

Research, Restoration & Recovery The Arboretum at Flagstaff Research Department

Pediocactus bradyi Conservation

In 2012 and 2015, The Arboretum at Flagstaff received Section 6 awards from the USFWS to work with *Pediocactus bradyi*. The funded proposals had multiple collaborators and many objectives, one of which was to conduct surveys to acquire a reasonable population estimate. In partnership with the USGS, NPS, and Navajo Nation, an expansive survey map of 200 random points, spanning all potential *P. bradyi* habitat was created (USGS) and survey protocols were developed. The Arboretum used internal funds to initiate and continue the surveys during 2014-2015. Currently, we are working towards: 1) finishing the 200-point survey and 2) extending conservation efforts by increasing the genetic diversity and freshness of seed stocks currently in storage. In our continued efforts to seek funding to complete this work, The Arboretum has been awarded a grant from the Cactus and Succulent Society of America (2015) to assist with this endeavor.

The recovery of rare species is made even more difficult when the number and distribution of remaining individuals remains a mystery. Having a good estimate of the total population not only enables managers to better assess priorities, but provides insight to conservation researchers, particularly when examining breeding biology and genetic diversity. We expect that completion of the 200-point survey will greatly improve the existing knowledge of *P. bradyi* numbers and distribution. We see this as a first step to planning and conducting other recovery task actions. An additional benefit to on-the-ground surveys is the potential to capture new occurrences of *Pediocactus peeblesianus* var. *fickeiseniae*, which was listed endangered in October 2013.

One of the easiest and undoubtedly most important conservation actions that we can take is to bank seed. These seeds can then be used for future genetic research projects and for developing living, ex-situ collections for reintroduction. It is apparent that climate change is not going away and maintaining genetic material for the future is one way in which we can buffer against the unknown outcomes associated with a shifting climate. We believe that a multi-year seed collection effort will result in a genetically and geographically diverse seed bank that will have many future uses.

