the taxon's status (including biology, population trends, and habitat), threats, and recovery actions. *Lilaeopsis schaffneriana* ssp. *recurva* is a taxon of southeastern Arizona and adjacent Sonora, Mexico, that is dependent upon wet soils. The vulnerability of its aquatic habitats to the impacts of drought, degradation, and climate change make this taxon equally vulnerable. Although new occurrences of *L. schaffneriana* ssp. *recurva* have been discovered in recent years and there have been some successes with introductions and augmentations, these are typically very small patches and do not outweigh the losses across the range. We are aware of eight occurrences that have been extirpated and six occurrences that have not been relocated in recent years. In addition, many of the occurrences in Mexico have not been revisited in recent years and their status is unknown. Maintaining self-sustaining, watershed-scale occurrences across the full suite of watersheds within the range of *L. schaffneriana* ssp. *recurva* is important to the survival of the taxon.

There are no *L. schaffneriana* ssp. *recurva* occurrences that appear to be increasing in size and many are reported as single patches among competing vegetation or in aquatic habitat that is in danger of being lost to groundwater

pumping or drought. The loss of so many occurrences, uncertainty of so many others, and continued threats of drought, water withdrawal, and post-fire sedimentation, among others, demonstrate a continued danger of extinction throughout its range for the foreseeable future, and thus meets the definition of endangered at this time.

At present, recovery criteria to downlist *Lilaeopsis schaffneriana* ssp. *recurva* have not been achieved, and would involve increasing naturally occupied habitat, establishing plants in new locations and augmenting existing occurrences, reducing or removing stressors, and maintaining plants and seeds in captivity for education and conservation.

### 3.0 RESULTS

#### 3.1. Recommended Classification:

- Downlist to Threatened
- Uplist to Endangered
- Delist (Indicate reasons for delisting per 50 CFR 424.11):
  - Extinction
  - Recovery
  - Original data for classification in error
- No change is needed

#### 4.0. RECOMMENDATIONS FOR FUTURE ACTIONS

The principle recovery strategy is to conserve the habitat of *L. schaffneriana* ssp. *recurva* by decreasing groundwater pumping, increasing water conservation and recharge, and protecting *L. schaffneriana* ssp. *recurva* occurrences and their seedbanks. Providing conservation and restoration of the taxon and its habitat will allow stable, self-sustaining occurrences 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 are already under way, including water use reduction and effluent recharge. Also, some introductions have been made with varying success and more are planned.

Field Supervisor, Arizona Ecological Services Field Office

Approve \_\_\_\_\_

Date \_\_\_\_\_

7/18/18