

2009 Funded Section 6 Plant Proposals - AZ

The following proposals were funded in 2009 (Segment 13). Award amount does not include administration costs.

1) **Examining Suitable Seed Sources for Sentry Milk-vetch Reintroduction**

Principal Investigator(s): **Dr. Kristin Haskins, Arboretum at Flagstaff**

Award: \$14,936

Objective(s): 1) Increase genetic vigor in ASCRRCR seed stock by making controlled crosses in the greenhouse. This will accomplish Recovery Plan task number 5.4.3. A portion of the seed produced from these crosses will be sown to examine seed vigor. 2) Maintain and increase our current seed bank at The Arboretum at Flagstaff (Recovery Plan task number 5.4.1). 3) The seeds that are produced can be used in establishment of a new population via a pilot project (Recovery Plan task number 1.5.1). Information gained from a pilot project will be enhanced by knowing the seed sources. 4) Begin propagating seed from Grandview to examine seed vigor and to use in future crossing studies. We currently have seed from Grandview, but no plants in propagation.

Final Report Abstract: Results from greenhouse experiments suggest that outcrossing does not increase the number of seeds produced per pod, however outcrossing did improve germination. In reverse, seedling survivorship was higher however, in inbred populations. The higher germination resulting from outcrossing is important and worthy of repeat trials and follow up with field outplantings.

2) ***Allium gooddingii* Conservation Agreement: The First Ten Years, A Formal Review**

Principal Investigator(s): **Dr. Andy Laurenzi, private**

Award: \$8,898

Objective(s): 1) Compile Occurrence and Associated Population Data from Centralized Sensitive Plant and Animal Databases in Arizona and New Mexico, as available. 2) Review and Summarize USFS Conservation Actions and Monitoring Results as outlined in the 1997 Conservation Agreement. 3) Assess Current Status of Species based on Existing Data and Field Reconnaissance of Select Populations on the Apache-Sitgreaves and Gila National Forests. 4) Develop Recommendations for Future Management.

Final Report Abstract: We found a nearly complete lack of implementation of the Agreement by ASNF and GNF personnel- Goodding's onion received less attention following the execution of the Agreement in 1997 than it had received in the previous decade. In general, observations from the 2010 field season indicate that ASNF populations are stable or increasing. It appears that Goodding's onion can, where conditions are otherwise favorable and livestock grazing is not an issue, withstand significant impact such as complete forest canopy removal. With the exception of those areas which have been burned by wildfire, populations do not appear to be declining. Based on our limited field reconnaissance, at least three Goodding onion populations may have been extirpated by fire and a fourth reduced in

size. Logging has decreased drastically when compared to the late 1980's and the mid 1990's when the Agreement was developed. Forest personnel also indicated that since the Agreement was executed, permitted livestock numbers decreased and seasons of use became more limited in areas where Goodding's onion occurred.

3) Current knowledge of *Pediomelum pentaphyllum* and *Cirsium wrightii* and an assessment of their geographic distribution in Arizona

Principal Investigator(s): **Dr. Marc Baker**, private

Award: \$31,180

Objective(s): Attempt to accumulate all of the known data (herbarium and literature) for *Pediomelum pentaphyllum* and *Cirsium wrightii* and reassess their geographic distribution in Arizona by surveying within or near historic localities in additional localities with similar geological and edaphic substrates. The research presented will include the first formal report specific to the species occurrences in Arizona and provide information on the geographical distribution that will be critical for the assessment of the formal federal and state status of the species.

Final *Pediomelum* Report Abstract: An attempt was made to define the geographic distribution of *Pediomelum pentaphyllum*, a taxonomically distinct species, within the state of Arizona. Following a review of specimens for the species within Arizona herbaria, status reports, and personal field notes, historical sites within Arizona were mapped and visited in the spring and fall of 2010. Based on values of habitat parameters, such as elevation, topography, and substrate type, sites of possible occurrence were mapped and visited. Four populations for *Pediomelum pentaphyllum* were recorded from Sulphur Springs Valley, Cochise County and San Simón Valley, Graham County. A total of 716 individuals were recorded; 116 appeared to be seedlings. Large areas of potential habitat remain to be surveyed both within the Sulphur Springs and San Simón Valleys.

Final *Cirsium* Report Abstract: An attempt was made to define the geographic distribution of *Cirsium wrightii* within the state of Arizona. *Cirsium wrightii* is a taxonomically distinct species that occurs in various wetlands in New Mexico, Texas and Chihuahua. The type locality for *Cirsium wrightii* is from near the San Bernardino Ranch, east of Douglas, along the United States/ Mexico border. Following a review of specimens for the species within Arizona herbaria and status reports, sites of possible occurrence were mapped and visited. No populations for *Cirsium wrightii* were recorded within Arizona.

4) Current knowledge of *Eriogonum terrenatum* and an assessment of its geographic distribution

Principal Investigator(s): **Dr. Marc Baker**, private

Award: \$15,590

Objective(s): Attempt to accumulate all of the known herbarium and literature data for *Eriogonum terrenatum* and ascertain its geographical distribution by surveying within

geological and edaphic substrates matching or similar to those of the two known localities. The research presented will include the first formal report specific to the species and provide information on the geographical distribution that will be critical for the assessment of the formal federal and state status of the species.

Final Report Abstract: Following a review of specimens for the species within Arizona herbaria, sites of possible occurrence were mapped and visited. The only geographically significant new populations were recorded at or near Benson, in Cochise County. In total, seven populations were recorded with an estimated 13,450 individuals recorded on 17.5 ha of habitat. Because of the very small amount of occupied habitat, the species may be extremely vulnerable in terms of local threats such as mining, off-road vehicle use, and other forms of human encroachment. It is suggested that conservation efforts focus on the acquisition of private lands and additional protection given to known occupied habitat on government-owned lands.