

**FINAL (BIENNIAL) REPORT FOR  
NEVADA DIVISION OF FORESTRY  
FORESTER II POSITION  
CLARK COUNTY MSHCP PROJECT #2002-NDF-1-A  
AND EXTENSION #2003-NDF-364-P**

**SEPTEMBER 2005**

SUBMITTED BY FORESTER II, NEVADA DIVISION OF FORESTRY

## TABLE OF CONTENTS

- I. Executive Summary**
- II. Introduction**
- III. Progress Report**
  - a. Methods and Materials**
  - b. Milestones and Deliverables**
  - c. Additional Accomplishments**
- IV. Conclusion and Evaluation**
  - a. Challenges and Successes**
    - i. Impacts**
    - ii. Lessons Learned**
    - iii. Recommendations & Future Needs**
- V. Literature Cited**
- VI. Appendices**

## Executive Summary

### A. Lead Agency

Nevada Division of Forestry (NDF)

### B. Featured Project

#2002-NDF-1-A - Native Flora Propagation and Protection

#2003-NDF-364-P - DCP Forester Position – Extension

### C. Project Description

This purpose of this project was to research the status and threats to state-listed endangered plant species in Clark County, in cooperation with the county's Multiple Species Habitat Conservation Plan. The project was to fund the employment of a Forester II staff position, along with necessary training, travel, equipment and supplies. NDF would provide a vehicle and office space. Through this position, NDF would provide services pertaining to the protection and propagation of selected species of the native flora in Clark County. The position would examine existing protection and propagation for the selected species of native flora in Clark County, including state-listed critically endangered species. Private landowner sites would be inventoried for the presence of Las Vegas bearpoppy and for seed collection.



*Arctomecon californica*, Las Vegas bearpoppy

Assistance would be provided to The Nature Conservancy in the development of a conservation management strategies (mitigation) plan for nine low-elevation rare plant species.

The position would include the enforcement of Nevada State Laws NRS 527.260 - 527.300 and 527.050 - 527.090 as they relate to the protection of listed critically endangered plants and other native flora in Clark County. In addition, the project would coordinate, monitor and technically assist federal, state and local agencies and private landowners engaged in voluntary mitigation efforts associated with Clark County listed species.



Flagging to delineate the Upper Las Vegas Wash Conservation Transfer Area

### D. Project Status

The project originated in 2002 and ran until 2004. The project was then extended through June, 2005. All but one of the milestones/deliverables has been achieved for

the time allotted. The reports on each state-listed plant species will be submitted in the next biennium, in the format described for species status reports. It is anticipated that after the completion of the CMS for nine low-elevation rare plant species, enough information will be available to complete these reports. In addition, the CMS for 9 plants is identifying the requirements to legally establish a Conservation Area. This process has begun in conjunction with the BLM and City of North Las Vegas to establish the Upper Las Vegas Wash Conservation Transfer Area.

Several of the milestones and deliverables are ongoing duties of NDF, such as regulation of state-protected flora and collaboration with other agencies for the conservation of such flora. Mitigation and propagation trials are expected to continue into the next biennium. In addition, the issuance of master permits for the other state-listed plants in Clark County remains on the table for further discussion.

**E. Partners**

Although the reporting for this position is the sole responsibility of the Nevada Division of Forestry, NDF has cooperated with the following agencies / entities:

Clark County	Nellis Air Force Base
The Nature Conservancy	Las Vegas Springs Preserve
Bureau of Land Management	City of North Las Vegas
US Fish and Wildlife Service	Nevada Natural Heritage Program

**F. Project Contact**

John Jones, Southern Regional Forester and Margie Klein, Forester II

**G. Funding Awarded**

**Funding Spent**

\$ 129,464.00	(2002 – 2004)	\$ 138,367.50
\$ 45,000.00	<u>(extension to 2005)</u>	
\$ 174,464.00	(total)	

**H. Completion Date or Status**

6/30/05, but a new contract was awarded for 2005 – 2007.

**I. Products Produced from Project**

- Bearpoppy Master Permit (with review and management)
- Survey (conducted, inventoried, and recorded) - Las Vegas Bearpoppy on Private Landowner Sites (and submission of GIS data)
- Conducted, inventoried, and recorded Seed collection of Las Vegas Bearpoppy on Private Landowner Sites
- Herbarium collection: state-listed critically endangered plants
- Photographic documentation of state-listed critically endangered plants
- Tracking list of NDF-issued endangered species permits; compliance checks for mitigation
- Tracking list of cactus and yucca regulation by NDF
- In-agency processes for issuance of endangered species conditional permits and master permits
- Comment submitted on various EA/EIS' for proposed projects
- Conservation Agreement (with the City of North Las Vegas) for Management of Special Resources on BLM Parcels Nominated for Disposal (NDF as signatory)

- Draft Conservation agreement for Upper Las Vegas Wash Conservation Transfer Area
- Draft Data-sharing agreement with Bureau of Land Management
- Low-Elevation Rare Plant Working Group agendas/minutes/reports
- Presentations for in-agency training, and for hikers' group, on endangered plants

## **I. Introduction**

The project involved the hiring of a Forester II position at the Nevada Division of Forestry (NDF), whose job duties would pertain to the protection and propagation of selected species of the native flora in Clark County. This included those plant species on the state critically endangered list (Nevada Revised Statutes 527.010) that occur in Clark County, as well as cactus and yucca, which is commercially regulated by NDF. Existing procedures for the protection/regulation of these species was to be researched and documented, and the potential for more ways to protect the species would be explored. Potential conservation could include seed collection, topsoil/seedbank collection, and propagation studies. It would also include the negotiation of conservation agreements for the protection of areas with large numbers of endangered native plants. This would involve working with private landowners as well as agency representatives.

The county (MSHCP) and NDF were experiencing a need to actively keep track of the conservation actions being performed to protect the plant species. This could most efficiently be done by adding a position to the agency that currently regulated this issue.

The conservation actions to be addressed by this position were as follows:

- (1) -- Regulate the removal and possession of cacti and yucca for commercial purposes.
- (2) -- Prohibit the removal or destruction of native flora listed as fully protected except by special permit.
- (3) -- Cooperate, to the maximum extent practicable, with Clark County, and enter into agreements, as appropriate, with Clark County and other Participants in the MSHCP for the administration and management of any areas established for the conservation, protection, restoration, and propagation of species of native flora which are threatened with extinction.

## **II. Progress Report**

### **a. Methods and Materials**

Standard vegetation survey methods were used in the field component of the bearpoppy study. The forester II was trained in these methods at the University of Wisconsin – Stevens Point. Refresher training was provided by the NDF forest health specialist.

The materials used for the field survey were a Garmin V GPS unit, and several GIS software programs were used to download the data, including MapSource and DNR Garmin. Once NDF was able to obtain the software and registry (one) for ArcView9, it was installed on the RMO's computer for use. Data was submitted to the Clark County database manager.

## **b. Milestones and Deliverables**

### PROJECT #2002-NDF-1-A

**Milestone #1:** Collect and analyze information about the protection and propagation services available for the selected of native flora in Clark County.

The information on these species has been gathered, through available literature, and through personal interactions with botanists, horticulturists, and nursery staff. NDF nursery staff has been made aware of the needs of the conservation community for seedbanking/propagating/transplanting endangered plants. The forester II has become familiar with all NRS and NAC pertaining to the protection of native species and has issued permits for them. Mitigation methods and their feasibility have been researched from the literature and personal communications with local experts.

**Milestone #2:** Identify state-listed critically endangered flora.

There were originally six state-listed critically endangered flora species in Clark County. They are the Las Vegas bearpoppy, 3-Corner milkvetch, halfring milkvetch, unusual catseye, sticky buckwheat, and Blue Diamond cholla. Four of these species are covered species under the MSHCP: Las Vegas bearpoppy, 3-corner milkvetch, sticky buckwheat, and Blue Diamond cholla. . A master permit for the incidental take of the bearpoppy on non-federal lands in Clark County was issued in 2001. The halfring milkvetch has been removed from the list of critically endangered species due to recent findings of a larger range than previously known. Another species, the Las Vegas buckwheat, is being proposed to be added to the state list and is currently a high priority watch species under the MSHCP. Sticky buckwheat and 3-corner milkvetch are still endangered. Their habitat locations are accesible to recreation use, and new occurrences have been found where development projects are planned. The habitat for 3-corner milkvetch and sticky buckwheat tend to overlap. Unusual catseye has not been seen in many years. Blue Diamond cholla does not appear to be in peril at present, and genetic studies are still being conducted to determine if it is more widespread than previously thought, or if there are separate varieties.

**Milestone #3:** Analyze and review conclusions concerning the state-listed critically endangered flora and prepare a report for each plant. The report will be included in the Multiple Species Habitat Conservation Plan.

Species status reports have been moved to the new NDF contract for 2005-2007. Reports could not be completed in this biennium, due to lack of information. Some information gathering was possible in this biennium, but could not advance. The field of native plant propagation and mitigation is rather new for our area, and mitigation methods have not been researched enough. Successful methods for *Eriogonum viscidulum* and *Astragalus geyeri* var. *triquetris* have not been found yet. The only mitigation for these species currently is avoidance. No one has experimented with *Opuntia whipplei* var. *multigeniculata*, and *Arctomecon californica* methods are still questionable as to success. Germination trials are under way, and we are also

awaiting the publication of results with soil / seedbank harvesting. We are also awaiting completion of the Conservation Management Strategies for Nine Low-Elevation Rare Species by TNC. In this biennium, the Forester II was able to gather information from botanists at the Southern Nevada Rare Plant Group and Low-Elevation Rare Plant Working Group meetings, as well as at the Southwest Rare Plant Conference, Nevada Rare Plant Workshops and Nevada Native Plant Society meetings. In addition, the Forester II met with Clark County and the Fish and Wildlife Service to obtain their formal guidelines for species status reports.

**Milestone #4:** Coordinate and cooperate with the Nevada Division of Forestry.

NDF duties for the biennium and extension have been completed. These duties included cactus and yucca regulation, and endangered species permit processing, as well as other general duties. Over the biennium, the obligations of this contract with the county, as well as historical context, were clarified. Written procedures were developed for the issuance of conditional and master permits. Also worked with the NDF conservation camps and the NDF nursery on endangered species training and native seed collection. Cactus and yucca harvest permits were issued and harvest activities were tracked. There were several investigations of illegal harvests.

**Milestone #5:** Conduct, inventory and record seed collections (as necessary) on known private land populations.

The NDF nursery was visited to view seed collections and determine goals for their utilization. Seed collection of *Arctomecon californica* on three privately-owned sites has been completed. Seed was sent to the USFS Rocky Mountain Research Station for analysis. Upon return, the seed will be stored at the NDF nursery. NDF coordinated with the BLM for proper storage techniques. All documentation is included in the Las Vegas Bearpoppy Field Survey report, attached as an appendix to this report. Through a grant from the county, NDF was able to begin construction of a lathe structure, to be used primarily for harvested soil/seedbanks (*Arctomecon californica*) and salvaged plants (*Eriogonum corymbosum* var. *nilesii*).

**Milestone #6:** Describe the process to create a Conservation Area. Include legal issues, documentation and signatures required to establish an area.

In order to gain familiarity with the concept of conservation areas, the preserve locations of *Arctomecon californica* under the NDF Master Permit were visited: Las Vegas Springs Preserve and the North Las Vegas Airport. The Forester II met with the people at these entities to monitor how the populations were being conserved. A meeting with TNC further defined how rare plant populations could be conserved, in other areas. Discussion of two BLM disposal areas in the upper Las Vegas wash began in late 2004 and are still continuing. Legal issues discussed included: who would be the lead agency for management of the areas and shared responsibilities; funding of the management; and compliance monitoring. The conservation agreement with the City of North Las Vegas for Management of Special Resources on BLM Parcels Nominated for Disposal has been drafted, with NDF as signatory. The conservation agreement between BLM, USFWS, NDF, and the City of North Las Vegas - for the Upper Las Vegas Wash Conservation Transfer Area (CTA) is in draft form. The process for the establishment of these conservation areas was learned by



going to numerous stakeholder meetings, discussion with agency authorities, and reviewing drafts of the legal documents. Also, there was a consultation with Liz Smith-Incer of the National Park Service's Trails Coalition, and their publication, Collaboration and Conservation, was reviewed.

**Milestone #7:** Analyze legal issues surrounding the Conservation Area and prepare guidelines for the management and operation of an area.

The management of the Upper Las Vegas Wash CTA will for the time being remain under the jurisdiction of the BLM. Discussion of management has occurred at agency/stakeholder meetings. Management options and goals are being reviewed. Decisions are forthcoming. The forester II acted as an alternate on the "state agency" task force, assisting in the prioritization of state conservation goals for the area. NDF has statutory authority to protect plants in management areas.

**Milestone #8:** Identify, coordinate and manage research activities that include transplanting and soil stockpiling.

Inspected the Las Vegas bearpoppy research and conservation area at the Las Vegas Springs Preserve, which contains salvaged / transplanted plants and stockpiled soil. The NDF nursery also accepted a soil stockpile from a soon to be developed bearpoppy site and we began discussions with nursery staff to accept more seedbank collections and do germination trials. Performed a compliance check on a Nevada Power mitigation site for bearpoppy. Several sites where *Arctomecon californica* and *Eriogonum corymbosum* var. *nilesii* soil was transplanted were inspected. The Nellis Air Force Base site was inspected for permit compliance, to ensure that no more than the allowed topsoil was removed. The Las Vegas Springs Preserve site was inspected for seedling emergence this spring (from an earlier soil transfer). There were a few *Arctomecon* seedlings present. The efficacy of this seedbanking mitigation method was discussed with Von Winkel at the Springs Preserve.

**Milestone #9:** Assist in the development of conservation management plans for certain native plant species as necessary.

Participated in the Conservation Management Strategies Technical Advisory Group for the following areas: Coyote Springs, Mormon Mesa, Paiute Eldorado, and Gold Butte. NDF is working with private entities to monitor cactus and yucca harvest in Coyote Springs. NDF is participating in meetings with North Las Vegas and the BLM to work towards management of the Upper Las Vegas Wash Conservation Transfer Area and adjacent parcel.

The Forester II has given assistance to TNC in gathering background literature for the Conservation Management Strategies for Nine Low-Elevation Rare Plant Species: *Anulocaulis leiosolenus*, *Arctomecon californica*, *Arctomecon merriamii*, *Astragalus geyeri* var. *triquetrus*, *Calochortus striatus*, *Eriogonum bigurcatum*, *Eriogonum viscidulum*, *Penstemon albomarginatus*, and *Phacelia parishii*. Also worked with several entities (Clark County adaptive management coordinator, UNR

BRRRC scientist, TNC botanist, USFWS biologist, and BLM botanist) to discuss the status of *Arctomecon californica* populations. A survey of historical sites on private land was performed this spring and the report is included in this final biennial report to the county. Discussions also involved *Eriogonum viscidulum*, *Eriogonum corymbosum* var. *nilesii*, *Astragalus geyeri* var. *triquetris*, and *Opuntia multigeniculata*. The risks facing these plants and possible mitigations have been looked at. It is anticipated that these discussions will be ongoing. Some conclusions may be summarized in the Conservation Management Strategies (CMS) for nine low-elevation rare plants. Forester II acted as chairperson for the MSHCP Low-Elevation Rare Plant Working Group, which reviewed progress reports on the CMS, as well as other agencies' research on these plants.

**Milestone #10:** Enforce Nevada State Laws (NRS 527.260 - 527.300 and 527.050 - 527.090) as they relate to the protection of listed critically endangered plants and other native flora in Clark County.

Regulation of native flora and critically endangered plant species has been completed for the biennium and extension periods of this contract. This included the following activities:

- Issuance of native flora harvest permits, tags, and shipping permits (table attached as appendix). Several surveys of cactus and yucca populations were conducted.
- Investigation of three illegal cactus/yucca harvests.
- Issuance of conditional permits for endangered species (table attached as appendix). These included consultations with the applicants and inspection of sites.
- Compliance checks on endangered species permits: Nevada Power – Harry Allen Switchyard to Crystal Substation; Nevada Power – Harry Allen Switchyard to Northwest Substation; Las Vegas Valley Water District Grand Teton water line; LVSP topsoil salvage from NAFB; NDOT Toquap Wash.
- Review of NDF's master permit to the county for *Arctomecon californica*.
- NDF developed in-agency procedures for processing endangered species permits, including master permits (attached herein as appendices).
- *Eriogonum corymbosum* var. *nilesii* was proposed for state listing as a critically endangered plant. Public hearings have been held and comments taken. However, the process will have to be repeated, as the plant recently underwent a name change, from var. *aurem* to var. *nilesii*.

The task of state regulation is ongoing.

**Milestone #11:** Review environmental impact statements and other environmental documents for agency concerns, and prepare comments and recommendations.

EIS' and other development documents have been reviewed for the biennium and extension of this contract. One of note was the proposed Southern Nevada Water Authority (SNWA) pipeline and reservoir projects for the Muddy and Virgin Rivers. A comment letter was submitted, enumerating concerns with several state-listed critically endangered species, especially *Astragalus geyeri* var. *triquetris* and *Eriogonum viscidulum*. Public scoping meetings were also attended. Comments were also submitted on the BLM disposal land comprising the Upper Las Vegas Wash, enumerating the concerns regarding the large populations of *Arctomecon californica* and *Eriogonum corymbosum* var. *nilesii*. A table listing the documents reviewed is provided with this report as an appendix.

**Milestone #12:** Represent Nevada Division of Forestry (N.D.F.) on applicable committees, working groups and boards to provide input and direction on the Nevada Regulatory Statutes (NRS), regulations, permits and other requirements.

Attended monthly IMC meetings. Attended a special MSHCP meeting regarding the BAMR. Attended weeds working group meetings. Attended a Clark County Commissioners' meeting regarding environmentally sensitive lands. Attended Clark County monthly Cooperative Weed Management Group meetings. Attended Muddy River working group meetings. Attended and made a presentation at the Southern Nevada Environmental Task Force meeting. Chaired the Low-Elevation Rare Plant Working Group and Southern Nevada Rare Plant Group meetings. Attended meetings with BLM regarding the Valley EIS. Attended a Clark County Growth Task Force meeting. Attended the technical advisory group for the NDOT I-15 corridor landscaping. Also met with Rich Harvey, NDF's Resource Management Program Coordinator, to discuss the listing of three plants on the state critically endangered list and the delisting of one (not all Clark County). Attended many North Las Vegas Environmental Task Force meetings and Upper Las Vegas Wash CTA meetings. Attended two scoping meetings for SNWA pipeline projects. Attended NDOT meetings and provided input on their I-15 corridor landscaping work. Also consulted with NDOT on their Wildflower Program needed for highway funds. Met with a "cactus rescue" group to inform them of the laws regarding cactus salvage. Attended Adaptive Management Working Group meetings. Participated in technical advisory group for Conservation Management Strategies for Coyote Springs, Mormon Mesa, Piute Eldorado and Gold Butte Pakoon conservation areas. Attended two Nevada Rare Plant Workshops, which review the listing of rare species. Attended a state legislative hearing for reports on public lands. Attended NV Native Plant Society meetings. Met with Karin Hoff of BRRC re: risk analysis; met with BLM and Bureau of Reclamation re: a shared bearpoppy population.

**Milestone #13:** Conduct public outreach and education programs to further public understanding of native flora and stewardship ethics, including native flora, federal and state laws, mitigation opportunities, stewardship ethics and related topics.

The first Forester II in this position presented educational programs at a Cub Scout summer camp and distributed information at Fire Fest.

The incumbent has found that endangered species educational opportunities occur at almost every meeting attended and also when local environmental firms call for information on species. The education continues in telephone conversations with representatives of various agencies. Special educational presentations included the following: gave a presentation to NDF statewide staff on threatened and endangered plant species; made two presentations at a science camp, and included discussion of environmental ethics; developed a powerpoint presentation on threatened and endangered species and made it available to NDF conservation camps; provided training to NDF staff regarding state endangered species laws; gave a presentation on state endangered plant species to the Upper Las Vegas Wash "heritage" group. The Low-Elevation Rare Plant Working Group reviewed the county's publication on Las Vegas bearpoppy and considered it for revision. We actually recommended to the IMC that the PIE group remove it from the Mojave Max website, as it is too

obsolete. Finally, the Forester II wrote an article for the NDF newsletter on successes with the Las Vegas bearpoppy (attached as an appendix).

**Milestone #14:** Prepare program reports. Include information regarding activities, accomplishments, enforcement actions, revenues and expenditures and any additional pertinent data.

Quarterly reports were submitted to the MSHCP database.

Invoices have been submitted to the County quarterly, with copies of receipts for expenditures. There was some supplemental billing that needed to be submitted for expenditures by the state as related to this position. All billing for both periods, 2002-2004, and extension to June 30, 2005, has been submitted to the county.

All other tracking data is attached in this report as appendices.

**Milestone #15:** Other duties as required by NDF and state policies and procedures.

NDF (state) duties have been completed for the biennium and extension period of this contract as follows:

- Learned NDF policies regarding native flora (cactus, yucca, Christmas trees)
- Received training on NDF statewide resource programs
- Received training on inmate supervision for the conservation camp crews
- Provided assistance at the NDF nursery
- Conducted surveys and inspections at cactus and yucca harvest areas
- Updated native flora logs
- Answered phone inquiries from the public regarding cactus and Christmas tree harvesting
- Performed forest health surveys
- Performed home inspection of trees
- Conducted plant identifications
- Answered phone inquiries from the public regarding native plants, tree health, and plants in general
- Attended meetings with nursery staff and resource manager to coordinate activities
- Consulted in development of new cactus tags
- Monitored Muddy River tamarisk removal by camp crews
- Visited other NDF workcrew projects, including Indian Springs, Crystal Springs, and Las Vegas Wash
- Coordinated an ethnobotanical garden effort at the Desert Research Institute, which was to utilize native plants from the NDF nursery
- Researched history of logging/timberland permits
- Assisted in coordinating an urban forestry project for west Las Vegas
- Worked with members of the public on understanding state endangered species regulations;
- Attended meeting on NDF safety/security issues
- Assisted with Trees on Wheels and tree planting events
- Procured specimens for NDF herbarium
- Attended NDF's annual fire training refreshers
- Performed weed consultations

EXTENSION #2003-NDF-364-P

**Milestone #1:** Preparation of draft reports on state-listed endangered species: *Astragalus geyeri* var. *triquetris* *Eriogonum viscidulum* *Opuntia whipplei* var. *multigeniculata* *Astragalus mohavensis* var. *hemigyus* (Evaluation) *Cryptantha insolita* (Evaluation)

As indicated in Milestone #3 from the original contract, species status reports will be delivered in the next biennium, when more information is available. *Astragalus mohavensis* var. *hemigyus* has been removed from the state critically endangered list, and *Cryptantha insolita* has not been seen to occur since 1942.

**Milestone #2:** Preparation of draft master permits for state-listed endangered species. *Astragalus geyeri* var. *triquetris* *Eriogonum viscidulum* *Opuntia whipplei* var. *multigeniculata*

Species status reports are being researched and prepared. Draft master permits will be considered and/or prepared after review of these reports.

**Milestone #3:** Initiation of seed collection and record keeping.

As per Milestone #5 from the original contract, a seed collection of *Arctomecon californica* was performed on privately owned sites. Documentation is attached in appendix B.

**DELIVERABLES**

PROJECT #2002-NDF-1-A

**Deliverable #1:** Quarterly reports will be submitted to the Clark County MSHCP Database

Quarterly reports from 2003 through 2005 have been entered.

**Deliverable #2:** Final Project Report will be submitted to the Clark County MSHCP Database

Report complete date: September 7, 2005

**Deliverable #3:** Written and oral reports to the Clark County and/or the Implementation and Monitoring Committee upon request.

Gave Low-Elevation Rare Plant Working Group reports to IMC and also submitted them to the county database. Provided a written report from the county commissioners' meeting on environmentally sensitive lands. The NDF bearpoppy survey report was submitted to the DCP program manager.

**Deliverable #4:** Provide four written quarterly reports to the program manager. The reports should address the accomplishments and status to date of each task and subtask.

Written quarterly reports were submitted to the DCP administrator.

**Deliverable #5:** Provide at least one written and/or oral report to the Implementation and Monitoring Committee.

Provided reports of the Low-Elevation Rare Plant Working Group quarterly, written and oral.

**Deliverable #6:** Provide a biennial report to the County.

Report completion date: September 7, 2005

EXTENSION #2003-NDF-364-P

**Deliverable #1:** Quarterly reports will be submitted to the Clark County MSHCP Database.

Reports were delivered quarterly, for the time period 7/1/04 to 6/30/05.

**Deliverable #2:** Final Project Report will be submitted to the Clark County MSHCP Database.

Final report delivered to Jodi Bechtel, 9/7/05.

**Deliverable #3:** Written and oral reports to the Clark County and/or the Implementation and Monitoring Committee upon request.

Gave Low-Elevation Rare Plant Working Group reports to IMC and also submitted them to the county database. The NDF bearpoppy survey report was submitted to the DCP program manager.

**Deliverable #4:** Reports on each State-listed endangered plant species will be submitted to the IMC.

Species status reports have been moved to the new NDF contract for 2005-2007. Reports could not be completed in this biennium, due to lack of information.

**Deliverable #5:** A summary of permits issued for take of state-listed endangered plants, cacti and yucca will be submitted to the IMC.

Two tables, one for endangered species permits, and one for cactus and yucca permits, are attached to this report as an appendix.

### **c. Additional Accomplishments**

The following achievements were accomplished tangential to the project goals:

- *Arctomecon californica* seed collection
- *Opuntia multigeniculata* propagation trial begun
- Legislation for *Eriogonum corymbosum* begun
- Herbarium specimens obtained for in-agency reference
- Reference library built upon
- Photographs taken to document endangered plants
- Training received in several topic areas
- Educational efforts in-agency and in the community were made
- GPS/GIS training and software obtained
- In-agency procedures for permit issuance were written
- Research assistance given to Susan Meyer of the USFS Rocky Mtn. Research Laboratory

## **III. Conclusion and Evaluation**

### **a. Challenges and Successes**

#### **i. Impacts**

The survey showed that *Arctomecon californica* is being lost on privately-owned sites. However, information obtained from the BLM shows that a large amount of this plant will be conserved at the Upper Las Vegas Wash Conservation Transfer Area (CTA). One draft conservation agreement has come out of this, as well as a completed conservation agreement for a parcel of land adjacent to the CTA. The Forester II found one more site owned by the BLM and the Bureau of Reclamation, which neither agency knew about. That site may have a possibility for conservation.

The CTA surveys by BLM also showed a significant population of Las Vegas buckwheat. It was found that this population comprised the majority of occurrences of this plant. At the Nevada Rare Plant Workshop, experts concurred that the plant needed protection. Public workshops were held by NDF and legislation was pending for adding *Eriogonum corymbosum* to the Nevada Revised Statutes critically endangered plant list. First submitted under the name *Eriogonum corymbosum* var. *aureum*, the legislative change had to be re-written as *Eriogonum corymbosum* var. *nilesii*, per publication of the new taxonomy by James Reveal.

Members of a Jepson Herbarium instructional team collected a partial specimen of *Opuntia whipplei* var. *multigeniculata*, which the forester II was able to utilize not only herbarium use, but also for vegetative propagation trials. As of the writing of this report, the NDF nursery states that three of the four pads planted showed new growth.

## ii. Lessons Learned

The position encountered external challenges that existed long before. Networking was challenging in the aspect of sharing knowledge. Trust, credentials, and philosophy were issues that shaped the interaction of individuals. With tenacity, progress has been made in this area.

The challenges that are being faced in the conservation of these plants are as follows: There still is not a useable definition of habitat, as used in the MSHCP goal of “no net loss of habitat.” Is habitat defined by acreage, number of plants, or some other value? Should historical versus potential value be considered? Habitat value needs to be defined.

The following are risks to the plants still to be dealt with:

- Amateur horticulturists – collection of seed, vegetative parts, whole plants
- Poachers – collection or vandalism/destruction of whole specimen plants
- Road-building – including gravel pits, “landscape treatments” along roads
- Invasive weeds – often in rare plant habitat
- Fire potential – as related to weeds
- Development – construction of both residential and commercial buildings
- Pollution – air, water, soil
- Dumping – i.e., illegal
- Water issues – flood control; pumping
- Recreation – destruction of habitat by increased number of users and fewer places to recreate
- Climate – droughts, global warming, etc.
- Political oversight

BLM disposal lands and other projects on BLM land will continue to offer the conservationist a challenge. The development in Mesquite and the projected water pipelines/reservoir southwest of this area hold reserves of *Astragalus geyeri* var. *triquetris* and *Eriogonum viscidulum*.

## iii. Recommendations & Future Needs

NDF can make the following recommendations to the IMC from this project: work toward completion of species status reports should continue in order to be able to assess the impact and feasibility of master permits. It is also recommended that



the County continue its progress toward the goal of accumulating GIS data for all rare plant species. Decision-making regarding conservation will be inadequate until such time as all the data is available. As NDF is the regulating agency for state-listed plant species, all entities / agencies should forward knowledge of any disturbance / development projects in critical habitat to NDF and inform the developers of said projects to contact NDF for permit application to collect endangered species.

There is a need for a great deal of data in order to come to any conclusions on whether or not the “no net unmitigated loss” objective can be achieved. Data is needed by NDF, for all state-listed critically endangered plant species. The data needs to be historic and current, in order to see the population trends. This data may or may not be available from the new county database, but at the least, NDF needs plant location data for all development projects. This will involve data-sharing agreements with all the agencies, especially federal. The concept of sharing sensitive data for the good of the species still needs to be accepted.

Also, more data will have to be gathered by consulting firms or federal agencies to determine current status of endangered plant populations. Surveys may need to be performed where these plants have not been known to occur before, as evidenced by the new findings of *Arctomecon californica* and *Eriogonum corymbosum* var. *nilesii* at the Upper Las Vegas Wash Conservation Transfer Area.

Finally, there is a large gap in the knowledge that conservationists have available to them with regards to mitigation for endangered plant species. Published literature on propagation and conservation of these plants is extremely limited. In fact, peer-reviewed literature was only found for two species, *Arctomecon californica* (Mistretta et al), and *Eriogonum corymbosum* (Reveal). Researchers need to connect with the land managers in order to document the on-the-ground techniques that are working to save the species.

## VI. Literature Cited

Mistretta, Orlando, R. Pant, T. Ross, J. Porter and J. Morefield. 1996. *Current Knowledge and Conservation Status of Arctomecon californica Torrey & Fremont (Papaveraceae), the Las Vegas bearpoppy*. Status report for Nevada Natural Heritage Program and U.S. Fish & Wildlife Service.

Reveal, J. L. 2002. A review of *Eriogonum corymbosum* Benth with emphasis on the species in southern Nevada. Montrose, CO: Spring Canyon Enterprises, prepared for the U.S. Fish and Wildlife Service, Las Vegas, NV. 39 pages.

**VII. Appendices**  
(attached separately)

- A. Scope of Work
- B. Bearpoppy survey table
- C. Bearpoppy survey notes
- D. Summary of GPS Data submitted
- E. Tracking list of state CE permits
- F. Tracking list of cactus & yucca
- G. Photographs of state listed species
- H. List of EIS reviews/comment letters
- I. PPT training for endangered species for NDF camps
- J. NDF Newsletter 2005
- K. NDF Annual Report 2004