desert conservation
PROGRAM

# implementation plan and budget
## 2017-2019

Clark County, Nevada

# Multiple Species Habitat Conservation Plan

# 2017-2019 Implementation Plan and Budget Report

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# I. Introduction

The Clark County Desert Conservation Program manages Endangered Species Act compliance on behalf of Clark County and the cities of Boulder City, Henderson, Las Vegas, North Las Vegas, Mesquite and the Nevada Department of Transportation (collectively, the permittees) through implementation of the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and associated Section 10(a)(1)(B) incidental take permit (Permit Number TE 034927-0). Clark County serves as the implementing agent on behalf of the permittees and the Desert Conservation Program is the Plan Administrator for the MSHCP.

The Clark County MSHCP and associated incidental take permit allow private landowners to develop land in Clark County without the need for individual project-by-project consultations and negotiation with the U.S. Fish and Wildlife Service to comply with the Endangered Species Act. This permit provides a streamlined process for compliance with the Endangered Species Act by private landowners.

In exchange for the regional permit, the Desert Conservation Program implements conservation measures that mitigate impacts to covered species resulting from private-land development activities. Categories and examples of conservation measures are described in the MSHCP and associated incidental take permit and include such activities as research, public information, education and outreach, species inventory and monitoring, habitat enhancement and restoration, the Wild Desert Tortoise Assistance Line, installation and maintenance of fencing along roadways to reduce tortoise mortality, law enforcement within the reserve system, and acquisition of additional reserve system lands to increase or preserve habitat connectivity and promote ecological resiliency.

The MSHCP provides guidance on developing biennial budgets for implementation. This report describes the process followed to develop the 2017-2019 Implementation Plan and Budget for the Clark County MSHCP and the outcome of the budget deliberations.

There are several sections to this report including:

I. Introduction

II. MSHCP Implementation Plan and Budget Process

III. Budget Process Clarification

IV. Project Concept Development

V. Modifications to the Project Concept Format

VI. SNPLMA Project Nomination Development

VII. Project Concept Timeframes

VIII. Summary of Discussions

IX. Proposed 2017-2019 Implementation Plan and Budget

# II. MSHCP Implementation Plan and Budget Process

Per section 2.8.3.3 of the MSHCP, Clark County is responsible for providing management and administration of the MSHCP through a Plan Administrator. Per the MSHCP, the County Manager will appoint a Plan Administrator to implement the MSHCP on behalf of the permittees. The Director of the Clark County Department of Air Quality currently serves as the Plan Administrator and manages the Desert Conservation Program.

In general, the Plan Administrator is responsible for day-to-day operations, the preparation and implementation of a biennial Implementation Plan and Budget, compliance monitoring and reporting, and making recommendations to the Clark County Board of County Commissioners, which has final decision-making authority over implementation of the MSHCP.

Funding to implement the permit conditions and conservation actions in the MSHCP is derived from the $550 per-acre mitigation fee (also referred to as Section 10 funding) collected by the permittees. This funding is enterprise funding and can only be used for the purposes of implementing the MSHCP. Additional funding is available from the sale of federal land in Clark County as authorized by the Southern Nevada Public Lands Management Act (SNPLMA). This funding is awarded on a competitive basis and is not guaranteed.

Guidance for the development of biennial implementation plans and budgets can be found in Section 2.1.12 of the MSHCP. Generally, it prescribes key provisions of the budget development process, which include:

- Developing the biennial calendar outlining explicit steps, dates, and responsible parties
- Calculation of available funding
- Adaptive Management Program recommendations
- Ensuring biennium proposals are developed
- Holding budget sessions
- Submittal of the Implementation Plan and Budget
- U.S. Fish and Wildlife Service review of the Implementation Plan and Budget
- Presenting the Implementation Plan and Budget to the Board of County Commissioners for approval or disapproval

Since inception of the MSHCP, the prescriptive calendar and budget process outlined in Section 2.1.12 have served as general guidance to the parties. However, the Implementation Plan and Budget process has continued to evolve over the years based on recommendations from the Adaptive Management Program, advisory committees, and a Program Management Analysis (Kirchoff 2005). Necessary adjustments have been made to arrive at implementation plans and budgets, all of which have been approved by the U.S. Fish and Wildlife Service.

The Plan Administrator has identified the budget process as an area of the MSHCP requiring significant revision and thus has been working with the U.S. Fish and Wildlife Service on a major amendment to the MSHCP. In the short-term, and in order to continue to mitigate for incidental take in good faith, the Plan Administrator proposed a budget process responsive to the key provisions

outlined in the MSHCP for the 2011-2013 budget process. The same process is being used to develop the 2017-2019 Implementation Plan and Budget.

# III. Budget Process Clarification

Among the MSHCP's guidance documents, the Implementing Agreement is the controlling document over the other documents. The Implementing Agreement states that through June 30, 2005, the Plan Administrator shall expend $2.05 million per year. During the remaining term of the permit, the Plan Administrator shall expend $1.75 million per year including cost of living adjustments of no more than 4 percent per year. The minimum required expenditure over the entire 30-year permit is $54,300,000 (February 1, 2001 through February 1, 2031).

Pursuant to the Implementing Agreement, if the Plan Administrator expends more than is required, the excess amount will be credited against future required expenditures. It is the Plan Administrator's position that all funds that have been allocated through the Implementation Plan and Budget process each biennium, and expended by the Plan Administrator for MSHCP projects, are to be included in the amount of required and excess expenditures.

By the end of the 2007-2009 biennium (June 30, 2009), the permittees had expended more than $57 million and had met the MSHCP's minimum required expenditure. Therefore, in March 2010, the Plan Administrator sought to clarify the language in the MSHCP and Implementing Agreement with the following statement:

> In the event the County's actual expenditures exceed the total minimum required expenditure over the 30-year term of the permit prior to the end of the permit term, the County must expend any remaining funds in cooperation with the [U.S. Fish and Wildlife Service] for the conservation of species and habitats.

This statement makes clear that the budget process outlined in the MSHCP and Implementing Agreement is not necessary when determining how to expend remaining mitigation funds once the minimum required expenditure has been met. Instead, the Plan Administrator, in cooperation with the U.S. Fish and Wildlife Service, will determine the conservation measures to be funded and implemented. The Plan Administrator received formal concurrence from the U.S. Fish and Wildlife Service on this clarification on April 14, 2010.

# IV. Project Concept Development

Although the process of developing the Implementation Plan and Budget has varied over the past biennia, the general steps of the budget development process are to determine available funding and to identify and recommend actions that further the purpose of the MSHCP. Certain actions that are stipulated by the Section 10 incidental take permit are considered required expenditures to maintain compliance, and therefore are nondiscretionary. Additional actions that are considered nondiscretionary include actions specified by a Master Permit for the Removal or Destruction of Fully-protected Flora. At the time of this writing, the terms of this permit were still under negotiation between the Permittees and the Nevada Division of Forestry. Funding for actions specified in the Nevada Division of Forestry Master Permit is contingent upon successful negotiation and execution of the Master Permit.

Nondiscretionary actions include administering and managing MSCHP implementation, supporting the Adaptive Management Program, managing the Boulder City Conservation Easement (BCCE), managing acquired properties and water rights, maintaining the tortoise fencing program along major roads, operation of the Wild Desert Tortoise Assistance Line, and the public information and education program. Other actions that further the goals and objectives of the MSHCP but are not directly specified in the incidental take permit are considered discretionary, such as scientific research projects and desert tortoise augmentation projects. Both nondiscretionary and discretionary actions are funded through the biennial Implementation Plan and Budget process and are approved by the Board of County Commissioners.

The process for developing the 2017-2019 Implementation Plan and Budget was an iterative process that began in March 2016. The Plan Administrator prepared draft budget principles and a draft process and schedule, which were provided to the independent Science Advisor Panel and U.S. Fish and Wildlife Service for review and comment in late March of 2016 and to the permittees for review and comment in early May of 2016. Attachment A outlines the process and schedule agreed to by the permittees and U.S. Fish and Wildlife Service and used to prepare the 2017-2019 Implementation Plan and Budget. The budget principles, available in Attachment B, guide the development and selection of project concepts for the 2017-2019 biennium.

Based on the budget principles, the Science Advisor Panel prepared an independent review of the program and provided recommendations for discretionary funding projects. The Plan Administrator then prepared project concepts and budgets taking into account the Science Advisor Panel recommendations, guidance in the incidental take permit and MSHCP, the budget clarification agreed to between the Plan Administrator and U.S. Fish and Wildlife Service, current status of these efforts, needs anticipated during the 2017-2019 biennium, the budget principles developed by the Plan Administrator, and previous budgets and expenditures. Additionally, the U.S. Fish and Wildlife Service submitted project recommendations to the Plan Administrator for consideration in the 2017-2019 Implementation Plan and Budget process.

The Plan Administrator prepared the following nondiscretionary project concepts for the 2017-2019 Implementation Plan and Budget:

1. Administration of the MSHCP: includes the imposition and oversight of a $550-per-acre development fee, implementation of an endowment fund, and implementation of conservation actions.
2. Adaptive Management Program: provides for the continued implementation of an Adaptive Management Program, a required element of the MSHCP. This program examines different ways to meet MSHCP objectives using a science-based approach and helps answer questions relevant to land managers. Includes funding for the independent Science Advisor Panel and species and ecosystem monitoring within the reserve system.
3. BCCE Management and Law Enforcement: conduct activities as outlined in the easement agreement and BCCE management plan.
4. Riparian Properties Baseline Management: maintenance and management of riparian reserve units along the Muddy and Virgin rivers.

5. Public Information, Education, and Outreach: includes the Mojave Max Education Program, public and stakeholder outreach, and various media campaigns and publications.
6. Current Status and Conservation Knowledge Reports for State-listed Plants: preparation of four reports, as specified in the Nevada Division of Forestry Master Permit.
7. Desert Tortoise Translocation: conduct translocation of wild desert tortoises displaced by development; identify additional sites suitable for translocation; conduct pre- and post-translocation monitoring of tortoises.
8. Wildlife Fencing: installation of new desert tortoise exclusionary fencing, monitoring, maintenance, and repair of existing fences.

The Plan Administrator prepared the following discretionary project concepts for inclusion in the 2017-2019 Implementation Plan and Budget:

9. BCCE Restorations: conduct habitat restoration and monitoring within the BCCE.
10. Riparian Reserve Units Restoration: restore, create, and enhance riparian habitat for MSHCP covered species within the Muddy River and Virgin River reserve units.
11. Rare Plant Surveys: conduct surveys for rare plants in undersurveyed areas within the county.
12. Evaluating Desert Tortoise Habitat Restoration: conduct a comprehensive review of the current status of knowledge about restoration of desert tortoise habitat.
13. Assessment of Desert Tortoise Guards: conduct a study to assess effectiveness of desert tortoise guard design(s).
14. "To the Max" Campaign: implement a new public outreach campaign designed to spread the messages of conservation and responsible desert recreation throughout the community.
15. OHV Registration Program Marketing: implement a marketing strategy to promote the Nevada Commission on Off-highway Vehicle's registration program to increase vehicle registration rates in Nevada.
16. Tule Springs Fossil Beds National Monument Boundary Fencing: construct a combination post-and-cable/desert tortoise exclusion fence along the boundary of the monument where it borders U.S. Highway 95.
17. Permit Amendment, Covered Species Surveys and Refinement of Species Distribution Models: Conduct surveys for species proposed for coverage under the proposed MSHCP amendment. Refine and/or develop species distribution models for proposed covered species.
18. Pilot Project for Drone Detection of Desert Tortoises: conduct a study to test the efficacy of using drones to detect and monitor desert tortoises.
19. Desert Tortoise Sterilization Clinics and Outreach: sterilize unwanted pet desert tortoises to decrease backyard breeding.
20. Las Vegas Springs Preserve, Bearpoppy Habitat Protection and Public Outreach: construct protective fencing, an access trail, interpretive signs, and viewing ramada overlooking bearpoppy habitat. Implement one-year education program.
21. Arden Mine Complex Restoration and Bat Gate Installation: install bat gates and conduct habitat restoration at the Arden Mine Complex.
22. Desert Tortoise Predator-Prey Dynamics: provide information about predator and prey population dynamics and habitat use and health that is relevant to management of the BCCE

> as a sustainable habitat reserve and improving success of desert tortoise translocation programs.

The complete project concepts are available in Attachment C.

# V. Modifications to the Project Concept Format

There are two notable changes to the project concept format that were not included in previous biennia. The first change includes a new section titled "Adaptive Management Review Summary". The second significant change to the project concept development process included reviewing each proposed project to determine whether it accomplished biological goals and objectives. These changes are further described below.

Adaptive Management Review Summary

The Desert Conservation Program has recently been working to incorporate adaptive management principles more thoroughly into the project initiation and implementation process. Adaptive management seeks to optimize management decisions in the face of uncertainty, using learning at one stage to influence decisions at a subsequent stage. Therefore, in order for adaptive management to be appropriate for a project the decision must be recurrent and there must be an opportunity to resolve uncertainties about the management decisions. The purpose of this section in the project concept is to express whether a project is suitable for an adaptive management approach as well as the reasoning behind that decision, express how the project may relate to the adaptive management of other projects (i.e. effectiveness monitoring) already in process or future concepts, and/or express how the project may aid the adaptive management program in evaluating other projects in the future. This is not to say that non-adaptive management projects couldn't benefit from some form of monitoring on a periodic basis to ensure projects are still having the desired effect, it is just to say that they do not require an adaptive management approach.

The first step of the improved adaptive management process includes asking a series of questions for each new proposed project to identify those projects may be suitable for an adaptive management approach. In order for a project to be considered for adaptive management it must be recurrent and must have uncertainties associated with the management practice. The "Adaptive Management Review Summary" identifies those aspects of the proposed project that make it suitable or unsuitable for an adaptive management approach. Those projects identified as suitable for an adaptive management approach will incorporate experimental design principles that are intended to provide valuable management information to assist with improving future implementation outcomes.

Biological Goals and Objectives

Biological goals and objectives are a required component of all habitat conservation plans; however, these were only partially developed in the MSHCP, where it was stated that the completion of this task would occur at a later time. As stated in Section 2.1.6 of the MSHCP:

> The general measurable biological goals for all species during Phase 1 of the MSHCP will be to:

- Allow no net unmitigated loss or fragmentation of habitat in [intensively managed areas] and [less intensively managed areas] (or [multiple use management areas] where they represent the majority of habitat for the species);
- Maintain stable or increasing population numbers; and
- Develop, through the Adaptive Management Process, appropriate detailed and quantifiable population or habitat goals for each Covered Species or, if possible, quantifiable goals for an appropriate surrogate indicator (ecosystem measure or key, umbrella, flagship species).

Over the past biennium, Desert Conservation Program in collaboration with the independent Science Advisor Panel, worked to further elaborate on and develop appropriately detailed and quantifiable biological goals and objectives that would aid in tracking program implementation effectiveness. These biological goals and objectives are provided in Attachment D. Advancing projects that achieve biological goals and objectives was added to the list of budget principles for this biennium. Additionally, a discussion of which biological goals and objectives are achieved by each project is included with each project concept in the section titled "Budget Principles Addressed by this Project Concept".

# VI. SNPLMA Project Nomination Development

The Round 16 funding nominations period was expedited for 2016. The call for nominations was published on March 1, 2016 and nominations were accepted through April 29, 2016. The Desert Conservation Program submitted three nominations under the MSHCP category totaling $7,090,116. The SNPLMA Executive Committee met on August 25 and 26, 2016 to compile final funding recommendations for Round 16. The Executive Committee made the decision to recommend two of the Desert Conservation Program's nominations for funding:

- Identifying and Prioritizing Management Actions that Address Connectivity of Desert Tortoise Populations ($2,448,000.00)
- Restoration on the Clark County Muddy River Reserve Unit ($2,770,000.00)

These projects will be implemented as supplemental conservation actions under the 2015-2017 Implementation Plan and Budget. The final Secretary of Interior approval for Round 16 is expected to occur in December 2016.

The Bureau of Land Management has announced that Round 17 will open for nominations in March of 2017. The Desert Conservation Program will be permitted to submit up to three nominations for funding under Round 17. The 207-2019 Implementation Plan and Budget projects identified for funding under Round 17 include: Desert Tortoise Translocation (partial SNPLMA funding), Evaluating Desert Tortoise Habitat Restoration, and Permit Amendment Covered Species Surveys and Species Distribution Model Refinement.

# VII. Project Concept Timeframes

Section 2.1.12 of the MSHCP outlines the biennial budget development process. Additionally, per Clark County Fiscal Directives, funding for the Desert Conservation Program must be approved by

the Clark County Board of County Commissioners, which has final decision making authority over budgets and implementation of the MSHCP. Thus, it is the goal of the Desert Conservation Program to develop project concepts that can be completed within the two-year planning timeframe of the biennial budget development process. Note that project concept summaries are written with the two-year biennium timeframe in mind, but that work on many of these projects was begun in previous biennia and/or may continue past the current biennium. Because funding for each biennium must be approved by the Board of County Commissioners, funding for ongoing projects cannot be guaranteed past the current biennium. However, unexpended funds from the current biennium may be rolled over for expenditure in future planning years. Funds obtained from SNPLMA grants must be spent within 5 years of fund award; thus SNPLMA-funded project concept summaries may be written with longer project timeframes in mind.

# VIII. Summary of Discussions

A draft of the Process and Schedule and Budget Principles was provided to Nevada Division of Forestry and the Science Advisor Panel on March 21, 2016, to U.S. Fish and Wildlife Service March 28, 2016, and to the Permittees on May 5, 2016. No comments were received from Nevada Division of Forestry, U.S. Fish and Wildlife Service, or the Permittees. The Science Advisor Panel provided comments on the Process and Schedule on April 14, 2016 and comments on the budget principles were provided on April 30th, 2016. Changes made to the drafts to address comments are reflected in Attachments A and B.

The Science Advisor Panel provided an independent analysis of the program with funding recommendations on May 27, 2016. Senior-level staff within the Desert Conservation Program reviewed the Science Advisor Panel's funding recommendations to determine which projects should be moved advanced in the 2017-2019 Implementation Plan and Budget. Funding recommendations were also provided by Nevada Division of Forestry on April 27, 2016 and by U.S. Fish and Wildlife Service on June 9, 2016. A summary of all funding recommendations and response to recommendations is included in Attachment E.

A preliminary list of proposed projects including proposed budgets was provided to the Permittees during a meeting held on July 7, 2016. No comments were received from the Permittees.

A copy of the draft 2017-2019 Implementation Plan and Budget report, including project concepts and proposed budgets, was provided to U.S. Fish and Wildlife Service and the Science Advisor Panel on August 12, 2016 and to Nevada Division of Forestry on August 18, 2016. Comments on the draft report were provided by the Science Advisor Panel on September 9, 2016, by Nevada Division of Forestry on October 4, 2016, and by the U.S. Fish and Wildlife Service on October 7, 2016. A summary of comments and response to comments is provided in Attachment F.

# IX. Proposed 2017-2019 Implementation Plan and Budget

Upon consideration of all the discussions and comments to date, the Plan Administrator has proposed a 2017-2019 biennial budget of $11,210,903, which represents an approximate increase of $3 million over the previous biennium. Habitat disturbance increased substantially during this planning period over the previous three biennia (refer to Table 1); therefore, the Plan Administrator

has proposed a modest increase for the budget allocated towards implementation of conservation projects in the 2017-2019 biennium. This modest increase is necessary to ensure that habitat impacts are adequately mitigated for. Included in Attachment G is a fund balance projection. This projection summarizes the anticipated revenues and fund balance drawdown for the remainder of the permit term and is provided to demonstrate that the Desert Conservation Program will maintain financial solvency through the end of the permit term (February of 2031).

**Table 1.**
**Biennial Disturbance and Proposed Budgets**

| Biennium Planning Period | Disturbance (acres)* | Proposed Biennium Budget |
|---|---|---|
| 2011-2013 | 1,804 | $ 10,125,502 |
| 2013-2015 | 1,557 | $ 8,404,941 |
| 2015-2017 | 2,153 | $ 8,206,407 |
| 2017-2019 | 7,381 | $ 11,210,903 |

*Disturbance for each planning period is determined through geospatial analysis of aerial imagery. Imagery is collected in the spring of each year.

Proposed expenditures are detailed in Table 2 below. If unforeseen opportunities arise for additional conservation projects, the Plan Administrator may pursue funding approval for those projects with the Clark County Board of County Commissioners in coordination with the U.S. Fish and Wildlife Service.

**Table 2.**
**Proposed 2017-2019 Implementation Plan and Budget**

| Concept Number | Project Title | Funding Source | |
|---|---|---|---|
| | | Section 10 Funds | Round 17 SNPLMA Funds |
| *Administration** | | | |
| 1 | General Administration | $1,804,459 | |
| 1 | Staff Salaries and Benefits to Implement Conservation Projects** | $2,838,807 | |
| | **Subtotal (Administration)** | **$4,643,266** | |
| *Non-discretionary Conservation Projects* | | | |
| 2 | Adaptive Management Program | $861,000 | |
| 3 | BCCE Management and Law Enforcement | $420,400 | |
| 4 | Riparian Properties Baseline Management | $275,600 | |
| 5 | Public Information, Education, and Outreach | $401,406 | |

| Concept Number | Project Title | Funding Source | |
|---|---|---|---|
| | | Section 10 Funds | Round 17 SNPLMA Funds |
| 6 | Current Status and Conservation Knowledge Reports for State-listed Plants | $60,000 | |
| 7 | Desert Tortoise Translocation | $200,000 | $442,071 |
| 8 | Fencing Installation and Maintenance | $45,000 | |
| | **Subtotal (Non-discretionary Conservation Projects)** | **$1,844,477** | **$442,071** |
| *Discretionary Conservation Projects* | | | |
| 9 | BCCE Restorations | $151,031 | |
| 10 | Riparian Reserve Units Restoration | $378,156 | |
| 11 | Rare Plant Surveys | $268,000 | |
| 12 | Evaluating Desert Tortoise Habitat Restoration | | $350,000 |
| 13 | Assessment of Desert Tortoise Guard Design | $150,000 | |
| 14 | "To the Max" Campaign | $600,000 | |
| 15 | OHV Registration Program Marketing | $200,000 | |
| 16 | Tule Springs Fossil Beds National Monument Boundary Fencing | $500,000 | |
| 17 | Permit Amendment Covered Species Surveys and Species Distribution Model Refinement | | $400,000 |
| 18 | Pilot Project for Drone Detection of Desert Tortoises | $55,000 | |
| 19 | Desert Tortoise Sterilization Clinic | $25,000 | |
| 20 | Las Vegas Springs Preserve, Bearpoppy Habitat Protection and Public Education | $94,810 | |
| 21 | Arden Mine Complex Restoration and Bat Gate Installation | $200,000 | |
| 22 | Desert Tortoise Predator-Prey Dynamics | $490,163 | |
| | **Subtotal (Discretionary Conservation Projects)** | **$3,112,160** | **$750,000** |
| | Section 10 Funds | | $10,018,832.00 |
| | SNPLMA Funds | | $1,192,071.00 |
| | TOTAL | | $11,210,903.00 |

* *Administrative costs, including staff salaries and benefits, are not included in individual project concept budgets because administrative expenses are fixed to each biennium and do not roll over. Administrative costs that were budgeted for in previous biennia will become unavailable at the close of each biennium.*

** *Provides staff funding to directly implement the discretionary and non-discretionary projects proposed for the 2015-2017 biennium as well as 39 existing conservation projects from previous biennia.*

# Attachment A

*Process and Schedule*

This process and schedule is based on clarification language in the Implementation Agreement dealing with what to do in the event the Permittees' excess expenditures exceed the total required expenditure for the stated term of the incidental take permit, as proposed by Clark County and formally agreed to by U.S. Fish and Wildlife Service in writing.

- March/April 2016: Clark County, in consultation with the Permittees, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service, develops draft Implementation Plan and Budget (IPB) Process and Schedule and draft Budget Principles to guide development of budget and conservation measures.
    - Early March 2016: Desert Conservation Program Senior Team develops proposed Budget Principles.
    - Late March 2016: Desert Conservation Program Plan Administrator briefs Clark County management on upcoming IPB process and reviews draft Process and Schedule and draft Budget Principles.
    - April 2016: Draft IPB Process and Schedule and draft Budget Principles are provided to the Permittees, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service for review and comment.
- April/May 2016: Clark County, on behalf of the Permittees, establishes final IPB Process and Schedule and final Budget Principles and prepares initial budget and conservation measure concepts for non-discretionary projects and discretionary projects, as warranted.
    - Late April/Early May 2016: Desert Conservation Program requests that Permittees, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service submit any comments on the draft IPB Process and Schedule and draft Budget Principles. Desert Conservation Program prepares and distributes final IPB Process and Schedule and final Budget Principles.
    - May 5th, 2016: Desert Conservation Program Plan Administrator reviews the final IPB Process and Schedule and final Budget Principles with the Executive Committee.
    - Mid-May 2016: Desert Conservation Program meets with U.S. Fish and Wildlife Service to review final IPB Process and Schedule and final Budget Principles and discuss U.S. Fish and Wildlife Service' proposed discretionary projects.
    - Mid-May 2016: Desert Conservation Program meets with Nevada Division of Forestry to review final IPB Process and Schedule and final Budget Principles and discuss Nevada Division of Forestry's proposed discretionary projects.
    - May 30th, 2016: Science Advisor submits their IPB Funding Recommendations report.
- June/July 2016 – Desert Conservation Program reviews recommendations, finalizes budget and conservation measure concepts, and provides to Permittees, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service for review and comment.
    - Early June 2016: Desert Conservation Program Senior Team discusses discretionary project recommendations provided by the Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service; develops initial list of projects for inclusion in the draft IPB report.
    - June 2016: Desert Conservation Program staff provides General Information Report and/or briefings to County Commission on IPB Process and Schedule and Budget Principles.

  - Early July 2016: Desert Conservation Program staff prepares draft project concepts and budgets; submits to Desert Conservation Program Senior Team for review and editing.
  - July 7th, 2016: Plan Administrator reviews draft project concepts and budgets with the Executive Committee.
  - Mid-July 2016: Desert Conservation Program Senior Team staff compiles the draft IPB report; draft IPB report is provided to the Permittees, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service for review and comment.
- August/September 2016: Desert Conservation Program revises the draft IPB report in consultation with the Permittees, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service, as appropriate, and posts draft IPB report for public comment.
  - Late August 2016: Permittee, Science Advisor, Nevada Division of Forestry, and U.S. Fish and Wildlife Service comments on the draft IPB report are due.
  - Mid-September 2016: Desert Conservation Program staff address comments; prepare revised draft IPB report; post revised draft IPB report to Desert Conservation Program website for public review and comment.
- October/November 2016: Desert Conservation Program responds to public comment, finalizes budget and report, and schedules item for Board of County Commission approval.
  - Early October 2016: Public comment period closes; Desert Conservation Program staff review public comments and prepare the final IPB report.
  - Early October 2016: Desert Conservation Program staff prepares draft Agenda Item; Deputy District Attorney reviews draft Agenda Item.
  - Late October/Early November 2016: Board of County Commissioners adopts final IPB report.
- November 2016 through June 2017: Desert Conservation Program works with the Science Advisor and other experts to determine detailed methods for implementing conservation measures and for any effects or effectiveness data collection and analysis, if needed.
- March through May 2017: Desert Conservation Program staff prepares and submits proposals for funding under Round 17 of SNPLMA. This timeframe is tentative, as Round 17 submittal dates have not yet been established by the Bureau of Land Management. Funding awarded under SNPLMA is typically made available approximately 10 to 12 months following the call for funding nominations.
- July 1, 2017: 2017-2019 IPB goes into effect.

*Underlined dates are set and are not flexible*

# Attachment B

*Budget Principles*

The following budget principles are to be used to guide and prioritize the development of project concepts, specifically those that are considered discretionary, not required, actions. Project concepts are expected be responsive to these principles.

1. Fulfills explicit permit conditions outlined in the Section 10 Incidental Take Permit.

2. Responds to recommendations from the Nevada Division of Forestry for actions to mitigate impacts to fully protected flora species.

3. Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted.

   From Spring 2013 through Spring 2015, approximately 7,381 acres of habitat were disturbed on private land. The majority of habitat disturbance was comprised of Mojave desert scrub (7,089 acres), and the remaining disturbance was comprised of 172 acres of mesquite/acacia, 75 acres of salt desert scrub, 26 acres of desert riparian, and 19 acres of blackbrush.

4. Provides for continued funding of ongoing and effective conservation measures.

5. Advances projects that support achieving Biological Goals and Objectives (see Attachment D) or those that are designed to inform the Adaptive Management Program.

6. Responds to the most recent Science Advisor recommendations.

7. Focuses on projects with measurable outcomes that are pertinent to the MSHCP.

8. Advances the amendment of the MSHCP and its conservation strategy.

9. Addresses program goals. Program goals that have been identified for the 2017-2019 biennium include:

   - Augmentation of desert tortoise populations
   - Restoration of desert tortoise habitat
   - Restoration of desert riparian habitat
   - Inventory and status of Nevada fully protected flora

10. Addresses future changed and unforeseen circumstances. At the time of this writing, no changed and unforeseen circumstances have been identified.

# Attachment C

*Project Concepts*

# Project Concept 1: Administration

## Background and Need for Project:

Administration of the Desert Conservation Program encompasses all aspects of implementing the MSHCP and complying with the incidental take permit issued by the U.S. Fish and Wildlife Service. Administering the MSHCP is categorized into the following functional units: permit and plan compliance, finance/administration, adaptive management, and project/contract management.

The benefit of properly implementing the MSHCP and complying with the incidental take permit is regional and streamlined environmental permitting that results in a reliable, certain, and predicable process for land development and other economic development activities in Clark County. The effective administration of the program also spares individual private-property owners from the complicated and time consuming task of consulting with the U.S. Fish and Wildlife Service on a project-by-project basis. Administration of the MSHCP has allowed the orderly economic development of over 94,500 acres and has saved the community an estimated $340 million in environmental compliance costs.

Administrative costs can generally be categorized as follows: 1) County internal service charges, 2) Desert Conservation Program operational expenses, 3) Salaries and benefits - general administration and 4) Salaries and benefits - implement conservation projects.

County Internal Service Charges to the Desert Conservation Program

The Desert Conservation Program is a Division within the Department of Air Quality. As such, since 2008, the Desert Conservation Program has received internal service charges from Clark County related to the following items: vehicles, insurance, telephones, cell phones, printing and reproduction, postage, department overhead, county overhead, enterprise resource planning, and information technology support services. For the 2017-2019 biennium, these expenses amount to $718,505.

Desert Conservation Program Operational Expenses

In addition, the Desert Conservation Program requires a budget for day-to-day operational expenses for items such as repairs and maintenance of facilities, repairs and maintenance of equipment, training and travel, paper shredding, office supplies, software, computers and supplies, and refunds. For the 2015- 2017 biennium these necessary expenses amount to $139,685.

Salaries and Benefits

The Administration project concept also provides for sufficient staff possessing the correct skill sets and experience to ensure successful implementation of the Desert Conservation Program and achieve a sustained response to Recommendation No. 27 in the Clark County Desert Conservation Program Management Analysis published by Kirchoff and Associates in December 2005, and adopted by the Board of County Commissioners. This independent analysis determined that the Desert Conservation Program was inadequately staffed for the scope, scale, and complexity of the MSHCP and recommended that the county acquire additional staff resources to adequately administer the program.

Following the Program Management Analysis, the county prepared a staffing analysis and plan in 2006 to ensure a reliable total headcount of employees with sufficient skill sets and flexibility to implement the MSHCP. The ideal staffing estimate avoids staffing needs exceeding staff availability or over staffing at any point and in any given role. Perceived staffing deficits and overages are first opportunities for resource-leveling and prioritization before taking action to supplement or decrease staffing levels.

The Desert Conservation Program is currently authorized for up to 18 full-time equivalents (FTEs), with 13 FTEs currently filled and 5 FTEs vacant. The Desert Conservation Program strives to achieve a 75 percent utilization rate of staff time to conservation projects and no more than 25 percent to overall administrative efforts such as required county training, departmental efforts such as the safety or time and attendance committees, staff meetings, or employee leave. The Desert Conservation Program is proposing to staff the 2017-2019 Implementation Plan and Budget with the 13 FTEs currently filled. This would leave 5 FTEs vacant and continue the program's vacancy savings of more than $488,159 for the 2017-2019 biennium.

Staff is organized into the following operational units:

- Permit and Plan Compliance. The program maintains a position dedicated to ensure compliance with state and federal permits associated with state and federally-listed species. This area of work focuses on compliance tracking and reporting as outlined in the MSHCP. This position also manages efforts toward amending the MSHCP.
- Finance/Administration. The finance and administrative work consists of overseeing the assessment, collection, and reporting of mitigation fees collected by the permittees; overseeing the reporting of land disturbance and exempt acres; overseeing the budgeting, accounting, and accounts payable areas of operation; and coordinating Southern Nevada Public Lands Management Act assistance agreements and compliance therewith.
- Adaptive Management. The Adaptive Management Program team provides the following:
    - Oversight and project management of Science Advisor, peer reviews, and spatial and statistical analysis contracts;
    - Maintenance and administration of the database containing MSHCP-generated and related spatial and aspatial data;
    - Analysis of land use trends, habitat loss by ecosystem, species and habitat monitoring data, and implementation status;
    - Production of periodic status reports on the Adaptive Management Program;
    - Participation in regional GIS coordination teams and recovery implementation teams;
    - Ensuring availability of MSHCP technical reports to partners and public as appropriate; and
    - Acquisition of best available scientific and commercial data from Desert Conservation Program staff efforts, agencies, consultants and commercial sources to address the above analyses.
- Project/Contract Management. The project/contract management team is responsible for overseeing the procurement, contract and agreement management for the Program, and for providing project management and oversight for all projects, including but not limited to:
    - Boulder City Conservation Easement management

- Wild desert tortoise assistance line
- Fencing (for wildlife and habitat protection)
- Riparian property management
- Other property management (including water rights)
- Information, outreach and education

The project management team is also responsible for communication with related project stakeholders and for identifying, resolving or escalating important project-related issues, and managing the risks and contingencies related to all projects.

- District Attorney. The District Attorney - Civil Division's Office provides a dedicated attorney to provide legal counsel to the Desert Conservation Program in the areas of open meeting law, contract and procurement law, real estate law, and compliance with Section 10 of the Endangered Species Act. Since the Desert Conservation Program receives dedicated and priority support, the Desert Conservation Program funds 50 percent of the salary and benefits for the position and these figures are included in the Desert Conservation Program's salaries and benefits budget.

For the 2017-2019 biennium, the total required salaries and benefits budget is $3,785,076. It is important to note that only a portion, 25 percent or $946,269, of this budget is allocated for general administrative activities and that 75 percent of this budget, or $2,838,807, consists of the staff salaries and benefits dedicated to the direct implementation by staff of 73 existing or proposed conservation projects.

Administrative Budget Amounts in Context

The total recommended Implementation Plan and Budget for 2017-2019 is $11,210,903. County internal service charges, Desert Conservation Program operating expenses, and salaries and benefits for general administration of the program amounts to $1,804,459, or 16.1 percent of the total proposed budget. It should be noted that a total 73 conservation projects totaling $25,903,019 will be administered during the 2017-2019 IPB and that the administrative budget does not roll from biennium to biennium like other projects. When analyzed in this context, the general administration budget of $1,804,459 is 7.0 percent of the total funds being administered during the 2017-2019 IPB.

The remaining $9,406,444 or 83.9 percent of the $11,210,903 budget is comprised of the direct project costs of the proposed conservation projects ($6,567,637) and the Desert Conservation Program staff salaries and benefits to implement the existing and proposed conservation projects ($2,838,807).

### Adaptive Management Review Summary:

This project is not suitable for an adaptive management approach.

### Project Goal(s):

The goal of the administration of the Desert Conservation Program is to implement the MSHCP in a manner that minimizes and mitigates the impacts of take to the maximum extent practicable and to ensure compliance with its associated Incidental Take Permit (TE 034927-0).

**Project Objective(s):**

- Adequately staff the Desert Conservation Program with personnel possessing the skills and qualifications necessary to properly implement the program.
- Provide for County overhead expenses.
- Provide staff with adequate supplies, equipment, and support services to properly implement the program.

**Project Approach:**

Administration of the Desert Conservation Program will be done in accordance with the MSHCP, Incidental Take Permit, and Clark County policy, procedure, and practice. In the past, the Desert Conservation Program outsourced the majority of the work related to implementation of the MSHCP. Over the last four biennia, there has been a shift towards Desert Conservation Program staff taking a much more active role in performing the work necessary to comply with plan and permit requirements. The Desert Conservation Program will continue to use a combination of outsourcing and conducting work in-house to meet program requirements.

**Project Cost:**

| | |
|---|---|
| County Internal Service Charges | $718,505 |
| Operational Expenses | $139,685 |
| Salaries and Benefits for General Administration | $946,269 |
| Salaries and Benefits for Implementation of Conservation Projects | $2,838,807 |
| Total Administration Budget | $4,643,266 |

**Budget Principles Addresses by this Project Concept:**

Principle 1. Permit Condition H and Section 2.1.8.2 of the MSHCP, require the Permittees to carry out the minimization, mitigation, and monitoring measures specified in Section 2.8 of the MSHCP.

# Project Concept 2:
# Adaptive Management Program

## Background and Need for Project:

An Adaptive Management Program is a required element of the MSHCP. The Adaptive Management Program reviews past, current, and ongoing MSHCP activities; makes recommendations for potential projects that would meet MSHCP needs; identifies projects that do not meet MSHCP needs; provides designs for scientifically-sound monitoring protocols that are tailored to MSHCP questions; and helps to adjust currently funded projects to incorporate the best available science as it becomes available. To meet the requirements of this program, Clark County must seek out well qualified scientists and experts who can provide independent technical review of all MSHCP activities. This project will also provide for implementation of the Adaptive Management Monitoring Plan and collection of baseline data within the BCCE and Riparian Reserve Units that can be used to compare against future surveys. Funding would also provide for field testing and refinement of methodology. Results will be used to guide management and restoration actions for the benefit of covered species.

## Adaptive Management Review Summary:

The Adaptive Management Program provides for the review and evaluation of all projects and is therefore a crucial component in adaptively managing all projects for the MSHCP. This project would also provide effectiveness monitoring for both the BCCE and riparian reserve units which will allow for a better understanding of how management actions affect covered species.

## Project Goal(s):

The Adaptive Management Program provides for the use of the best available scientific and technical data to make sound management recommendations for MSHCP implementation, as required by the Section 10 Incidental Take Permit.

## Project Objective(s):

The above goals will be achieved by implementing the following objectives:

- Contract an Independent Science Advisor Panel to provide in-depth advice on potential projects and deliverables, as well as assist with designing new projects and monitoring plans to help ensure an adaptive management approach to all appropriate projects. The Science Advisor Panel will also develop the biennial Adaptive Management Report, which details land use trends, habitat loss by ecosystem, and implementation status.
- Provide for the ability to hire additional contractors or amend current contract(s) to ensure that the best available science is being used for all projects.
- Conduct surveys for the following groups of covered species within the BCCE and test and refine species monitoring protocols, as appropriate:
    - Birds
    - Bats
    - Small mammals
- Conduct surveys for covered riparian bird species on all or a subset of the riparian reserve units.

### Project Approach:

Staff and contractors will be used to perform the above functions using the best available scientific and commercial data. A Science Advisor Panel is currently under contract and a portion of the funding for this project concept would allow for execution of the contract renewal option for the Science Advisor Panel. The remaining funds would go to projects identified by staff and the Science Advisor Panel to enhance the Adaptive Management Program or to adjust ongoing projects so that they are completed using the best available science.

For the BCCE species surveys, methods will be determined through development of the Adaptive Management Monitoring Plan (currently under development) and in collaboration with the Science Advisor Panel. All species surveys will be conducted using established protocols and best available scientific standards.

For the Riparian Reserve Unit baseline surveys, the protocol will be developed by Desert Conservation Program staff in conjunction with the Science Advisor Panel, and may consist of grid inventory, point-count surveys, strip transects, or other survey protocols as deemed appropriate for meeting the goals of the project. The surveys will also include vegetation assessments and will use existing imagery to characterize habitat.

### Project Cost

$861,000.00

### Budget Principles Addressed by this Project Concept

Principle #1. Permit Condition I states that the permittees will ensure that a science based Adaptive Management Program is developed and implemented as specified in the MSHCP. This project is the continuation of the science based approach that was laid out in earlier biennia.

Principle #3 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. During the last biennium 26 acres of desert riparian and 172 acres of mesquite acacia habitat were disturbed.

Principle #4. This project will provide continued funding for the Science Advisor Panel that is currently under contract.

Principle #5. The Adaptive Management Program would address all Biological Goals and Objectives that have been developed. This project will have an effect on all projects that are implemented to achieve the Biological Goals and Objectives for the program.

Principle #6 - Responds to the most recent Science Advisor recommendations. This project was recommended by the Science Advisor Panel for inclusion in the 2017-2019 IPB.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project is pertinent to the MSCHP because it can create measurable outcomes such as number of birds surveyed, number of species present per site, percent of habitat in use, etc.

Principle #9. The Adaptive Management Program will play a role in developing and modifying all projects enacted to address the current program goals for the 2017-2019 biennium.

# Project Concept 3:
# BCCE Management

## Background and Need for Project:

As partial mitigation for the take of desert tortoise and their habitat, the 1995 incidental take permit (Permit Number: PRT-801045) issued to the permittees required that a conservation easement be established in the Eldorado Valley for the protection of the desert tortoise and its habitat. The BCCE was established by agreement between Clark County and the City of Boulder City in July of 1995 to fulfill this requirement of the incidental take permit. This project concept would provide for the continued management of the BCCE, including law enforcement patrols, ongoing site maintenance and upkeep, and weed inventories and treatments.

## Adaptive Management Review Summary:

As this project consists primarily of on-site property maintenance, it does not lend itself to an adaptive management approach. The one exception may be weed control which theoretically could be handled in a few different ways; however, as long as the weeds are controlled in an efficient and cost effective manner the decision on what control measures to implement is probably best left to the professionals implementing the contract.

## Project Goals:

The project goals are to:

- Increase the effectiveness of conservation actions within the BCCE.
- Protect and preserve the desert habitat for the benefit of MSHCP covered species and other native plants and animals.
- Manage the property and public use to meet conservation obligations and legal requirements.
- Deter illegal activities and prohibited uses that occur on the BCCE.

## Project Objectives:

The project goals will be achieved through the following objectives:

<u>BCCE Management</u>

- Review and analyze management actions for consistency with the *BCCE Agreement* (as amended in 2010).
- Review all applications for activities that affect the BCCE and provide approval recommendations to the Plan Administrator. Applications may include rights-of-way projects, events, research and monitoring, and other activities allowable by written permission of the County. Coordinate application reviews with Boulder City and the U.S. Fish and Wildlife Service and monitor permitted project activities and restoration as required by Exhibit D of the *BCCE Agreement*.
- Review and update the *BCCE Management Plan* to reflect current conditions and direction.
- Respond to permittee questions regarding the BCCE and allowable activities.
- Coordinate with Boulder City, neighbors, and other easement holders as needed.

- Review law enforcement patrol reports weekly to determine trouble spots and to make adjustments to patrols.
- Visit the BCCE weekly to monitor and maintain signage, fencing, desert tortoise guards, barriers, and kiosks in good condition.
- Meet on-site at least monthly with the law enforcement patrol officer to review issues and determine solutions to fix identified issues. Issues may include unauthorized off-road travel, dumping, shooting, camping or any other illegal activities that are detrimental to the habitat.
- Develop and deliver information, using brochures, meetings, and videos that help instruct and inform users of the BCCE about authorized activities and how to conserve the habitat and protect the desert tortoise.

BCCE Law Enforcement

- Patrol the BCCE a minimum of 32 hours per week over four days.
- Make contact with all visitors to the BCCE and distribute brochures and maps indicating permitted activities and locations of open roads.
- Allocate additional time to monitor areas of high violations.

BCCE Weed Control

- Conduct annual winter and spring/summer weed surveys and controls by surveying public and private roadsides for non-native vegetation within the BCCE.
- Control incipient occurrences of invasive, non-native vegetation, exclusive of widespread and well-established species.
- Provide annual written summary of activity and recommendations.

BCCE Site Rehabilitation & Cleanup

- Cleanup along roadways, dump sites, and target shooting sites every four months.
- Repair kiosks, fences, and barriers and clean out cattleguards and desert tortoise guards as needed.

### Project Approach:

Staff and contractors will be used to perform the above functions using the best available data. Appropriately certified peace officer personnel will conduct law enforcement activities with possible assistance from other parties. All work will be conducted in accordance with the *BCCE Agreement*, as amended in 2010, and the most updated version of the *BCCE Management Plan*.

### Project Cost:

$420,400.00

### Budget Principles Addressed by this Project Concept:

Principle #1 - Fulfills explicit permit conditions outlined in the current permit. This project fulfills permit condition P, which requires the management of the BCCE to protect and manage the desert tortoise and its habitat.

Principle #3 – Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. The BCCE consists of Mojave Desert Scrub habitat, in which 6,874 acres of this type of habitat was disturbed from 2013 to 2015.

Principle #4 - Provides for continued funding of ongoing and effective conservation measures. This project provides for ongoing management of the BCCE by funding law enforcement, weed management, signage and fencing maintenance, and restoration activities.

Principle #5 - This project addresses objectives D 1.4 Inventory, remove, and control invasive and non-native plant species; D 3.2 promote responsible recreation; and D 3.3 provide law enforcement within the reserve system.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project is pertinent to the MSCHP because it is an explicit permit condition that result in measurable outcomes such as number of patrol hours, number of visitors encountered and number of warning and citations. This information can be compared across months and years to get a picture of activities on the BCCE. Also, with the weed control project we can quantify current acres of weeds, types of weeds and over time, the change in weed populations, and the impact on the habitat.

# Project Concept 4:
# Management of Riparian Reserve Units and Water Rights

## Background and Need for Project:

Condition K of the incidental take permit stipulates that take of covered avian species is conditioned upon the acquisition of private lands in desert riparian habitats along the Muddy and Virgin rivers and the Meadow Valley Wash. To comply with this permit condition, the Desert Conservation Program has acquired properties with riparian habitat along the Virgin and Muddy rivers in Clark County, Nevada. These properties comprise the Muddy River Reserve Unit and the Virgin River Reserve Unit (collectively, the Riparian Reserve Units), part of the overall Clark County Reserve System portfolio, which serves to mitigate impacts to covered species and conserve habitats and important wildlife connectivity corridors.

This project will provide for the continuance of existing property monitoring and maintenance activities and weed treatments within the Riparian Reserve Units. This project will also maintain county water rights in compliance with State Engineer requirements.

## Adaptive Management Review Summary:

As this project consists primarily of on-site property maintenance, it does not lend itself to an adaptive management approach. The one exception may be weed control which theoretically could be handled in a few different ways; however, as long as the weeds are controlled in an efficient and cost effective manner the decision on what control measures to implement is probably best left to the professionals implementing the contract.

## Project Goal(s):

The project goals are to:

- To mitigate impacts to MSHCP Covered Species by providing ongoing monitoring, maintenance, and management of the Riparian Reserve Units. This will ensure the property's value for species covered by the MSHCP and facilitate more successful restoration.
- To maintain Desert Conservation Program's water rights in good standing and allow for acquisition or lease of additional water rights if necessary to support restoration.

## Project Objective(s):

The project goals will be achieved through the following objectives:

<u>Riparian Reserve Units Management</u>

- Review and analyze management actions for consistency with the *Riparian Reserve Units Management Plan*.
- Review and update the management plan to reflect current conditions and direction.
- Respond to permittee questions regarding the Riparian Reserve Units, associated water rights, and allowable activities.
- Maintain property in good condition. Clean trash, dead vegetation, and other debris as necessary.
- Conduct inventories for native and non-native plant species.
- Coordinate with adjacent landowners as needed and maintain good standing with neighbors.

- Review all applications for activities that may affect the Riparian Reserve Units.
- Inspect and repair property improvements (fences, groundwater pump and associated canal and pond, irrigation system, municipal water hookup etc.) on a weekly basis and maintain access roads and trails in good condition.
- Maintain or create fire breaks as needed.
- Develop and deliver information through brochures, websites, meetings, and other methods as appropriate to help instruct and inform the public about the purpose and benefit of the Riparian Reserve Units.

Weed Control

- Conduct semi-annual surveys and control of non-native weed species.
- Control incipient occurrences of invasive, non-native vegetation, exclusive of widespread and well-established species.
- Provide annual written summary of activity and recommendations.

Management of Water Rights

- Maintain existing water rights in good standing.
- Pursue acquisition of additional water rights for habitat restoration as needed.
- Identify water rights appropriate for transfer to other entities and facilitate transfer.

## Project Approach:

Field crews provided by contractors will be used to conduct plant inventories and targeted weed control of invasive species and noxious weeds. Weed control efforts will consist of targeted herbicide spraying. Contractors will be hired to conduct routine property maintenance and to advise the Desert Conservation Program on water rights matters. All work will be conducted in accordance with the most recent *Riparian Reserve Units Management Plan*. Management activities may be conducted on existing properties or properties that may be acquired through the conclusion of the biennium on June 30, 2019.

## Project Cost

$275,600.00

## Budget Principles Addressed by this Project Concept

This project addresses the following budget principles:

Principle #3 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. During the last biennium 26 acres of desert riparian and 172 acres of mesquite acacia habitat were disturbed.

Principle #4 - Provides for continued funding of ongoing and effective conservation measures. This project provides for ongoing management of riparian habitat.

Principle #5 - This project will address Objective R1.2 to maintain suitable breeding habitat for MSHCP-covered birds and R 1.4 inventory, remove, and control invasive and non-native plant species of the Biological Goals and Objectives.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project is pertinent to the MSCHP because Desert Conservation Program staff can create measurable outcomes such as number of site visits, type/extent of weeds removed, etc.

Principle #9 – Address program goals, specifically restoration of desert riparian habitat. Managing invasive plant species on the Virgin River Reserve Unit will allow more native species to populate the property and facilitate the natural restoration of desert riparian habitat.

# Project Concept 5:
# Public Information, Education, and Outreach

## Background and Need for Project:

In accordance with the Clark County MSHCP, the Desert Conservation Program is tasked with administering a public information, education, and outreach program. This program is one of many measures implemented to minimize and mitigate the impacts of take resulting from private land development activities within Clark County. The purpose of the program is to spread the message of conservation and responsible desert use throughout the community.

## Adaptive Management Review Summary:

While the methods for this have been refined throughout the years it would be good to develop some effectiveness monitoring for this program to determine if the those methods are having an impact on the intended goal to encourage respect, protection, and enjoyment of the natural ecosystem. This is something that should be discussed with the science advisor and marketing firm to determine if there is a way to test the effectiveness of this project at meeting its goals.

## Project Goal(s):

The goals of the public information, education, and outreach program are to:

- Inform people of the purpose of the Clark County MSHCP and the roles and functions of the Desert Conservation Program.
- Encourage the community to respect, protect, and enjoy the desert.
- Increase public understanding of the value of Clark County's natural ecosystems.

## Project Objective(s):

Efforts during the 2017 -2019 biennium will include:

- Mojave Max Emergence Contest and Education Program. The Mojave Max Education Program provides assembly and classroom presentations to thousands of Clark County school children each year to educate students about desert tortoise biology, Mojave Desert weather, and the value of conserving the desert. The culmination of the Education Program is the Mojave Max Emergence Contest, where Clark County students are invited to guess when Mojave Max will emerge from brumation at the Red Rock Canyon National Conservation Area. This project will provide funding for the continuation of the Mojave Max Education Program, administration of a contract for implementation of educational components and support of the emergence contest and winner's field trip, and support the emergence contest and education program through supplemental Mojave Max mascot appearances, printed materials, products, website administration, and advertising.
- Mojave Max Mascot Appearances. Provide funding for Mojave Max appearances at various community outreach events.
- Advertising Fees. Develop and produce advertisements via radio, print, or television regarding responsible desert use and messages regarding "Stay on the Trail".
- Mojave Max Livestream Camera. Provide funding for the continued operation of a live-streaming video of the Mojave Max habitat at Red Rock Canyon National Conservation Area.
- Promotional Materials and Giveaways. Provide funding for promotional items and giveaways. Giveaways are used at the Mojave Max assemblies for students who answer quiz questions correctly and also at community outreach events.
- Production of Brochures and Other Informational Materials. Develop, produce, and distribute printed materials such as Mojave Max Emergence Contest Brochures, Mojave Max bookmarks,

Mojave Max coloring books, printed materials, and reserve unit brochures. Provide additional public information and education support as needed for other projects such as administration, desert tortoise monitoring, and reserve area management.

**Project Approach:**
Historically, Clark County has contracted with various agencies and companies to complete projects that fall within the Public Information, Education, and Outreach Program, as well as conducted some of the work with County staff. It is the County's intent to continue this process to successfully develop and implement this program. Educational efforts target specific interest groups, children, and the general public.

**Project Cost:**
$401,406.00

**Budget Principles Addressed by this Project Concept:**
This project addresses the following budget principles:

Principle #1 - Fulfills explicit permit conditions outlined in the current permit. This project fulfills permit conditions H and Section 2.8.3.4 of the MSHCP, which requires the Desert Conservation Program to focus on appropriate methods to implement public outreach.

Principle #2 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is currently occurring and those species impacted. Activities such as construction and recreation are ongoing. Providing program information and responsible use messages continues to be an important mitigation measure.

Principle #3 - Provides for continued funding of ongoing and effective conservation measures. This project provides for ongoing public information and education to inform the public of the terms of the Section 10(a)(1)(B) incidental take permit; encourage respect, protection and enjoyment of natural ecosystems in Clark County.

Principle #5 - This project addresses objective D 3.2 of the Biological Goals and Objectives by helping to promote responsible recreation through education.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project measures number of students and teachers educated each year as well as number of people reached through outreach activities.

# Project Concept 6: Current Status and Conservation Knowledge Reports for State-listed Plants

## Background and Need for Project:

The Nevada Division of Forestry performs administrative and regulatory actions involving state-protected plants. The Nevada Division of Forestry State Forester Firewarden has an established list of "fully protected" native plant species (NAC 527.010) that are critically endangered and threatened with the potential to become extinct within the state of Nevada. Fully protected native plant species require a special permit from the State Forester Firewarden for their removal or destruction from both public and private lands. The Desert Conservation Program is currently pursuing a new permit with the State Forester Firewarden that would provide removal/disturbance authorization for all fully protected flora species in the county (with the exception of unusual catseye [*Cryptantha insolita*], which is presumed extinct). Completion of Current Status and Conservation Knowledge Reports is a required condition for the issuance of the master permit currently under negotiation. These reports will address the following fully protected flora species:

- Las Vegas bearpoppy (*Arctomecon californica*)
- Threecorner milkvetch (*Astragalus geyeri* var. *triquestrus*)
- Blue Diamond cholla (*Cylindropuntia multigeniculata*)
- Sticky buckwheat (*Eriogonum viscidulum*)

Entities tasked with the conservation and protection of rare plant species, such as the Nevada Division of Forestry and the Clark County Desert Conservation Program, require the most current and comprehensive data available to make informed management decisions. However, the current status of state-listed plant populations within Clark County is largely unknown. New survey information –which will be gathered as a result of the work proposed in Project Concept 13: Rare Plant Surveys– must be compiled with existing population data from multiple sources and synthesized into comprehensive species status reports.

Completion of this project is contingent upon the successful negotiation and execution of the master permit.

## Adaptive Management Review Summary:

This purpose of this project is to establish current baselines for these species, what threats they may face, and how to better conserve them. These data are necessary to implement adaptive management in the future because baseline data is needed to detect changes to the species status based on the management actions that were implemented.

## Project Goal(s):

The goal of this project is to compile background information about the species to give a clear understanding of the ecological requirements, habitat requirements, historical range in Clark County, current threats and impacts, and predicted threats and impacts under proposed development scenarios. Additionally, the reports will serve as knowledge assessment to evaluate and compile available data sources for current and former population sites.

**Project Objective(s):**

- Gather data from all applicable organizations having information about the location, range, abundance, threats, and impacts to Nevada fully protected flora.
- Synthesize status reports for each of the Nevada fully protected plant species in Clark County.

**Project Approach:**

Current Status and Conservation Knowledge Reports will be developed for each of the four state-listed plant species located within Clark County. One or more vegetation specialists will be contracted to implement the project with Nevada Division of Forestry providing access to records, resources, and assistance as needed. The reports and datasets will include the following information:

- Ecological descriptions and habitat characteristics
- Current and former ranges linked with geospatial datasets
- Compilation of known occurrence data, including identifying data sources currently unknown or not submitted to the Nevada Natural Heritage Program databases
- Identification of current threats to known populations and threats to potential habitat
- Interpretations of current population health
- Assessments of the effectiveness of current and former conservation activities in protecting populations and preventing decline in species ranges
- Recommendations for future conservation needs
- Identification of future data needs

**Project Cost:**

$60,000.00

**Budget Principles Addressed by this Project Concept:**

This project addresses the following budget principles:

Principle #1 - Fulfills explicit permit conditions outlined in the Section 10 Incidental Take Permit. This project fulfills permit condition H which requires the Permittees to carry out minimization, mitigation, and monitoring measures for covered species.

Principle #2 - Responds to recommendations from the Nevada Division of Forestry for actions to mitigate impacts to fully protected flora species. This project is explicitly requested by Nevada Division of Forestry as a condition of issuing a master permit and will support the goal of mitigating impacts to fully protected flora species.

Principle #3 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. This project will assess past impact to listed plant species and will compile information to minimize future impact on those species.

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project supports Objectives D1.2 and D1.3 by helping to locate and maintain intact existing habitat and protect and conserve habitat for covered plants.

Principle #8 - Advances the amendment of the MSHCP and its conservation strategy. This project will help the Desert Conservation Program to revise the conservation strategy to improve mitigation effectiveness and accountability by identifying areas where covered species exist or have the potential to exist.

Principle #9 - Addresses program goals that have been identified for the 2017-2019 biennium. This project will address the goal of better understanding the status of Nevada fully protected flora.

# Project Concept 7:
# Desert Tortoise Translocation

## Background and Need for Project:

While recent research on translocation has provided useful insight, results are currently only available for periods less than five years. Since it can take over 20 years for newborn tortoises of translocated animals to reach sexual maturity it will take at least that long to evaluate the usefulness of translocation as a recovery tool. Along with the time aspect of the problem there are also various risks that have not been fully evaluated, and long-term success has not been documented. We do not fully understand the long-term impacts of translocation, including for example, altered disease dynamics or changes to effective population size. By continuing studies of previous translocation sites we can begin to expand our knowledge of these issues.

## Adaptive Management Review Summary:

This project is ideal for an adaptive management approach. There are many uncertainties that still need to be addressed, especially considering the long lifespan of tortoises. There are plenty of opportunities to adjust conservation strategies as a large portion of development in Clark County occurs within the range of the tortoise.

## Project Goal(s):

The goals of this project are to continue to assess the state of translocated populations of desert tortoises to better inform future translocation efforts and to assist in identifying new translocation sites.

## Project Objective(s):

The objectives of this project are:

- To gather an additional year of survey data at one or more of the following translocation sites: Eldorado Valley, Trout Canyon, and/or the BCCE.
- Collect health assessment data on translocated and resident tortoises at one or more translocation sites.
- Identify new sites that are suitable for future translocations.

## Project Approach:

The Desert Conservation Program will continue to coordinate with the Desert Tortoise Recovery Office in conducting activities related to translocation of desert tortoises. These projects may use a combination of line distance sampling, radio telemetry, and/or health assessments to answer questions related to the long-term consequences of translocation. Final study designs will be coordinated with the Desert Tortoise Recovery Office and will be determined based on questions addressed by each study and on what will yield the most pertinent information. Projects will focus on looking at population changes, mortality, disease prevalence, and movement patterns and how effective translocation is at augmenting populations overtime.

## Project Cost

$642,071.00

### Budget Principles Addressed by this Project Concept

Principle #5 - This project would address the Biological Goal and Objective D 2.1 to monitor and adaptively manage for desert tortoise populations, and D 2.2 to augment populations through translocation programs when appropriate. This project will inform future translocation as well as identify new locations where translocation could occur.

Principle #9 - This project addresses the program goal of augmentation of desert tortoise populations. It will allow for a better understanding on how translocated tortoises interact with their environment as well as locate new areas suitable for translocation.

# Project Concept 8:
# Fencing Installation and Maintenance

## Background and Need for Project:

The installation, maintenance, and monitoring of desert tortoise exclusionary fencing is identified as a priority recovery action in the *Revised Recovery Plan for the Mojave Population of the Desert Tortoise* (U.S. Fish and Wildlife Service 2011). Fencing of roadways and construction projects prevents mortality of desert tortoise and other wildlife. Fencing may also be used to prevent trespass of livestock and unauthorized persons into sensitive habitats, such as restoration areas.

## Adaptive Management Review Summary:

While fencing is a management action, the methods for this management action are well defined and thus this project would not be a candidate for an adaptive management strategy.

## Project Goal:

The goal of this project is to install, maintain, and/or monitor fencing for the protection of wildlife and habitats throughout Clark County, Nevada.

## Project Objective:

This project will provide for fencing to protect desert tortoises and other species covered under the MSHCP, as well as for the protection of restoration areas and other sensitive habitats. The project goals will be achieved through implementation of the following objectives:

- Monitor, Maintain, and Repair Existing Roadway Fencing. To date, over 400 miles of desert tortoise exclusionary fencing has been installed along roadways in Clark County as partial mitigation for take of MSHCP covered species. Weather events, vandalism, and wildlife damage over time has resulted in degradation of the fence.
- Install New Fencing. Additional fencing may be installed within Reserve Units and other sites as appropriate, to protect sensitive habitats and restoration sites from unauthorized use and/or trespass livestock.

## Project Approach:

We will use construction contractors with previous experience in constructing wildlife fencing to construct fences. We may also use contractors to conduct inspections of existing desert tortoise exclusionary fencing. Field crews will be hired as needed to make minor repairs to fencing, and note where major repairs are needed. Field crews may also remove ineffective fencing and collect additional data (such as culvert and/or wash locations and size). Data on culverts and washes may be used to complement a separate study on desert tortoise habitat connectivity. All repairs and/or new fence installation will be documented by GPS data loggers or by photographs.

## Estimated Project Cost:

$45,000.00

**Budget Principles Addressed by this Concept:**
This project addresses the following budget principles:

Principle #1 - Fulfills explicit permit conditions outlined in the current permit. Permit Condition N requires the permittees to retrofit, repair, and construct desert tortoise fencing along highways and roads within Clark County. This project concept fulfills Permit Condition N.

Principle #3 - Provides for continued funding of ongoing and effective conservation measures. Desert tortoise exclusionary fencing and other wildlife fencing is an established, effective measure to reduce mortality of sensitive species and provide for the protection of sensitive habitats. This project would provide funding to increase the amount of wildlife fencing within Reserve Units and provide for ongoing maintenance and repair of existing fencing throughout Clark County.

Principle #5 - This project will address the objective D 1.2 of the Biological Goals and Objectives by helping to maintain intact functional habitat by blocking entry to illegal off-road activities. This project may also address R 1.3 as it will be used to protect areas that have recently been restored.

# Project Concept 9:
# BCCE Restorations

## Background and Need for Project:

The BCCE is primarily characterized by Mojave Desert scrub and was acquired by Clark County to protect habitat for the desert tortoise. Unfortunately, trespass incidents occur on the BCCE and these incidents can result in loss and reduction of habitat quality. Succession in the desert is an extremely slow process, so active revegetation and other management strategies are required to accelerate restoration. This project would provide funding to conduct a seeding study which will evaluate the effectiveness of two different seeding methods in restoring desert upland habitats. Additional restoration projects within the BCCE will lead to the closing of roads, resolution of trespass incidents, and general improvement of desert upland habitat.

## Adaptive Management Review Summary:

This project has been designed with an adaptive management approach. The seeding study results will be monitored for several years into the future to detect any differences in the management strategies on the BCCE.

## Project Goal(s):

Implement restoration projects that contribute to improving desert upland habitat by removing evidence of disturbance and reestablishing ecosystem functions.

## Project Objective(s):

- Compare the success of bare seed versus pelletized seed on closed Route K-2 using an experimental design, and close access points to the route.
- Restore the “pit stop” area, close access points on adjoining routes, and repair damage to the associated turn-around structure.
- Restore and close access points to the decommissioned routes labeled as 9, 10, and 11.
- Repair areas where previously completed restorations have been damaged by trespass of motorized vehicles. A portion of the funding for this work will be provided via fees paid to the Desert Conservation Program as settlement for unauthorized use of a road previously designated as closed.

## Project Approach:

The Desert Conservation Program will work with the Bureau of Land Management to execute the following restoration projects on the BCCE:

- K-2 road closure and seeding study – The road surface will be decompacted or roughened as needed, and gravel and rock will be added to mimic the surrounding habitat. The road will be split into 24 treatment areas; one third of these will be seeded with bare seed, one third will be seeded with pelletized seed, and one third will be left unseeded to serve as a control. The ground will then be raked to lightly cover seeds with soil. Seed mixes will consist of species that are indigenous to the immediate project area. Access points to route K-2 will be closed off through the use of “end caps,” which include revegetation with native shrubs and succulents and the use of vertical mulch. Shrubs and succulents planted in the end caps will be watered every two weeks for the first two months, then once every month for the next

ten months. A turn-around structure made of large boulders will be constructed at the western end of the restored route to discourage trespass while maintaining access to the adjacent weather station and utility tower.

- Pit stop restoration – The "pit stop" and its adjoining routes are part of a decommissioned race track that continues to be used occasionally and therefore has not been reclaimed through natural revegetation. Access to this area was closed in 2014 by the construction of a turn-around and revegetation, both of which have since been destroyed. The pit stop and adjoining routes will be decompacted or roughened as needed, and native seed will be applied. Access to routes from authorized roads will be closed off through the use of "end caps," which include revegetation with native shrubs and succulents and the use of vertical mulch. Shrubs and succulents planted in the end caps will be watered every two weeks for the first two months, then once every month for the next ten months. The damaged turn-around will be reconstructed with larger boulders to discourage further trespass.
- Close Routes 9, 10, and 11 – The surface of these routes will be decompacted or roughened as needed, and native seed will be applied. The access point to route 10 and the intersection of routes 9, 10, and 11 will be camouflaged through the use of end caps. Shrubs and succulents in the end caps will be watered every two weeks for the first two months, then once every month for the next ten months.
- Repair of damaged restoration areas – To date, all restoration activities on the BCCE have addressed the closure of decommissioned roads through the use of end caps. The damaged restoration areas addressed here are end caps (and closed roads in the process of being reclaimed) which have been trespassed by motorized vehicles. Each end cap will be revegetated using native shrubs and succulents in quantities and densities deemed appropriate to camouflage the restoration sites with the surrounding landscape. The newly planted vegetation will be watered every two weeks for the first two months, then once every month for the next ten months.

### Project Cost
$122,276.00

### Budget Principles Addressed by this Project Concept
This project addresses the following budget principles:

Principle #1 - Fulfills explicit permit conditions outlined in the Section 10 Incidental Take Permit. Contributes to the explicit permit conditions outlined in the current permit for management of the BCCE through enhancement of permit condition P (requires the management of the BCCE to protect and manage the desert tortoise and its habitat) by improving habitat conditions.

Principle #3 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. Habitat at the BCCE is maintained and restored as mitigation for the take of desert tortoises and their habitat through development activities authorized by the Incidental Take Permit.

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project supports Objectives D1.2,

D1.5, and D4.1 by restoring desert tortoise habitat while identifying and addressing uncertainties in restoration.

Principle #6 - Responds to the most recent Science Advisor recommendations. Desert upland restoration was recommended for inclusion in the 2017-2019 Budget by the Science Advisor Panel.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project will have measurable outcomes in the form of acres of restored desert tortoise habitat.

Principle #9 - Addresses program goals for the 2017-2019 biennium. This project addresses the goal of restoration of desert tortoise habitat.

# Project Concept 10:
# Riparian Restoration

## Background and Need for Project:

Condition K of the incidental take permit stipulates that take of covered avian species is conditioned upon the acquisition of private lands in desert riparian habitats along the Muddy and Virgin rivers and the Meadow Valley Wash. To comply with this permit condition, the Desert Conservation Program has acquired properties to assemble the Riparian Reserve Units.

Under this project, the Desert Conservation Program will restore, create, and enhance habitat within the Riparian Reserve Units for the benefit of covered riparian bird species. Restoration efforts on the Muddy and Virgin River Reserve Units are ongoing and habitat has been enhanced through fuel reduction, removal of non-native species, and planting of native species. This project will continue the work begun in previous biennia by conducting additional restoration efforts on the Muddy and Virgin River Reserve Units. Activities carried out under this project may be conducted on the following existing properties: Clark County Muddy River Reserve Unit parcels A through I and Virgin River Reserve Unit, subunits 1 and 2, as well as other riparian properties that may be acquired through the conclusion of the biennium on June 30, 2019.

## Adaptive Management Review Summary:

This project will build on restoration work that was completed previously on the Virgin River and will use the lessons learned from the previous restoration to make informed decisions about future restorations. This project is the continuation of an adaptive management approach that was implemented in a previous biennium.

## Project Goal(s):

The goal of this project is to create, restore, and enhance riparian habitat to benefit covered riparian birds.

## Project Objective(s):

The project goal will be achieved through implementation of the following objectives:

- Remove up to 60 acres of tamarisk and other invasive non-native species on the Muddy and/or Virgin River Reserve Units.
- Create, restore, and enhance up to 40 acres of riparian habitat within the Virgin River Reserve Unit to increase suitable nesting habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and other covered riparian birds.
- Create, restore, and enhance up to 40 acres of mesquite/acacia habitat within the Muddy and Virgin River Reserve Units to benefit covered bird species.

## Project Approach:

Activities will be split into three main tasks:

- Site planning and preparation, which may include but is not limited to, plant collection/propagation/acquisition, nursery development, nonnative species removal, and planting area preparation.

- Restoration activities, which may include but are not limited to, active revegetation, irrigation installation, and municipal water use.
- Post-planting watering and monitoring, which may include but is not limited to, irrigation maintenance, plant monitoring, nonnative species removal, and municipal water use.

This project will include developing and implementing restoration plans and grading plans for priority restoration sites, and monitoring and adaptive management of restored habitats. Field crews provided by contractors will be used to clear tamarisk and other invasive vegetation, treat tamarisk cut stumps, plant native riparian trees and vegetation, and install fencing.

**Project Cost:**
$378,156.00

**Budget Principles Addressed by this Project Concept:**
This project addresses the following budget principles:

Principle #3 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. During the last biennium 26 acres of desert riparian and 172 acres of mesquite acacia habitat were disturbed.

Principle #4 - Provides for continued funding of ongoing and effective conservation measures. This project provides for ongoing management of riparian habitat.

Principle #5 – This project addresses the objectives R 1.2, R 1.3, R1.4, and R 1.5 of the Biological Goals and Objectives by performing restoration activities that will create bigger patch sizes and more breeding habitat for riparian bird species as well as work to restore the natural floodplain.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project is pertinent to the MSCHP because Desert Conservation Program staff can create measurable outcomes such as acres of riparian habitat restored.

Principle #9 – Address program goals, specifically restoration of desert riparian habitat. Managing invasive plant species on the Virgin River Reserve Unit will allow more native species to populate the property and facilitate the restoration of desert riparian habitat.

# Project Concept 11:
# Rare Plant Surveys

## Background and Need for Project:

Current information concerning the distribution and abundance of rare plant species in Clark County is lacking. This project will focus on conducting surveys for state-listed plants, and plant species proposed for coverage under the MSHCP amendment, in undersurveyed areas of the county. High priority will be given to areas that may be impacted by development or areas identified through the Covered Species Analysis Support project. Surveys conducted for this project will provide MSHCP permittees and land managers with current data concerning the distribution and abundance of rare plant species within the county. Existing habitat models for target species will also be strengthened with additional data. As a result, the permittees will be better equipped to manage rare plant habitat.

## Adaptive Management Review Summary:

This project will add to the baseline data we have for these species and will be used in future projects to judge the effectiveness of different management strategies under an adaptive management approach.

## Project Goal(s):

The goal of this project is to conduct field surveys and gain information concerning the current status of rare plant populations within Clark County. Undersurveyed areas, state-listed plants, and plant species being considered for coverage under Permit amendment will be the primary focus.

## Project Objective(s):

1. Identify areas of high survey priority based on presence or absence of previous survey information in combination with current land status and habitat prediction models where available.
2. Perform rare plant surveys during the 2018/2019 growing season.

## Project Approach:

We will collaborate with The Nevada Division of Forestry to determine the scope and scale of the survey effort to be implemented. Survey methods may include strategically placed one hectare plots and 100% survey coverage, belt transects, or grid transects. Incidental detection of any target species will also be reported. Funding provided by Nevada Division of Forestry will be combined with Section 10 funds to execute these surveys.

## Project Cost:

$268,000.00

$68,000.00 of this cost will be contributed by Nevada Division of Forestry

## Budget Principles Addressed by this Project Concept:

Principle #1 - Fulfills explicit permit conditions outlined in the Section 10 Incidental Take Permit. This project fulfills permit condition J.4 (conservation of low elevation plant species covered by the Permit).

Principle #2 - Responds to recommendations from the Nevada Division of Forestry for actions to mitigate impacts to fully protected flora species. This project has been explicitly requested by Nevada Division of Forestry and will support the goal of mitigating impacts to fully protected flora species by identifying areas where populations of such species exist.

Principle #3 - Focuses on mitigation and minimization actions that have a rational nexus to the level and impact of take that is occurring and those species impacted. This project will focus on minimization actions by providing information as to where protected plant species are located. Areas where these species are located can then be avoided during land disturbing activities.

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project will support objective D 1.2 and D 1.3 by helping to locate and maintain intact existing habitat and protect and conserve habitat for covered plants.

Principle #8 - Advances the amendment of the MSHCP and its conservation strategy. This project supports advancement of the amendment by identifying areas that are suitable for future development as well as those that are not.

Principle #9 - Addresses program goals for the 2017-2019 biennium. This project addresses the goal of establishing an inventory for Nevada fully protected flora.

# Project Concept 12: Evaluating Desert Tortoise Habitat Restoration Methods in the Mojave Desert

## Background and Need for Project:

Two substantial threats to desert tortoise populations are habitat alteration and habitat loss. Recovery for this species requires habitat conservation, enhancement, and restoration. Many habitat improvement techniques are untested for their effectiveness as recovery actions for the desert tortoise. This project will fund a thorough investigation of the existing science behind restoration for desert tortoise recovery and help identify areas where more research is needed.

## Adaptive Management Review Summary:

This project is set up to aid an adaptive management approach to Mojave Desert restoration. This project will identify key uncertainties with restoration and test them either through adaptive management or research. This will greatly enhance our adaptive management approach moving forward.

## Project Goal(s):

Improve the success of future management actions aimed at desert tortoise habitat improvement by gathering information from literature and leading experts and identifying areas where more research is needed.

## Project Objective(s):

- Conduct a comprehensive literature review on the topic of desert tortoise habitat restoration in the Mojave Desert.
- Host a workshop with leading experts to evaluate the current state of knowledge regarding restoration of desert tortoise habitat and conducting effectiveness monitoring.
- Identify uncertainties in the science and develop a list of research priorities.

## Project Approach:

An extensive literature review (including grey literature and consultant reports) will be conducted on the topics of desert tortoise habitat restoration and effectiveness monitoring. The experimental designs of previous studies will be evaluated to make sure strong inference can be made from available data. Leading experts in the field of desert tortoise habitat restoration will be invited to participate in a two-day workshop hosted by the Desert Conservation Program. Over the course of these two days, discussions will be held to evaluate the current state of knowledge regarding restoration of desert tortoise habitat and effectiveness monitoring. A summary document and list of research needs will be developed. Implementation of research projects will be contingent upon available funding.

## Project Cost:

$350,000.00

**Budget Principles Addressed by this Project Concept:**

Principle #1 - Fulfills explicit permit conditions outlined in the Section 10 Incidental Take Permit. This project supports fulfillment of permit conditions H (minimization, mitigation, and monitoring) and I (science based adaptive management)

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. Supports achievement of upland desert habitat restoration through advancement of knowledge within the academic and land management communities. This project addresses objectives D 1.2, and D 4.1 by restoring degraded habitat as well as identifying the critical uncertainties that go along with restoration.

Principle #9 - Addresses program goals. This project addresses the goal of restoration of desert tortoise habitat.

# Project Concept 13:
# Assessment of Desert Tortoise Guards

## Background and Need for Project:

This project will assess the effectiveness of the Bureau of Land Management desert tortoise guard design. Desert tortoise fencing is used to create barriers to tortoise movement onto roads, highways and project work areas. However, fencing projects include access points for roads and work areas and tortoises often enter into unsafe areas via these gaps in the fencing. Typically gates are used to prevent tortoise access but these gates can be accidentally left open or become damaged over time. Several types of tortoise guards have been used as an alternative to gates and the U.S. Fish and Wildlife Service is often contacted for a recommendation. The Bureau of Land Management has recently developed a permanent design consisting of parallel I-beams buried to road level and tied into tortoise fencing. No assessment has been performed to determine if tortoises can cross them or if they become trapped in the space between the beams.

## Adaptive Management Review Summary:

This project will act as effectiveness monitoring for an already widely used management practice. The practice of using these desert tortoise guards has never been evaluated due to the difficulty of finding a tortoise that is trying to cross. This project would aid in informing the Adaptive Management Program and the tortoise community on whether this widely used management action is indeed effective at safely stopping tortoise from crossing roadways.

## Project Goal(s):

To determine if the Bureau of Land Management-designed desert tortoise guards are effective and what potential negative impacts the use of the guards may have on desert tortoises.

## Project Objective(s):

The specific objectives of the study are to determine:

- If the desert tortoise can cross the guards; and
- Whether or not the desert tortoise can become trapped in the space between the beams of the guards.

## Project Approach:

Desert tortoise guards will be constructed in a location within pens that can hold one or several desert tortoises. Any attempts to cross will be documented. Entrapment of individuals will also be noted as well as the circumstances that led to entrapment (e.g., size class of tortoise, design features that facilitated entrapment, etc.). Wildlife cameras may also be used at various locations *in situ* to document effectiveness of the guard in deterring tortoises from crossing. This project will examine the effectiveness of the desert tortoise guard design for a variety of tortoise size classes (hatchling through adult-sized tortoises, depending on availability of research animals). Project activities will be monitored very closely to ensure safety of all animals used in the study.

## Project Cost:

$150,000.

**Budget Principles Addressed by this Project Concept:**
This project addresses the following budget principle:

Principle #1 – Fulfills explicit permit conditions outlined in the Section 10 incidental take permit. Permit condition N requires the permittees to construct desert tortoise proof fencing along highways and roads within Clark County. To ensure the effectiveness of desert tortoise proof fencing, an adequate crossing structure is needed to prevent the movement of tortoises into areas that are unsafe (e.g., roads, construction sites, etc.). This project will assess the effectiveness of a current design in meeting this objective.

Principle #5 - This project would address the Biological Goal and Objective D 2.1 to monitor and adaptively manage for desert tortoise populations. This project will look to determine the viability of current management actions and determine if changes need to be made to the current standards.

# Project Concept 14:
# "To the Max" Campaign

## Background and Need for Project:

The Mojave Max Education Program has been a successful conservation action for more than 15 years. This program targets elementary-school aged children to spread the message of respect, protection, and enjoyment of the Mojave Desert. Through a project approved in the 2015-2017 Implementation Plan and Budget, the Desert Conservation Program has developed a new marketing campaign strategy that leverages the brand recognition of Mojave Max to promote responsible desert use and recreation to a wide range of age groups and demographics in Clark County. Through a multi-pronged marketing approach, the implementation of this strategy has the potential to increase awareness of the value of the County's open desert landscapes and promote responsible recreation that reduces impacts on the fragile desert ecosystem. Other potential benefits of this project include increasing awareness of the Desert Conservation Program and the service that we provide to the development community, promoting the Wild Desert Tortoise Assistance Line and the reporting of desert tortoises located on construction sites, and increasing awareness of the value of a regional mitigation program. This project concept would carry forward the marketing strategy developed under a previous project concept and would include implementing the campaign via placement of advertising through traditional and non-traditional mediums, increased social media presence and outreach, development of a website targeted at different user groups, and development of programs that will engage the community and promote responsible use and conservation.

## Adaptive Management Review Summary:

This project could use an adaptive management approach where different marketing messages and/or strategies are used and tested for effectiveness based on an increase in Mojave Max related events and/or social media sites.

## Project Goal(s):

The goals for this project are to:

- Educate and inform the Clark County community of the value of our desert landscapes and promote conservation and responsible use of the desert.
- Promote the Wild Desert Tortoise Assistance Line within the construction community and increase the number of desert tortoises recovered from active construction sites.
- Increase awareness of the Desert Conservation Program and the service provided to the development community.
- Increase awareness of the value of a regional conservation program.
- Increase awareness of Mojave Max and the connection to the Desert Conservation Program.

## Project Objective(s):

- Implement media outreach and awareness campaign via print, radio, and television advertisements and through other non-traditional mediums and grassroots efforts.
- Expand social media presence and engagement with the community through social media.
- Create and publish a new website that will be used to communicate the vision of the Desert Conservation Program to its respective segmented audiences.

- Update and/or create new educational and informational materials.
- Spread the message of conservation through development of innovative programs that engage the community.

**Project Approach:**
The Desert Conservation Program will continue to work with the consultant who is currently developing the marketing strategy and new brand identity for the program. The consultant will be responsible for coordinating media buys for advertisement placement and development of a website and informational materials, and identifying opportunities for grassroots promotion of the program's values.

**Project Cost:**
$600,000

**Budget Principles Addressed by this Project Concept:**
Principle #1 - Because the Desert Conservation Program is responsible for administering a public information and education program, this project would fulfill explicit conditions outlined in the Section 10 Incidental Take Permit The purpose of the public information and education program is to spread the message of conservation and responsible desert use throughout the community.

Principle #5 - This project addresses objective D 3.2 and D 3.4 of the Biological Goals and Objectives by promoting responsible recreation through education and educating construction personnel about procedures for reporting desert tortoises.

# Project Concept 15: Off-highway Vehicle (OHV) Registration Program Marketing

## Background and Need for Project:

The Nevada Commission on OHVs was established on July 1, 2011 to promote the safe and responsible use of Nevada's outstanding opportunities for off-road recreation. As mitigation under a proposed amendment to the Clark County MSHCP, the Clark County Desert Conservation Program provided funding to cover start-up costs for the OHV Commission and to fund initial restoration projects. Additional funding for the OHV Commission is generated through the OHV Registration Program. Funds generated through this program are used to administer the OHV Commission, provide for law enforcement, and to administer a grant program that provides for trail construction, signage, education, safety training, and restoration. Funding for the OHV Commission grant program relies on revenues generated by the OHV Registration Program. Currently, approximately 10 percent of OHV users in Clark County are estimated to have registered their OHVs

To further support the OHV Commission, and to assist in ensuring the success of the grant program, the Desert Conservation Program and the OHV Commission have entered into an Interlocal Agreement for the purpose of jointly executing a project to develop and implement a marketing strategy that promotes the OHV Registration Program. This project would provide funding to renew the contract for marketing strategy development and implementation for a two-year period.

## Adaptive Management Review Summary:

This project could benefit from an adaptive approach. It would be easy to monitor the response in registrations based on different marketing strategies and adjust accordingly. This may require collaboration between the Science Advisor Panel and marketing firm to try and answer this question.

## Project Goal(s):

The goal of this project is to increase awareness of the OHV Registration Program throughout Nevada.

## Project Objective(s):

- Implement media outreach and awareness campaign via print, radio, and television advertisements and through other non-traditional mediums.
- Produce a variety of informational material that explain the OHV Commission, the OHV Registration Program, and the benefits of registering OHVs in Nevada. Distribute materials to members of the public through placement at OHV retailers, the Department of Motor Vehicles, community events, and OHV events.
- Develop and maintain a website that provides the public with information about the OHV Commission, the Registration Program, where to ride in Nevada, and promotes responsible OHV use.

## Project Approach:

The Desert Conservation Program will continue to work with the consultant who is currently developing the marketing strategy for the OHV Registration Program. The consultant will be responsible for coordinating media buys for advertisement placement and development of a website and informational materials, and for developing a social media outreach strategy.

**Project Cost:**
$200,000

**Budget Principles Addressed by this Project Concept:**
Principle #1 - Because the Desert Conservation Program is responsible for administering a public information and education program, this project would fulfill explicit conditions outlined in the Section 10 Incidental Take Permit.

Principle #5 - This project addresses objective D 3.2 of the Biological Goals and Objectives by promoting responsible recreation through education.

# Project Concept 16:
# Tule Springs Fossil Beds National Monument Boundary Fencing

## Background and Need for Project:

This project will provide funding to install approximately 5 miles of post and cable fencing with desert tortoise exclusion fencing, within the National Park Service's Tule Springs Fossil Beds National Monument. The 5-mile section of post and cable fencing would reduce unauthorized use and access to sensitive habitats and restoration areas. Desert tortoise exclusion fencing would be installed in conjunction with the post and cable fencing to protect desert tortoise from crossing U.S. Highway 95. Desert tortoise exclusion fencing would be collocated with the post-and-cable fencing for a total approximate fence length of 5 miles. The fencing would be located on the western side of the Tule Springs Fossil Beds National Monument lands and the eastern side of U.S. Highway 95.

## Adaptive Management Review Summary:

While fencing is a management action, the methods for this are well defined and thus would not be a candidate for an adaptive management strategy.

## Project Goal:

The goal of this project is to reduce unauthorized use and access to sensitive habitats and restoration areas and protect desert tortoises from crossing U.S. Highway 95.

## Project Objective:

- Conduct analysis of project in accordance with requirements under the National Environmental Policy Act (NEPA).
- Consult with U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act to obtain a Biological Opinion.
- Install approximately 5 miles of post and cable fencing along western edge of Tule Springs Fossil Beds National Monument.
- Install approximately 5 miles of tortoise fencing along western edge of Tule Springs Fossil Beds National Monument.
- Install desert tortoise guards along key access points.

## Project Approach / Methods:

We will contract an Environmental company to prepare documents in accordance with NEPA, including any associated biological and cultural surveys, and Section 7 consultation. Once all NEPA and Section 7 requirements are completed, we will contract a fencing contractor for installation of the fence. It is anticipated that several tortoise guards would be installed. We will work with contractors to evaluate possible installations for maintaining tortoise connectivity. An environmental firm may be used during construction to provide Authorized Desert Tortoise Biologist(s).

## Project Cost:

$500,000.00

**Budget Principles Addressed by this Concept:**
This project addresses the following budget principles:

Principle #1 - Fulfills explicit permit conditions outlined in the current permit. Permit Condition N requires the permittees to retrofit, repair, and construct desert tortoise fencing along highways and roads within Clark County. This project concept fulfills Permit Condition N.

Principle #3 - Provides for continued funding of ongoing and effective conservation measures. Desert tortoise exclusionary fencing and other wildlife fencing is an established, effective measure to reduce mortality of sensitive species and provide for the protection of sensitive habitats. This project would provide funding to increase the amount of wildlife fencing within the county.

Principle #4 – This project provides for continued funding of an effective conservation measure

Principle #5 - This project will address the objective D 1.2 by helping to maintain intact functional habitat within Tule Springs by blocking entry to illegal off-road activities. This will also address goal D 3.1 as we will be collaborating with the National Park Service on this project.

# Project Concept 17: Permit Amendment: Covered Species Surveys and Refinement of Species Distribution Models

## Background and Need for Project:

The Desert Conservation Program is currently pursuing a major amendment to the MSHCP. One goal of the amendment is to reduce the number of species covered by the plan in order to focus on those species that are most at-risk from private-land development activities. To support this goal, the Desert Conservation Program has undertaken a project (the Covered Species Analysis Support project) to develop new species distribution models and review some existing models for 56 species that are being considered for coverage under the proposed amendment. Species distribution models will be used in the final decision-making process to determine which species would benefit most from being covered under a proposed amendment to the MSHCP. The models will also inform MSHCP Amendment impact analyses, a required component of the application for an amendment to the MSHCP. Furthermore, these models may be used to inform baseline condition under the Adaptive Management Program (for the current MSHCP and the proposed MSHCP Amendment). The refinement of species distribution models will improve the ability to locate and monitor rare species and will aid in better prioritizing areas for conservation and management actions.

A component of the species distribution modeling project also includes developing recommendations for targeted surveys in areas where the species distribution models reveal uncertainty about species presence. This project would provide for the collection of additional species occurrence data points in areas that are currently lacking information about species presence. The new species occurrence data will then be used to further refine and improve the species distribution models that are currently being developed under the Covered Species Analysis Support project.

## Adaptive Management Review Summary:

This project will add to the baseline data we have for these species and will be used in future projects to judge the effectiveness of different management strategies under an adaptive management approach.

## Project Goal(s):

The goal of this project is to refine species distribution models by collecting new occurrence data in areas that currently lack survey data.

## Project Objective(s):

- Identify areas of high survey priority based on presence or absence of previous survey information in combination with recommendations provided by the Covered Species Analysis Support project.
- Conduct presence/absence surveys in high-priority areas.
- Use new species occurrence data to refine and update species distribution models.

## Project Approach:

Survey recommendations provided through the Covered Species Analysis Support project, in conjunction with a geospatial analysis of previous survey areas, will be used to identify high-priority survey sites. Field crews will collect species occurrence data using appropriate protocols for each

taxonomic group. For example, pit-fall trap arrays may be used to collect data about reptile species, whereas point-count surveys would be used to collect data about bird species. All new occurrence data will then be used to further refine species distribution models. Additional species occurrence data collected through implementation of other proposed projects, such as the “Rare Plant Surveys” project, will also be used to further refine species distribution models.

### Project Cost

$400,000

### Budget Principles Addressed by this Project Concept

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project will support objective D 1.2 and D 1.3 by helping to locate and maintain intact existing habitat and protect and conserve habitat for covered species.

Principle #8 - Advances the amendment of the MSHCP and its conservation strategy. This project supports advancement of the amendment by providing data that will be used in determining which species should be covered by the amendment and in the impacts analysis.

# Project Concept 18:
# Pilot Project for Drone Detection of Desert Tortoises

## Background and Need for Project:

This project has been designed to test the efficacy of using drones to monitor desert tortoise populations. Currently, Clark County alone spends more than a half a million dollars a year on monitoring tortoise populations. Due to their cryptic nature tortoises can be very difficult to detect in the wild, so we are looking for a way to increase detectability while lowering costs. If drones are able to detect tortoises then we will be able to lower the cost of monitoring populations while covering a larger area.

## Adaptive Management Review Summary:

This project will inform the Adaptive Management Program on a potential new way to conduct monitoring that may be more effective and less costly than the current approach. This could result in changes to other projects that do require an adaptive management approach. This project does not contain a management action so an adaptive management approach is not needed at this time.

## Project Goal(s):

The project goal is to test the use of drones in detecting desert tortoises in their natural habitat.

## Project Objective(s):

The objectives are:

- To locate desert tortoises in different habitats and levels of cover with an unmanned drone using a high definition camera.
- Create an algorithm that will look for specific features of the tortoises in order to identify those photos that contain desert tortoises.

## Project Approach:

This project consists of two components: the first is a drone operator that can work under the conditions that are exhibited on the BCCE and has the ability to hover over a stationary target. This will allow for multiple images of tortoises to be collected and analyzed under different circumstances. The second component is the software that can search through all the images collected by the drone and those that may contain a tortoise. Currently, the Desert Conservation Program is coordinating with the company Brainlike Inc. to use their proprietary software which has been shown to work well in identifying other species.

## Project Cost

$55,000.00

## Budget Principles Addressed by this Project Concept

Principle # 5. This project will help inform the AMP on a potential new and more cost effective way to locate tortoises. This project will help meet objective D 2.1 by looking for a more accurate and cost effective way to monitor desert tortoises in the future.

# Project Concept 19:
# Pet Desert Tortoise Sterilization Clinic

## Background and Need for Project:

When the desert tortoise was listed under the Endangered Species Act in 1989, special exemptions to the law were made to allow individuals that kept desert tortoises as pets to legally retain their pet tortoises. Since its initial listing however, pet desert tortoises have proliferated in backyards where they have regular access to food and water and are generally free from predation pressures. Very quickly, a few desert tortoises can reproduce and result in dozens of pet tortoises. Pet owners then frequently look for ways to rid themselves of their many “extra” pets. There is currently no facility in southern Nevada that is legally allowed to accept unwanted pet desert tortoises, so citizens may frequently turn to releasing their numerous pet progenies into the wild. Releasing pet desert tortoises into the wild can be problematic for wild desert tortoises however, in particular because pet tortoises tend to be carriers of diseases that can quickly spread through a wild population.

The growing population of pet desert tortoises is a management problem that diverts resources from efforts to preserve the species in the wild. Sterilization of pet tortoises has been identified as an appropriate method of reducing the overall population of pet desert tortoises and as a means of potentially eliminating backyard breeding. This clinic will provide an opportunity for local veterinarians to learn desert tortoise sterilization procedures and the clinic will be available to the members of the public who want to have their pet tortoises sterilized.

## Adaptive Management Review Summary:

Sterilization clinics are a management tool with few associated uncertainties, thus this project does not lend itself to an adaptive management approach. However, the larger problem of backyard breeding would be a good candidate for an adaptive management approach. Once enough veterinarians are trained, adaptive management would be a good tool to use in order to shift the onus back onto the pet owner and away from government entities.

## Project Goal(s):

The goal of this project is to train veterinarians to properly preform sterilization procedures on pet desert tortoises to decrease backyard breeding, which should help alleviate the incidence of backyard breeding of desert tortoises and reduce the number of unwanted pets within the county.

## Project Objective(s):

- Hold one clinic to train veterinarians on the procedures of sterilization and sterilize both male and female pet desert tortoises.
- Provide for public outreach to inform the public and veterinarians about the upcoming clinic and its purpose.

## Project Approach:

The sterilization clinic will be held at a facility in the Las Vegas, Nevada vicinity equipped with the necessary equipment to perform the surgical procedures. A local veterinarian and a veterinarian technical assistant trained in the surgical procedure will be available to perform sterilizations for adoption centers and members of the public for one two-day clinic that will occur during the spring

and/or the fall months. The vet tech will be responsible for coordinating the clinics and any outreach and public notification efforts prior to the clinics.

One veterinarian and one veterinarian technician will be funded for this project. The project will include the rental of an appropriate facility to hold the clinics, and rental of any equipment that may need to be used during the clinics.

Public outreach activities, which may include information booths at fairs and specifically-targeted locations and public service announcements, will be provided prior to the sterilization clinics to notify the public that this service is available to them, and to educate the public on the proper care of captive desert tortoises.

### Project Cost

$25,000.00

### Budget Principles Addressed by this Project Concept

This project addresses the following budget principles:

Principle #4 - Provides for continued funding of ongoing and effective conservation measures. Three successful sterilization clinics were held in 2014, 2015, and 2016. This project would continue the work begun in the previous biennium to reduce the rate of backyard breeding and the overall number of unwanted pet tortoises in the county.

Principle #5 - This project would address the Biological Goal and Objective D 2.1 to monitor and adaptively manage for desert tortoise populations.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. Measurable outcomes of this project include number of veterinarians trained in the new procedure and number of tortoises sterilized.

# Project Concept 20:
# Las Vegas Springs Preserve
# Bearpoppy Habitat Protection and Public Outreach

## Background and Need for Project:

The Las Vegas bearpoppy (*Arctomecon californica*), which grows only in the Las Vegas area, was discovered at the Springs Preserve in 1988 and has been listed as "critically endangered" by the State of Nevada. Federal, state and local agencies and entities are working together to ensure its protection and long-term conservation.

The bearpoppy populations at the Springs Preserve are fenced to protect the species and its habitat. It grows in two distinct areas within the Springs Preserve's boundaries. This project seeks to build new protective fencing, an access trail, and a viewing ramada overlooking the largest bearpoppy habitat. This allows for the public to learn more about the bearpoppy and its habitat as well as other threatened species in the Las Vegas Valley, including Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii) and the Blue Diamond Cholla (Cylindropuntia multigeniculata) that are also being researched and protected at the Springs Preserve.* Interpretive materials will focus on local threatened and endangered species.

## Adaptive Management Review Summary:

This project does not lends itself to an adaptive management approach.

## Project Goal(s):

- Contribute toward the recovery of the Las Vegas bearpoppy by protecting habitat located in the Springs Preserve and educating the public**.**
- Expand public knowledge and interest in the recovery of the Las Vegas bearpoppy.
- Monitor on-site Las Vegas bearpoppy populations and report findings to stakeholders and/or the public.

## Project Objective(s):

- Acquire necessary permits and/or approvals for construction near the area of the Las Vegas bearpoppy habitat.
- Conduct formal survey of cultural and environmental resources within the project area.
- Complete installation of fencing, ramada, and trail.
- Complete installation of interpretive panels at ramada.
- Integrate guest speakers, and tours into a one-year education program.
- Submit final project report.

## Project Approach:

This multidisciplinary project will require coordination of field scientists, gardens staff, and contractors. The overall project will be guided by the Preserve Archaeologist, who will also undertake the cultural surveys. Bearpoppy monitoring will be conducted by the Preserve Restoration Ecologist and the Gardens Supervisor.

Ramada and trail design has already been completed by Las Vegas Valley Water District staff and construction contracting and supervision will be conducted by Las Vegas Valley Water District construction management staff.

### Project Cost:
$94,810.00

### Budget Principles Addressed by this Project Concept
This project addresses the following budget principles:

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. Implementation of this project would help achieve objectives D 1.2 and D 1.3.

# Project Concept 21: Arden Mine Complex Restoration and Bat Gate Installation

## Background and Need for Project:

Clark County has proposed the construction of a new park in the southwest region of the Las Vegas Valley, west of Fort Apache Road. The proposed site encompasses part of the Arden Mine Complex. The Arden Mine Complex is located along Gypsum Ridge, adjacent to the southwest urban edge of the Las Vegas Valley. The mine complex, which operated from 1907 to 1930, consists of a series of adits and incline shafts that have since been abandoned. Many of the mine openings have been closed; however, some of the openings remain. As part of the park construction the mine openings will need to be closed. The Nevada Division of Minerals has approached the Desert Conservation Program about providing funding to support the closure and restoration of the Arden Mine Complex. The Desert Conservation Program is proposing to provide funding, on the condition that funding will only be provided if the project will benefit MSHCP covered species or species proposed for coverage under the MSHCP Amendment.

Therefore, the Desert Conservation Program has engaged with the Nevada Department of Wildlife to assist with determining whether bat species are occupying any of the mine openings. If it is confirmed that MSHCP covered species, or species proposed for coverage under the MSHCP Amendment, occur in any of the mine openings then the Desert Conservation Program proposes to provide funding to support the installation of bat gates, closure of mine openings that do not show any sign of bat habitation, and conduct habitat restoration. However, if MSHCP covered species or proposed covered species do not occur in the Arden Mine Complex, then funding will not be allocated for this project, and will instead be used towards the implementation of other conservation actions that benefit bat species.

## Adaptive Management Review Summary:

This project would provide information on the proper management action to use in order to close the mine; however, closing mines is a well-understood management action and very little would be learned from this exercise. Therefore, there is no need for an adaptive management approach to this project.

## Project Goal(s):

Restore the Arden Mine Complex to increase public safety and protect bat species.

## Project Objective(s):

- Determine bat presence.
- Install bat gates at mine openings where bat presence is confirmed.
- Conduct habitat restoration around the area of the mine complex.

## Project Approach:

Field crews will assess the mine complex to determine if any of the shafts/adits are currently being used as roost sites by bats. Anabat detectors or similar devices may be used for this task. Bat gates will be installed at mine openings where bat presence is confirmed. Mine openings not containing bats may be closed by backfilling the shaft with dirt. Following the installation of bat gates and

closure of remaining mine openings, the area surrounding the mine complex will be restored. This may include methods such as contouring, scarification of the land, reseeding the site, and/or active planting with native shrub species.

### Project Cost

$200,000.00

### Budget Principles Addressed by this Project Concept

This project addresses the following budget principle:

Principle #5 – This project will address Objective D1.1 to monitor MSHCP-covered Species in the Biological Goals and Objectives. This will allow us to determine if there are covered bat species that use the mine complex and conserve those populations if they exist.

Principle #7 – This project has a measurable outcome and it is pertinent to the MSHCP as it applies to covered bat species.

# Project Concept 22:
# Desert Tortoise Predator-Prey Dynamics

## Background and Need for Project:

Recently, concern has increased regarding the rates and causes of presumed coyote (*Canis latrans*), predation on a translocated population of the federally-listed Mojave desert tortoise (*Gopherus agassizii*), in the BCCE. Interest has been expressed in the development of management options which may ameliorate or limit predation pressures. Currently, an investigation into the distribution and abundance of predators, most notably coyote, but also fox (*Vulpes* sp. and *Urocyon* sp.), badger (*Taxidea taxus*), felids (*Felis rufus*, and *F. concolor*), and ravens (*Corvus corax*) is ongoing in the BCCE and the results of that important work are forthcoming. We suggest that a concurrent study of the abundance, distribution, movement patterns, habitat use, and ecology of coyotes in concert with primary prey species, black-tailed jackrabbit (*Lepus californicus*), in the BCCE may be of use in interpreting and expanding the results and conclusions derived from wider predator population investigations of the BCCE and surrounding area. To this end, we propose an investigation of the ecology, demographics, and dynamics of the black-tailed jackrabbit and coyote populations in the BCCE.

Monitoring of predator and prey populations will result in an increased ability to make informed management decisions regarding desert tortoise translocations in the ecological context of larger predator-prey interactions in the BCCE and southern Nevada. The goal of this project is to provide information about predator and prey population dynamics and habitat use and health that is relevant to management of the BCCE as a sustainable habitat reserve and improving success of desert tortoise translocation programs. Additionally, since translocated desert tortoises in the BCCE are already intensively monitored, this proposed study would present a unique opportunity to evaluate the interactions of a monitored population of translocated desert tortoises in the context of a concurrent study of coyote, mesocarnivore, and leporid interactions via a camera trap network and tracked coyotes, kit foxes, and black-tailed jackrabbits. A better understanding of the predator/prey community would allow us to make better decisions on translocation sites and timing which will lead to more sustainable translocated populations of desert tortoise.

## Adaptive Management Review Summary:

As the project is research-based with no management actions in and of itself this project would not require an adaptive management approach. The project will however, lend results that will inform the adaptive management of population augmentation projects that the county and the U.S. Fish and Wildlife Service are currently conducting along with any other entities that perform desert tortoise population augmentation in the Mojave Desert.

## Project Goal(s):

The goal of this project is to gain a better understanding of predator-prey dynamics between coyotes and their main prey source lepids and develop a strategy to limit future desert tortoise translocations from being severely impacted by coyote predation.

## Project Objective(s):

The objectives for this project are as follows:

1) Determine variability in demographics of coyotes and jackrabbits in the BCCE
2) Determine the home range and habitat use patterns of coyotes and jackrabbits
3) Determine the health status and mortality rates for coyotes and jackrabbits
4) Develop methods to obtain reliable density estimates that are cost effective
5) Synthesize jackrabbit abundance and predator densities and movement

### Project Approach:

The project will be broken down into two phases, the pilot study which will take place the first year and the main study throughout the rest of the project. In the pilot study, one 1-square kilometer ($km^2$) survey grid would be placed in the portion of the BCCE close to Boulder City, and a second 1-$km^2$ study plot in the southern portion of the BCCE closer to the Highland Range. In each study plot there would be a network of five digital trail cameras. Trapping would occur within the study grids to mark jackrabbits and deploy up to four GPS/VHF Radio collars in each study grid. Concurrently, two coyotes would be captured and collared, ideally one in proximity to each pilot study grid. These study areas will be maintained for their inclusion in the overall research project.

The main study would see the placement of an additional eight study areas within the BCCE property. Each of these study areas, identical to those used in the pilot study, would also receive a grid of digital trail cameras, and undertake operations to mark and deploy GPS/VHF collars on 36 jackrabbits and similarly capture eight additional coyotes in 2016 in the BCCE. Cameras would be maintained to allow for continuous monitoring of the BCCE, via routine maintenance throughout the study. As study animals experience mortalities, GPS/VHF collars will be redeployed on new study jackrabbits to maintain sample size and collect further data. Health assessments will be completed for each animal and a protocol will be setup for the health assessments by the state wildlife veterinarian.

### Project Cost

$490,163.00

### Budget Principles Addressed by this Project Concept

Principle # 5. This project is designed to help inform the Adaptive Management Program on factors that may affect translocation and predation of desert tortoises. This project also addresses objectives D 2.1 and D 2.2 in the Biological Goals and Objectives for desert tortoise management and translocation.

Principle # 9. This project addresses the program goal for augmentation of desert tortoise populations. It will allow for a better evaluation of potential translocation sites and help to determine if any of these sites run the risk of high predation due to increased levels of predators in the area.

# Attachment D

*Biological Goals and Objectives*

The following biological goals and objectives were developed in 2016 by the Adaptive Management Program in collaboration with the Science Advisor Panel. A copy of the complete report is available on the Desert Conservation Program website at: http://www.clarkcountynv.gov/airquality/dcp/Pages/OtherAdaptiveMgmtReports.aspx.

## Riparian Biological Goals and Objectives

**Goal R 1**. Maintain, improve, and expand habitat for the MSHCP-covered species on riparian reserve system lands

*Objectives*:

R 1.1: Monitor MSHCP-covered species occupancy

R 1.2: Maintain and/or increase suitable breeding habitat for MSHCP-covered birds

R 1.3: Incorporate elements of natural riparian processes into restoration design and implementation

R 1.4: Inventory, remove, and control invasive and non-native plant species

R 1.5: Reduce habitat fragmentation and/or improve connectivity and habitat quality through restoration design and implementation

R 1.6: Acquire riparian property at an equivalent rate as take (i.e., habitat conversion)

**Goal R 2**. Maintain stable or increasing populations of federally-listed threatened and endangered (T&E) species on riparian reserve system lands

*Objectives*:

R 2.1: Monitor and adaptively manage for breeding bird populations

**Goal R 3**. Foster community and stakeholder engagement to benefit covered species

*Objectives*:

R 3.1: Collaborate with other stakeholders on project/mitigation work (e.g., agencies, permittees)

R 3.2: Promote responsible recreation (e.g., signage, education)

**Goal R 4**. Promote ecological resiliency on riparian reserve system lands

*Objectives*:

R 4.1: Identify critical uncertainties and address these through planning and adaptive management, when feasible (e.g., land use changes, catastrophic events—fire, climate change)

R 4.2: Identify critical connectivity corridors for covered species and prioritize acquisition and/or conservation where feasible

# Desert Upland Biological Goals and Objectives

**Goal D 1**. Maintain, improve, and expand habitat for MSHCP-covered species on desert upland reserve system lands

*Objectives*:

D 1.1: Monitor MSHCP-covered species occupancy

D 1.2: Maintain existing intact functioning habitat and restore degraded habitat (use Objective D 1.1 to determine if habitat qualifies as functioning)

D 1.3: Protect and conserve habitat for covered plants (i.e., physical protection of plants with specific requirements)

D 1.4: Inventory, remove, and control invasive and non-native plant species

D 1.5: Reduce habitat fragmentation and/or improve connectivity through restoration design and implementation

**Goal D 2**. Maintain stable or increasing populations of Federal T&E-listed species on desert upland reserve system lands

*Objectives*:

D 2.1: Monitor and adaptively manage for desert tortoise populations

D 2.2: Augment populations through translocation programs when appropriate

**Goal D 3**. Foster community and stakeholder engagement to benefit covered species

*Objectives*:

D 3.1: Collaborate with other stakeholders on project/mitigation work (e.g., agencies, permittees)

D 3.2: Promote responsible recreation (e.g., signage, education)

D 3.3: Provide law enforcement within reserve system

D 3.4: Educate project proponents and construction personnel about procedures for reporting desert tortoises that occur on project sites and provide a mechanism for collection and relocation of tortoises in collaboration with the US Fish and Wildlife Service

**Goal D 4**. Promote ecological resiliency on desert upland reserve system lands

*Objectives*:

D 4.1: Identify critical uncertainties and address these through planning and adaptive management, when feasible (land use changes, catastrophic events—fire, climate change)

D 4.2: Identify critical connectivity corridors for covered species, prioritize conservation and/or acquisition of corridors, and increase permeability for species movement where feasible

# Attachment E

*Funding Recommendations and Responses*

| Agency | Funding Recommendation | Desert Conservation Program Response |
|---|---|---|
| U.S. Fish and Wildlife Service | Avian surveys and monitoring in riparian areas: Conduct baseline bird surveys to establish a record of bird species currently present on riparian reserve units. This baseline record will allow us to track changes in bird populations in riparian areas and can be used to measure the success of future restoration and management activities in these areas. Baseline bird surveys and monitoring can also provide better information on the status and conservation needs of riparian avian species. Monitoring is an essential component of habitat conservation plans and continued avian monitoring will aid in the development of restoration goals, objectives and additional monitoring criteria for riparian areas. | Agreed. Funding to conduct baseline bird surveys was allocated in the 2015-2017 Implementation Plan and Budget; however, the Desert Conservation Program has not moved forward with this project at this time. We have undertaken an effort to improve the Adaptive Management Program, which includes the development of an Adaptive Management Monitoring Plan, currently under development in collaboration with the independent Science Advisor Panel. Implementation of baseline riparian surveys will be conducted once the Adaptive Management Monitoring Plan is finalized. Additional funding has been allocated in the 2017-2019 Implementation Plan and Budget to address some additional monitoring recommendations provided by the Science Advisor Panel. It is expected that the baseline establishment will begin in Spring 2017. |
| Science Advisor | Conduct baseline monitoring. Establish a baseline condition to support long-term monitoring of the desert upland areas and riparian reserve units. | Agreed. Baseline condition establishment are included components of the Adaptive Management Program project concept. |
| Science Advisor | Document how each project meets intended biological goals and objectives. Demonstrate that the conservation measures implemented in support of the MSHCP are successfully achieving the biological goals and objectives and thus successfully completing mitigation under the incidental take permit. Use a uniform reporting format or matrix to concisely state the type of data, analysis, deliverables, or improved habitat conditions expected at the conclusion of each funded project. Include a description of how each project addresses or informs its intended goals and objectives. | Agreed. The Adaptive Management Program has undertaken a review of how progress towards achieving program objectives is tracked. New project initiation review procedures and project closeout review procedures have been implemented and are reflected in this report. Additional procedures may be identified or further refined through the ongoing development of the Adaptive Management Monitoring Plan. A formal review of progress made towards achieving biological goals and objectives will also be included with the next Adaptive Management Report. |
| Science Advisor | Quantify desert tortoise population size and trend. Establish long-term mark-recapture plots to estimate the tortoise population size and monitor change over time. Study plots could be located on various reserve system lands and combined with perennial vegetation transects and annual quadrats. Long term plots have been used across the range so methods are well established and data would generally be available for comparison studies. | Not included at this time. Similar work is currently being conducted by other entities, including in areas adjacent to the BCCE. We may consider the establishment long-term mark-recapture study plots in additional reserve units once those reserve units are established. |

| Agency | Funding Recommendation | Desert Conservation Program Response |
|---|---|---|
| Science Advisor | Develop pamphlet, flyer, and/or signs on desert tortoise reporting procedures to give to construction workers at new and existing construction sites. Provide the information to construction workers about how to proceed when a desert tortoise is encountered on a construction site. | Not included at this time. These objectives are being achieved through ongoing projects. |
| Nevada Division of Forestry | Current status and conservation knowledge reports. As a permit condition to the master permit for take of state-listed plants (currently under negotiation between the Desert Conservation Program and Nevada Division of Forestry), the Nevada Division of Forestry has requested funding be provided for the development of "Current Status and Conservation Knowledge" reports for the four species that would be covered by the permit. The intent of the reports is to comprehensively compile background information about the species to give a clear picture of the ecological information, habitat requirements, historical range in Clark County, current threats and impacts, and predicted threats and impacts under proposed development scenarios. Additionally, the reports will serve as a knowledge assessment to evaluate and compile available data sources for current and former population sites. | Agreed. The following project concept — Current Status and Conservation Knowledge Reports for State-listed Plants — has been included to address this funding recommendation. |
| U.S. Fish and Wildlife Service | Desert tortoise population augmentation/translocation: Continue to provide funding to translocate healthy desert tortoises to selected sites in coordination with other land and wildlife management agencies. Release sites will be connected to wild populations and evaluation of these sites should include density surveys and health assessments of the resident tortoise population. This will assist in species recovery by augmenting wild desert tortoise populations and will contribute to the goal of maintaining stable or increasing population numbers. | Agreed. The project concept, Desert Tortoise Translocation, has been included to provide for continued funding of desert tortoise translocation programs. |

| Agency | Funding Recommendation | Desert Conservation Program Response |
|---|---|---|
| U.S. Fish and Wildlife Service | Desert tortoise post-translocation monitoring: Fund an additional year of post-translocation monitoring at the Trout Canyon, Eldorado Valley, and/or BCCE translocation sites, including health assessments. Funding for Trout Canyon surveys is already in place for 2018, but adding health assessments would be informative for future translocation projects by the County. The County funded 1 year pre- and 2 years post-translocation surveys at Eldorado Valley; adding another year, with health assessments, would also contribute to longer-term evaluation of that project's success and to future translocation projects by the County. The County funded telemetry-based, post-translocation monitoring of a subset of tortoises released to the BCCE, but a high proportion of that sample was killed by predators; adding a year of alternative surveys, with health assessments, would provide a more comprehensive evaluation of that project in light if these events. The DTRO is available to discuss options for any of these sites. | Agreed. Funding for this work has been included in the Desert Tortoise Translocation project concept. |
| Science Advisor | Translocation mortality analysis. Compare the analysis of translocated tortoises with other translocation efforts in the region of the Mojave Desert. Conduct an analysis of mortality rates of translocated populations at the BCCE. | Agreed. Components of this recommendation will be implemented as part of the Desert Tortoise Translocation project concept. |
| Science Advisor | Restore habitat. Plan and implement restoration projects that would contribute to improving desert upland habitat and riparian habitat above the established baseline condition. | Agreed. Two project concepts are included with this report to address this recommendation: (1) BCCE Restoration, and (2) Riparian Reserve Units Restoration. Additionally, the Desert Conservation Program has submitted request for funding under Round 16 of SNPLMA to implement a large restoration project at the Muddy River Reserve Unit. The SNPLMA Executive Committee has recommended that this project be funded. |
| Science Advisor | Incorporate fire-smart restoration concepts in the riparian reserve units. Incorporate fire-smart restoration concepts in the riparian reserve units to reduce fire frequency and minimize fire-related impacts to habitat that supports covered species and promotes ecological resiliency. Besides outcompeting and displacing native cottonwood-willow habitat, tamarisk also contributes to fire frequency, especially where tamarisk beetles are also present. This increase in fuel load further threatens riparian habitat by increasing fire intensity. Covered species such as southwestern willow flycatcher and yellow-billed cuckoo are particularly susceptible to habitat loss from changes in fire and climate regimes. | Agreed. We will continue to work with the Science Advisor Panel throughout the development of riparian restoration plans to ensure that fire-smart restoration concepts are incorporated into plans. |

| Agency | Funding Recommendation | Desert Conservation Program Response |
|---|---|---|
| Nevada Division of Forestry | Rare Plant Surveys. Conduct surveys for state-listed plants in undersurveyed areas within Clark County, with particular emphasis on documenting populations that may occur in future development areas. | Agreed. A project concept to address these objectives has been included. |
| U.S. Fish and Wildlife Service | Vegetation surveys and monitoring for protected plant species: Conduct vegetation surveys and monitoring for rare plant species to broaden our knowledge of their status and distribution. Additional surveys are recommended on lands that are or will be impacted by urban development as well as proposed protected areas that would serve as mitigation sites, to help gain a better understanding of ongoing and potential effects to these species resulting from anthropogenic activities (i.e., climate change or land use change) and how negative impacts may be mitigated. | Agreed. The Desert Conservation Program has been collaborating with NDF to determine where surveys should be focused. Two project concepts will address this recommendation: (1) Current Status and Conservation Knowledge Reports for State-listed Plants and (2) Rare Plant Surveys. |
| U.S. Fish and Wildlife Service | Implementing and evaluating habitat restoration techniques in the Mojave Desert: Fund existing or new work to develop effective vegetative restoration techniques to effectively respond to landscape-scale disturbances (e. g., wildfires) in the Mojave Desert that are reducing forage availability and damaging canopy cover for the desert tortoise. May also assist with species recovery by increasing availability of native seeds, and increase opportunities for restoring damaged habitat. | Agreed. The Desert Conservation Program has proposed the following project concept to address this recommendation: Evaluating Desert Tortoise Habitat Restoration. |
| U.S. Fish and Wildlife Service | Assessment of desert tortoise guards: Fund a study designed to assess the effectiveness of tortoise guard design. Desert tortoise fencing is used to create barriers to tortoise movement onto roads, highways and project work areas. However, fencing projects include access points for roads and work areas and tortoises often enter into unsafe areas via these gaps in the fencing. Typically gates are used to prevent tortoise access but these gates can be accidentally left open or become damaged over time. Several types of tortoise guards have been used as an alternative to gates and FWS is often contacted for a recommendation. The BLM has recently developed a permanent design consisting of parallel I-beams buried to road level and tied into tortoise fencing. No assessment has been performed to determine if tortoises can cross them or if they become trapped in the space between the beams. FWS biologists are hesitant to endorse a design without information on its effectiveness and potential negative impacts on the desert tortoise. | Agreed. Funding for this study has been included in the Assessment of Desert Tortoise Guards project concept. |

| Agency | Funding Recommendation | Desert Conservation Program Response |
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| Science Advisor | Update and refine species distribution models as occurrence data becomes available. Species distribution modeling is an iterative process that should be conducted, as needed, when new occurrence data are available to refine the model. Models can also be updated when new environmental or higher resolution spatial data are created and/or updated. | Agreed. The following project concept — Permit Amendment, Covered Species Surveys and Refinement of Species Distribution Models — has been included to address this funding recommendation. Furthermore, additional occurrence data will be collected under the Rare Plant Surveys project. |
| U.S. Fish and Wildlife Service | Desert tortoise sterilization and outreach: Continue to support clinic and outreach activities designed to result in a measurable decrease in the number of captive unwanted tortoises in Clark County. The goal is to sterilize unwanted pet desert tortoises to decrease backyard breeding, which should help alleviate the number of unwanted pet tortoises turned in to the Desert Tortoise Conservation Center, reduce the likelihood of excess unwanted pet tortoises from being released into the wild, and allow more focus of limited funds on recovery of wild desert tortoise populations. Sterilization of 25,000 tortoises per year, for a total of 50,000 individuals, is recommended. | Agreed with reservation. The Desert Conservation Program and USFWS discussed the continued need for funding desert tortoise sterilization in a meeting on June 29, 2016. Both parties agreed that this would be the final biennium in which the Desert Conservation Program provided funding for this work. Any future sterilization clinics will seek alternative sources of funding, such as charging pet tortoise owners for the service. |
| U.S. Fish and Wildlife Service | Desert tortoise predator-prey dynamics: If not funded by SNPLMA, support a study which will examine the behavior of tortoise predators to gain a better understanding of their habitat use, demography, home range size, and health status along with their main prey items. The goal of this study is to refine methods for estimating predator and prey relationships within a given area which will help guide continuing recovery actions such as translocation. The study will focus on the abundance, distribution, movement patterns, habitat use, and ecology of ravens and mesocarnivores (e.g., kit fox, coyotes) in concert with primary prey species, black-tailed jackrabbit. This project will give a better understanding of the predator and prey community and how it affects desert tortoise predation rates which will lead to more appropriate management decisions in the future. | Agreed. The Desert Conservation Program submitted a request for funding under Round 16 of SNPLMA to implement this project. However, the SNPLMA Executive Committee has recommended that this project not be funded. Therefore, we have included a smaller-scale version of the SNPLMA project in this Implementation Plan and Budget. The funding for this study will be split across two biennia. |
| Science Advisor | Connectivity analysis. Identify important or potential connectivity areas to inform future conservation actions and planning. Quantify areas of existing high and low connectivity and identify areas with the potential to improve or maintain connectivity. | Agreed. The Desert Conservation Program has submitted a request for funding under Round 16 of SNPLMA to implement a project that examines these connectivity issues for desert tortoises. The SNPLMA Executive Committee has recommended that this project be funded. Examining connectivity issues for other covered species will occur through the development of the permit amendment. |

| Agency | Funding Recommendation | Desert Conservation Program Response |
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| U.S. Fish and Wildlife Service | Desert tortoise connectivity management plan: Continue to provide funding for the development of a management plan addressing desert tortoise connectivity within Clark County, Nevada. The goal of the plan is to collect habitat connectivity data in order to determine proper corridor design and examine how tortoises overcome anthropogenic impediments (e.g., roads) to habitat connectivity. This will assist in species recovery by providing information that will help us design corridors to ensure connectivity of tortoise populations to allow for movement between habitat patches, prevent genetic isolation, and ensure species persistence. The plan should include an evaluation of crossing structures near roads, which will provide information about how tortoises are using underpass structures for highway crossings and can help inform what types of crossing structures are most suitable. | Agreed. The Desert Conservation Program has submitted a request for funding under Round 16 of SNPLMA to implement this project. The SNPLMA Executive Committee has recommended that this project be funded. |
| Science Advisor | Desert tortoise natural shelter identification. Identify areas in reserve lands with complex terrain that support either shelter sites (e.g., geological formations that provide optimal cover sites) that could provide thermal refuge to tortoises and other species, under scenarios of increased temperature resulting from climate change. | Not included at this time. A project that addresses some of these objectives is currently underway (2009-UTX-811K – LiDAR/Aerial Imagery Data Analysis). Additional objectives may be achieved in the future through a larger reserve system analysis that will be undertaken as part of the permit amendment effort. |
| Science Advisor | Desert tortoise population risk assessment. Identify threats that are most likely to cause decline in desert tortoise populations on reserve system lands, and determine the relative importance of these threats at a local scale. | Not included at this time. The Desert Conservation Program will continue to consider approaches to achieving this objective. There is potential for this project to be addressed through a larger reserve system analysis that will be undertaken as part of the permit amendment effort. |
| Science Advisor | Develop spatial data layers to evaluate ecological resilience in riparian and desert upland habitats. Spatial data depicting past and current wildfire areas, potential connectivity corridors, vegetation, SDMs, etc. can be used to assess the ecological resilience of the riparian and desert upland habitat. The ecological attributes of resilience can be measured based on species-specific life histories requirements from the scientific literature or existing data. These data could also be projected into the future based on current rate of development in Clark County to determine future ecological resilience. | Not included at this time. Objectives outlined in this recommendation will be achieved through a larger reserve system analysis that will be undertaken as part of the permit amendment effort. |

| Agency | Funding Recommendation | Desert Conservation Program Response |
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| Science Advisor | Evaluate spatial and data uncertainties. Quantify the uncertainties associated with the data used to inform Biological Goals and Objectives and determine their influence on the outcome of conservation actions. One recognized approach includes conducting a sensitivity analysis in which a specific data layer is held back from a model to determine how much influence that data layer has on the model results. Other possible approaches are provided in the funding recommendations report. | Not included at this time. Objectives outlined in this recommendation will be achieved through a larger reserve system analysis that will be undertaken as part of the permit amendment effort. |
| Science Advisor | Identify areas where responsible recreation needs to be promoted the most and law enforcement is needed the most. Use data regarding where recreation occurs the most to prioritize efforts in these areas. | Not included at this time. Objectives outlined in this recommendation will be achieved through a larger reserve system analysis that will be undertaken as part of the permit amendment effort. |
| Science Advisor | Prioritize acquisition of riparian and desert upland habitat areas. Conduct spatial analysis of riparian and desert upland areas to determine areas that will assist with meeting Biological Goals and Objectives. | Not included at this time. The Desert Conservation Program already implements spatial analysis and defines acquisition priorities that aid in identifying riparian lands (from willing sellers) that will best achieve program goals. Acquisition of desert upland habitats is not an objective of the program at this time, in large part due to the limited availability of suitable, privately-owned land in Clark County. However, we continue to work with the BLM to enroll federally-managed lands into the reserve system as part of the permit amendment effort. |
| Science Advisor | Test the value of using habitat surrogates to determine species occurrence and abundance. Determine if the concept of habitat surrogates applies in riparian and upland habitats in southern Nevada. This approach has been recently supported by USFWS as a means of comprehensive planning for multiple species and habitats. | Not included at this time. The Desert Conservation Program has implemented similar projects in the past with mixed results. At this time, we see little value in revisiting the issue and believe that funds would be better spent on other conservation actions. It is our opinion that occupancy of species may provide better results at a more reasonable cost and we will continue to refine this approach through the development of the Adaptive Management Monitoring Plan. |

# Attachment F

*Summary of Agency Comments and Reponses*

| Report Section | Commenter | Comment | Comment Action/Response |
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| General | Nevada Division of Forestry | The proposed 2017-2019 Implementation Plan and Budget is comprehensive. Nevada Division of Forestry has no further comments at this time. | Text not revised. Thank you for your comment. |
| Introduction, page 1 | Science Advisor Panel | Suggest revising paragraph 3 to incorporate Conservation Measures. It could read: "...the Desert Conservation Program implements conservation measures that mitigate impacts to covered species resulting from private-land development activities. Categories and examples of conservation measures are described in the MSHCP and associated incidental take permit and include such activities as public education and involvement, research, inventory and monitoring, protection of sensitive plants and animals such as the desert tortoise, habitat enhancement and restoration, law enforcement on reserve lands, and acquisition of addition reserve lands to increase connectivity and ecological resiliency. | Text revised. Included additional examples. |
| Project Concept Development, page 5 | Science Advisor Panel | The relationship between Project Concept "Baseline Desert Upland Monitoring" and "Baseline Riparian Monitoring" with Project Concept "Permit Amendment, Covered Species Surveys and Refinement of Species Distribution Models" is unclear. Are baseline surveys proposed in Project Concept "Baseline Desert Upland Monitoring" and "Baseline Riparian Monitoring" only for species for which baseline data do not exist? | Text not revised. It appears that the reader has misunderstood the goals of these three projects. Both baseline monitoring projects will provide funding to initiate baseline condition monitoring within the Reserve System - this work will inform future effectiveness monitoring within the Adaptive Management Program. The methods and approach for this work will be determined through our ongoing development of the Adaptive Management Monitoring Plan. Species surveys under the Permit Amendment project will not be restricted to the Reserve System. This project focuses on the collection of species occurrence data in areas that are currently undersurveyed within the County to improve the statistical validity of species distribution models and assist with filling in knowledge gaps about species distribution within Clark County. |
| SNPLMA Project Nomination Development, page 6 | Science Advisor Panel | Suggest clarifying, possibly here and also under each relevant Project Concept, which funding amounts/projects are fully SNPLMA-funded, fully Section 10-funded, or are SNPLMA-contingent. Sources and amounts of funding for each relevant Project Concept should be clarified. | Text revised. Since the agency review draft was provided for review, the SNPLMA Executive Committee has met to compile final funding recommendations. Therefore, it is no longer necessary to identify SNPLMA-contingency funding and this has been removed from the public review draft. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix B, Budget Principles | Science Advisor Panel | How do the 2017-2019 program goals (Budget Principle 9) relate to the new Biological Goals and Objectives? It might be appropriate to crosswalk them here. | Text revised. Added a discussion of the biological goals and objectives to the report. The 2017-2019 program goals were established before the BGO's were developed. The program goals are issues that Desert Conservation Program staff we would like to focus on in this Biennium. The BGO's are covered under Budget Principle #5 and they are being added as an appendix to the document. |
| Appendix C, all project concepts | Science Advisor Panel | In the Budget Principles section for each Project Concept, specific Biological Goals and Objectives that the project is anticipated to support are referenced; however, the Biological Goals and Objectives are not listed or cited in the document. Suggest including a reference to where the Biological Goals and Objectives can be obtained or include them as an appendix. | Text revised. Added new section to the report that describes why Biological Goals and Objectives are being included in the budget principles section of each project concept. Also included biological goals and objectives as an attachment to the report. |
| Appendix C, all project concepts | Science Advisor Panel | Suggest reconsidering the section "Adaptive Management Review Summary" under each Project Concept. Currently the intent of this section is undefined and the content varies from concept to concept. Several of the earlier Project Concepts state that adaptive management is not part of the project, but we suggest that all ongoing or long-term projects (particularly management projects) should fall under the umbrella of requiring adaptive management. Even if no changes are made to the methods of those projects, it is important to periodically evaluate them and consider alternative methods that might better achieve the project goals. | Text revised. A Clarifying paragraph has been added to the report to better explain this section of the project concept. In order for a project to be considered for adaptive management it must be recurrent and must currently have uncertainties associated with the management practice. While it may prove fruitful in the future to have long-term data on all recurrent projects we feel that the time and money is cost prohibitive at this time and chose to look at those projects at a time when new innovations introduce new uncertainties that need to be addressed. |
| Appendix C, Administration | U.S. Fish and Wildlife Service | We appreciate the detailed explanation describing administrative costs and allocation of funds for such costs. However, it still appears as if a disproportionately large amount of funding (roughly 50%) is being allocated to administration. We continue to encourage you to incorporate efficiencies into the administration of the conservation program, in order for more funding to be available for on-the-ground conservation actions designed to improve habitat conditions and off set impacts from development. We understand that these costs are for administration of future projects (non-discretionary and discretionary) in addition to previously approved projects that are still being implemented. We recommend that the budget clearly describe how administrative costs are allocated among different project types (non- discretionary, discretionary, previously approved), which may aid in the identification of non-essential expenditures and future reduction of administration costs. | Text not revised. Thank you for your comment. It should be noted that a large portion (61 percent) of the $4.6 million administrative costs provides for salary (and associated benefits) for staff that are responsible for carrying out conservation projects, including five staff positions that are currently vacant. Desert Conservation Program staff are responsible for conducting many on-the-ground conservation actions as well as overseeing contracts that improve habitat conditions and off-set impacts from development. Any unspent funds (e.g., from vacant staff positions) remaining at the end of the biennium are reabsorbed into the fund balance and made available for the implementation of future conservation actions. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Public Information, Education, and Outreach | Science Advisor Panel | Suggest including a sentence defining / explaining 'emergence contest'. | Text revised. Added brief description of the education program and emergence contest. |
| Appendix C, Public Information, Education, and Outreach | U.S. Fish and Wildlife Service | We support proposed projects and also agree with the suggestion to develop effectiveness monitoring for the public information, education and outreach program. As part of this, we encourage you to continue to include outreach and education efforts related to reducing the number of unwanted captive pet tortoises. Recent data collected during two captive tortoise registration clinics and the sterilization clinic held this year reveals that at least 30% of captive pet tortoises show signs of active upper respiratory tract disease. Addressing this issue collaboratively is beneficial to all and important for desert tortoise recovery, and outreach or public education efforts help to mitigate the threat these tortoises pose to wild populations. | Text not revised. While we appreciate the need to curb the unwanted pet problem and realize they may pose as a threat to wild populations, we feel that this would confuse our current messaging and therefore should be left to a different entity such as the Tortoise Group who deal with pet tortoises on a regular basis. We continue to include messages encouraging pet owners to never release their pets into the wild in our public outreach program. |
| Appendix C, Status and Conservation Reports for State-listed Plants | Science Advisor Panel | Please provide clarity as to how Project Concept "Current Status and Conservation Knowledge Reports" relates to Project Concepts "Baseline Desert Upland Monitoring" and "Rare Plant Surveys". For example, how does compilation of existing data and establishment of a current baseline relate to rare plant surveys outlined in Project Concept "Rare Plant Surveys"? Will data from Project Concepts "Baseline Desert Upland Monitoring" and "Rare Plant Surveys" be integrated into the final report for Project Concept "Current Status and Conservation Knowledge Reports"? Will the results of Project Concepts "Baseline Desert Upland Monitoring" and "Rare Plant Surveys" inform Project Concept "Current Status and Conservation Knowledge Reports"? | Text revised. The "Baseline Desert Upland Monitoring" project is not clearly related to this project concept. "Baseline Desert Upland Monitoring" is an effort under the Adaptive Management Program to establish the baseline condition for covered species, ecosystems, and habitat condition within reserve system properties, which will provide a mechanism to better track the effectiveness of conservation actions in the future. However, if species occurrence data is collected under this project, then it will be included with other data to inform species distribution models. Data collected under the "Rare Plant Surveys" project would be used to inform and improve species distribution models under this project. The "Rare Plant Surveys" project concept will remain a separate project concept however, because it was a specific funding request made by Nevada Division of Forestry as a condition of permit issuance. Text has been clarified to indicate that data from the "Rare Plant Surveys" will also be used in this project. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Status and Conservation Reports for State-listed Plants | Science Advisor Panel | The background currently states: "New survey information – which will be gathered as a result of another project..." Please provide more detail on the "other project"? Is it another Project Concept? If so, please reference it, and if not, a brief description of the other project would be helpful (including who is conducting/funding/overseeing the project). | Text revised. The other project refers to Project Concept "Rare Plant Surveys". |
| Appendix C, Tortoise Translocation Monitoring | Science Advisor Panel | Suggest including how many tortoises are being translocated and/or monitored. It is difficult to assess the likelihood of success of this project without knowing that number. | Text not revised. As this is a concept many of those details have yet to be determined for a number of these projects so it would be premature to place them in this document. |
| Appendix C, Tortoise Translocation Monitoring | Science Advisor Panel | The background section states: "While recent research on translocation has provided useful insight, results are currently only available for periods less than five years". Please consider clarifying this statement. Are you referring to results only available for a particular region (e.g. BCCE?) or in the larger scope of peer-reviewed literature? There are a number of grey-literature publications on translocations from the 1970/80s, and I believe the first peer-reviewed translocation publications for desert tortoise occurred around 2007. | Text not revised. As far as we are aware, there are no peer reviewed articles available where data has been analyzed for more than 5 years post-translocation. That is not to say that projects are not currently on-going but as of now have not been published. |
| Appendix C, Tortoise Translocation Monitoring | Science Advisor Panel | Suggest stating or discussing how additional data will be used or analyzed rather than only stating that it is important to collect additional data. This would help justify why this Project Concept is important. | Text revised. As this is a concept there is still some uncertainties as to which projects will be funded and what results will be produced and going through how the data is to be analyzed would exceed the scope of the concept, however some changes were made to the approach section to discuss the potential uses of the data that will be collected. |
| Appendix C, BCCE Restorations | Science Advisor Panel | This Project Concept appears to support objective D 1.5 also (reduce habitat fragmentation and/or improve connectivity through restoration design and implementation). | Text revised. Revised as suggested. |
| Appendix C, BCCE Restorations | Science Advisor Panel | Suggest clarifying why additional watering is scheduled to end after 12 months. Is that because within 12 months you will know whether the revegetation has been successful? Consider including additional watering after the 12 months, if appropriate. | Text not revised. This is intended to minimize cost and to make shrubs self-sustaining. According to personal communications with native plant growers at Nevada Division of Forestry, up to three years of watering would be beneficial, but this would nearly triple the cost of revegetation projects since watering is the most expensive part of the budget. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, BCCE Restorations | Science Advisor Panel | The design of these projects should take into account that supplemental water treatments may lead to undesirable outcomes (e.g., weed invasions) and thus should be monitored closely and compared to un-watered controls. Also, the watering schedule should account for the germination and establishment requirements of your seeded species. For example, some desert grasses need adequate soil moisture at two critical times – during seedling tap root elongation and then during initiation of adventitious roots some few days later. Watering levels should also be related to typical monthly precipitation amounts. | Text not revised. Under an ongoing contract, the BCCE is monitored seasonally by the National Park Service Exotic Plants Management Team for the purposes of weed treatment. Seed will not be placed in revegetated (shrub planting) areas, and seeded areas will be watered only once (after initial deposition). Shrub revegetation at end caps will occur in the fall/winter, the time of year with the most precipitation in our region. This will be reflected in the watering schedule by having more frequent sessions in the fall/winter than in the spring and summer. |
| Appendix C, BCCE Restorations | Science Advisor Panel | Repairing damaged restoration areas "using methods similar to the original plans" reads contrary to an adaptive management approach. If the methods for protecting the restoration areas failed, was a new method considered? Please clarify. | Text not revised. The number of shrubs to be planted will remain the same since those numbers were decided upon using transect data and will mimic the shrub species and densities of the surrounding undisturbed areas. However, this time we will water the shrubs for 12 months instead of just a single initial watering as was used in the original restoration. (All shrubs died shortly after the first attempt, so the areas were insufficiently camouflaged and were trespassed by motorized vehicles.) |
| Appendix C, BCCE Restorations | Science Advisor Panel | Strongly suggest increasing the sample size to a minimum of 3 plots for each treatment type and controls. As currently described, the experiment is not sufficient for statistical analysis. The plots could be systematically juxtaposed across the K-2 road. Alternatively, perhaps all 4 restoration projects could be considered components (blocks) of one large project. This way you could have 2-3 replications of each seeding treatment and water treatment (and controls) at each restoration area and then you will have sufficient replication for a stronger statistical evaluation and your area of inference will include a much larger portion of the BCCE. Since the watering effect might be much larger than the seeding treatments, you might be able to perform the water treatments at just a couple sites. | Text revised. Methodology has been changed to include eight plots per treatment and control, giving us a total of 24 plots. Seeded areas will only be watered right after deposition. Subsequent watering sessions are only intended for the shrub revegetation areas (end caps). |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, BCCE Restorations | U.S. Fish and Wildlife Service | We agree that further study is needed in order to identify optimum methods for restoring Mojave desert upland habitats. However, we believe that previous research by Lesley Defalco has already demonstrated that pelletized seeding was superior. We suggest taking this into consideration to ensure that future studies build upon previous findings. | Text not revised. Previous research addressed the scientific benefit of experimental replication and repeatability of results, which is often neglected in scientific research. Furthermore, environmental and historical differences between the planned project area and those used in Lesley's research may lead to different outcomes. For example, Lesley's research deals with post-fire restoration on large polygonal disturbances while ours will deal with a long linear disturbance exhibiting compacted and eroded ground. |
| Appendix C, Baseline Desert Upland Monitoring | Science Advisor Panel | Suggest reframing the Project Concept as solely 'Monitoring'. It will serve as 'Baseline' only in the sense that it is the first year of the monitoring program. Methods and scope of work in the first year are no different than those to be employed in future years. Alternatively, if the first year is intended to have more exhaustive sampling than subsequent monitoring years, this distinction should be discussed (and in that case 'Baseline' would be a substantially different project from 'Monitoring'). This project could also be rolled into Project Concept 2 because the monitoring results will directly feed into program-level adaptive management and monitoring will continue indefinitely (although the benefit can also be seen in keeping the professional activities of Project Concept 2 separate from the field work of Project Concept 10). | Text revised. This project concept has been removed and into the Adaptive Management Program project concept. |
| Appendix C, Baseline Desert Upland Monitoring | Science Advisor Panel | Suggest including plant species, habitat types, desert tortoise, and other reptiles in this project. Even though some prior data may exist, it does not necessarily indicate that those prior data will be comparable to future status monitoring data. It is, however, possible that plant surveys may be conducted as part of another Project Concept (e.g., Project Concept "Rare Plant Surveys") but this should be explicitly stated. | Text not revised. Ongoing monitoring of tortoises and reptiles is addressed through a combination of projects funded in previous biennia and current project concepts (e.g. Concepts "Desert Tortoise Translocation" and "Managing Desert Tortoise Connectivity Corridors"). Plant species monitoring will also continue but at a lower frequency. Habitat types are unlikely to change over short periods of time given current conditions at the BCCE. Therefore, plant and habitat monitoring is not planned for this biennium and will not be included in this report. Projects of this type may be included in future biennia as recommended by the Science Advisor Panel. |
| Appendix C, Baseline Desert Upland Monitoring | Science Advisor Panel | This Project Concept supports D 1.1, so some mention of occupancy should likely be made (e.g., "baseline occupancy surveys" rather than just "baseline surveys"). | Text revised. Revised as suggested. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Baseline Desert Upland Monitoring | Science Advisor Panel | This Project Concept appears to support objective D 1.5 as well. | Text revised. Revised as suggested. |
| Appendix C, Baseline Desert Upland Monitoring; Baseline Riparian Monitoring | U.S. Fish and Wildlife Service | Baseline bird surveys and desert tortoise monitoring projects are still categorized as Discretionary Projects. Monitoring is an essential component of habitat conservation plans as stipulated in our Five Point Policy, and we continue to suggest that they should be considered a Non-Discretionary Project in the budget. We understand the challenges associated with designing effective monitoring programs as part of this particular HCP. We offer our support in your efforts to begin pre- and post-restoration surveys for birds and desert tortoise range-wide and post-translocation monitoring. These monitoring efforts should provide useful information on the success of your conservation program relative to these covered species. | Text revised. While there is no specific permit condition related to monitoring, in light of this and other comments we have moved the monitoring surveys under the adaptive management program concept which is a non-discretionary item under permit condition I. |
| Appendix C, Riparian Restoration | Science Advisor Panel | This Project Concept appears to support objective R 1.4 as well. I hope that understory species continue to be included in restoration plans in addition to woody shrubs and trees. | Text revised. Revised as suggested. |
| Appendix C, Riparian Restoration | Science Advisor Panel | Project objectives include specific acreages for invasive species removal (e.g. “Remove up to 60 acres of tamarisk and other invasive non-native species on the Muddy and/or Virgin River Reserve Units”; “Create, restore, and enhance up to 40 acres of mesquite/acacia habitat within the Muddy and Virgin River Reserve Units...”). Clarification as to why these acreages were specified would be helpful. | Text not revised. These acreages were specified because they were explicitly written into the SNPLMA grant that will partially fund this project. These acreages were estimated to be feasible with the grant money requested. |
| Appendix C, Baseline Riparian Monitoring | Science Advisor Panel | The estimated cost for this Project Concept seems exceptionally low given that there are three desired outputs: field avian surveys, vegetation assessments, and imagery analysis. Is it the intent that DCP staff will conduct the majority of this work, and thus most of the funding is already covered under Project Concept 1 (Administration)? | Text not revised. The total cost of these surveys will be covered using funding from two biennia. The amount requested in this report will be added to funding secured in the 2015-2017 biennium to accomplish this project. |
| Appendix C, Baseline Riparian Monitoring | Science Advisor Panel | Project Concept "Baseline Desert Upland Monitoring" included specific language in its background stating that it is intended as a means of implementing the Adaptive Management and Monitoring Plan. Please consider adding the same language to Project Concept "Baseline Riparian Monitoring". In general, I suggest standardizing the background language between Project Concept "Baseline Desert Upland Monitoring" and Project Concept "Baseline Riparian Monitoring" since the Project Concepts are generally similar. | Text revised. Revised as suggested. |

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| Appendix C, Rare Plant Surveys | Science Advisor Panel | This Project Concept specifically refers to rare plant inventories, thus I suggest revising the title to read “Rare Plant Inventories”. | Text not revised. The term "surveys" is more appropriate for this project since we will be sampling relatively small areas and not covering 100% of the landscape. This is a step toward establishing an inventory, but this project will not complete that goal on its own. |
| Appendix C, Evaluating Desert Tortoise Habitat Restoration | Science Advisor Panel | In addition to the approach described, we suggest reviewing the experimental design of the previous studies being evaluated to make sure strong inference can be made from them. | Text revised. Added a statement about evaluating experimental design of the studies that are reviewed. |
| Appendix C, Evaluating Desert Tortoise Habitat Restoration | Science Advisor Panel | Consider including at least one peer reviewed publication as a goal. | Text not revised. Since we intend to complete this project using SNPLMA funding, it is subject to strict time constraints which may not be met if publication is included as a goal. There is nothing in the project concept that would prevent us from seeking a peer reviewed publication, but we cannot guarantee that product in a timely manner, and therefore do not intend to explicitly include it as a goal of this project concept. |
| Appendix C, Evaluating Desert Tortoise Habitat Restoration | Science Advisor Panel | The first sentence states “The largest threats to desert tortoise populations are habitat alteration and habitat loss.” Because threats may vary by region/over time, please consider a change to: “Two significant threats to desert tortoise populations are habitat alteration and habitat loss”. | Text revised. Revised as suggested. |
| Appendix C, Evaluating Desert Tortoise Habitat Restoration | Science Advisor Panel | If not already implicit in the stated objective of “Conduct a comprehensive literature review...”, it may be helpful to explicitly include grey literature and consultant reports. There are many restoration projects that have occurred as mitigation for development (e.g. gas pipelines, transmission lines, access roads) that may have useful methods and data as part of post-restoration or post-translocation monitoring efforts (e.g. do tortoises actually use restored habitat). Consider incorporating the outcome and research from similar projects that have already concluded, such as: http://fwspubs.org/doi/pdf/10.3996/052015-JFWM-046 and chapter 12 in this recently-released annotated bibliography: https://pubs.usgs.gov/of/2016/1023/ofr20161023.pdf. | Text revised. Revised as suggested. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Evaluating Desert Tortoise Habitat Restoration | Science Advisor Panel | The project cost seems high given the described effort, even considering travel costs and stipends for attendees. Does the project cost include anything else that needs to be detailed in the Project Goals and Objectives, such as implementation of research projects? | Text not revised. This budget was based on cost estimates from previous projects and communications from professionals in the field. It includes estimates for contracts with a reviewer who will also produce all required summary documents, stipends for up to ten regional experts on the subject, and a workshop facilitator. |
| Appendix C, Assessment of Desert Tortoise Guards | Science Advisor Panel | This Project Concept appears to support objective D 2.1 as well. I think it is important that all non-admin Project Concepts support at least one BGO. | Text revised. Changes have been made to the project concept to reflect these comments. |
| Appendix C, To the Max Campaign | Science Advisor Panel | This Project Concept appears to support objective D 3.4 as well. | Text revised. Added objective D 3.4 to the budget principles discussion. |
| Appendix C, Off-highway Vehicle Registration Program Marketing | Science Advisor Panel | I suggest considering online registration for OHVs. | Text not revised. The Desert Conservation Program does not have authority over the OHV registration process. However, it is our understanding that the Nevada Commission on Off-highway Vehicles is seeking a legislative means for making the registration process easier for OHV owners in the upcoming legislative session. |
| Appendix C, Tule Springs Fossil Beds National Monument Boundary Fencing | Science Advisor Panel | The project objectives indicate approximately 5 miles of post and cable fencing, and 5 miles of tortoise fencing. Please indicate if these fences are co-located (e.g. tortoise fencing is installed at the base of the post-cable fencing) or if they are in different regions of the Monument (e.g. effectively 10 miles of fencing). | Text revised. The two fences will be collocated, for a total approximate length of five miles. Text has been edited for clarity. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Permit Amendment: Covered Species Surveys and Refinement of Species Distribution Models | Science Advisor Panel | Consider if the species distribution models can be tied to population growth rates? It is important to know not only where a species is predicted to occur, but also if it has a positive population growth rate in an area. Please consider more specific language about the methods used for presence/absence surveys. Are existing data being compiled in addition to the surveys? Also, I suggest incorporating data from eBird for the bird species included. | Text not revised. Establishing population growth rates for each species across their range within Clark County would be cost-prohibitive at this time and is therefore not an included element of this project. Efforts to track population status of covered species within reserve system properties is currently underway and will be expanded to additional reserve unit properties under the permit amendment effort. Specific methods for conducting presence/absence surveys are undetermined at this time and will be developed prior to project implementation. Existing data compiled from internal sources, other agencies, and publicly available data sets are being used to compile species distribution models under the Covered Species Analysis Support project. |
| Appendix C, Permit Amendment: Covered Species Surveys and Refinement of Species Distribution Models | Science Advisor Panel | In addition to supporting a permit amendment, this Project Concept has high value for the current permit. The refinement of the species' distribution models will improve the ability to locate and monitor rare species (e.g., plants) and to better prioritize areas for conservation and management actions (e.g., restoration, property acquisition, maintaining population connectivity, etc.). Suggest adding discussion of these additional benefits to the Project Concept. | Text revised. Added brief discussion of how the project will also benefit the Adaptive Management Program. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Permit Amendment: Covered Species Surveys and Refinement of Species Distribution Models | Science Advisor Panel | Clarify relationship of this Project Concept with Project Concept "Baseline Desert Upland Monitoring" and Project Concept "Rare Plant Surveys". | Text revised. The "Baseline Desert Upland Monitoring" project is not clearly related to this project concept. "Baseline Desert Upland Monitoring" is an effort under the Adaptive Management Program to establish the baseline condition for covered species, ecosystems, and habitat condition within reserve system properties, which will provide a mechanism to better track the effectiveness of conservation actions in the future. However, if species occurrence data is collected under this project, then it will be included with other data to inform species distribution models. Data collected under the "Rare Plant Surveys" project would be used to inform and improve species distribution models under this project. The "Rare Plant Surveys" project concept will remain a separate project concept however, because it was a specific funding request made by Nevada Division of Forestry as a condition of permit issuance. Text has been clarified to indicate that data from the "Rare Plant Surveys" will also be used in this project. |
| Appendix C, Drone Pilot Project | Science Advisor Panel | Suggest re-organizing the “Adaptive Management Review Summary” so that the second sentence is first and relocate the sentence that is currently first to the end. | Text revised. The project concept has been updated. |
| Appendix C, Drone Pilot Project | Science Advisor Panel | Suggest including the development of a tortoise visibility bias model so that you can estimate how many tortoises are present but unobserved. A visibility model will help determine whether drones can be effective at estimating the population size accurately. | Text not revised. This is a pilot project to determine if this method is feasible moving forward. This is something that could be looked at pending the outcome of this pilot study. |
| Appendix C, Drone Pilot Project | Science Advisor Panel | The utility of a drone-based survey method may be limited given the fossorial nature of tortoises. Tortoises are underground up to 98% of the time, so having a drone be able to identify burrows may also be helpful, if that has not been considered already. | Text not revised. We do understand the risks of this project and that is the reason for such a small project. While identifying burrows may also be helpful it would significantly raise the price of the project due to the creation of the software, but may be something that can be looked at in a future biennium. |
| Appendix C, Drone Pilot Project | Science Advisor Panel | Consider using drones in examining fence lines for breaches after rains, or searching for distressed tortoises along new fence installation (or other barrier) on hot days. | Text not revised. This is a pilot project to determine if this method is feasible moving forward. This is something that could be looked at pending the outcome of this pilot study. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Drone Pilot Project | U.S. Fish and Wildlife Service | Although we agree with the need for additional research in this area, we feel that expectations for this project need to be clarified. Similar research projects in the past have not been successful at devising strategies that can effectively replace on the ground monitoring, and therefore reduce monitoring costs. To be applicable for range wide monitoring, survey technologies (such as drones) must be able to do more than simply detect tortoises. For example, we need to know the proportion of tortoises detected in order to create unbiased estimates of density or abundance. Similarly, we need a robust estimate of how "good" the drone is at detecting tortoises (e.g., a detection probability) in order to produce reliable occupancy models. We recognize that this is a small project but encourage you to develop a better understanding of which data would be most useful to reduce monitoring costs. | Text not revised. The expectations for this project are just to determine if we can detect tortoises under different habitat conditions and cover in a cost effective manner. We have all the same questions as you and plan to look at some of them in the future pending the outcome of this pilot study. |
| Appendix C, Sterilization Clinic | Science Advisor Panel | Suggest clarifying if this project is for males or females or both? What are the risks associated with doing this procedure? What is the success rate of sterilization? | Text not revised. As with any spay or neuter procedure performed under anesthesia there are risks involved but there is a careful screening process in place to make sure that both males and females are in good enough condition to undergo surgery and to limit complications. |
| Appendix C, Sterilization Clinic | Science Advisor Panel | This Project Concept appears to support objective D 2.1 as well. | Text revised. The project concept has been updated |
| Appendix C, Las Vegas Springs Preserve, Bearpoppy Habitat Protection | Science Advisor Panel | The project background and objectives include three actions: new fencing, a trail, and a viewing ramada. The first is expected to protect sensitive plant species, and the latter two are expected to enhance public education. Please consider that the increase in access with the trail and the viewing area could potentially result in harm to the habitat or plant populations. Thus, I suggest monitoring for the potentially positive impacts due to the fence the public education, and the potentially detrimental effects from increased access. | Text not revised. Monitoring is an included component of this project concept. |
| Appendix C, Arden Mine Complex Restoration and Bat Gate Installation | Science Advisor Panel | Is the restoration occurring following the installation of bat gates explicitly in support of creating bat foraging habitat or restoring it to native desert (and these two things may be complimentary depending on what species are located in the mines). | Text not revised. Specific protocols for conducting restoration at the Arden Mine Complex will be developed at the time of project implementation. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Arden Mine Complex Restoration and Bat Gate Installation | Science Advisor Panel | I agree that conducting bat surveys and installing bat gates on mines/shafts that contain MSHCP-covered bat species is warranted; however, it is not clear how habitat restoration around mines and backfilling un-occupied mines supports implementation of the MSHCP. Bats would be using the mines for roosting and the only way restoration would benefit them is if it created insect habitat for bat foraging (which is possible, but is not currently stated as the goal of the project). It is unclear how backfilling mines "to increase public safety" would support the MSHCP or would be within the purview of the DCP. | Text revised. Clarified that funding for habitat restoration will only be provided if we are able to confirm the presence of MSHCP covered species or species proposed for coverage under the MSHCP Amendment. |
| Appendix C, Arden Mine Complex Restoration and Bat Gate Installation | U.S. Fish and Wildlife Service | We support the installation of bat gates to protect habitat for bat species covered by the MSHCP. However, as indicated in the project concept, bat presence within the Arden Mine Complex has not been verified. Funding the closure of mines to support the development of a county park could be construed as an inappropriate use of Section 10 funds if the connection to covered species is unclear. We recommend that you contact the Nevada Department of Wildlife to assist with verifying bat presence and encourage you to determine whether bat species covered by the MSHCP are inhabiting any of the mine openings before committing Section 10 funds towards mine closure and restoration efforts. | Text revised. Clarified that funding for habitat restoration will only be provided if we are able to confirm the presence of MSHCP covered species or species proposed for coverage under the MSHCP Amendment. |
| Appendix C, Managing Connectivity of Desert Tortoise Habitats | Science Advisor Panel | The field portion (to survey areas on both sides of a highway and assess tortoise travel at an undercrossing) would benefit from more detail as to how this relates to the modeling exercise of connectivity, what data will be collected, and how the data will be analyzed. The project objective of "determine densities on both sides of the road to quantify movement rates" seems unrealistic – the movement rate relative to the desert tortoise densities would likely be too small a change to detect during field studies (but different density/connectivity scenarios could certainly be modeled). | Text revised. The two portions of the project are only related in that they both deal with the issue of connectivity on the landscape. The data collected in the field study will most likely be completed after the modeling exercise. We are not looking at change in densities over time on each side of the road; rather, we are trying to quantify crossing rates and relate that to the densities. Funding for this project has been awarded under Round 16 of SNPLMA; therefore the project concept has been removed from the 2017-2019 Implementation Plan and Budget. |

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| Appendix C, Managing Connectivity of Desert Tortoise Habitats | Science Advisor Panel | In addition to evaluating the connectivity within existing tortoise habitat, you may also want to explore using assisted migration to better understand tortoise movement patterns. It is an approach to encourage connectivity. Also, please provide more detail on the specific measurable outcome(s) of this project. | Text Revised. Populations are low enough in most areas that we don't want to deplete them if we can avoid it. There has been some work done on movement after translocation which would be comparable. This project is still a concept with multiple possible ways that it could move forward so no more information on specific measurable outcomes is available at this time. Funding for this project has been awarded under Round 16 of SNPLMA; therefore the project concept has been removed from the 2017-2019 Implementation Plan and Budget. |
| Appendix C, Managing Connectivity of Desert Tortoise Habitats | Science Advisor Panel | The project objectives state “identify one or more locations along fenced highways...”. We support using several locations rather than just one, also keeping in mind any habitat covariates (e.g., vegetation, slope, etc.) that might affect the outcome. | Text revised. We agree that more than one is preferred but there may be complications including monetary concerns, site access, and a limited number of connected culverts that may limit the amount of replicates available. Funding for this project has been awarded under Round 16 of SNPLMA; therefore the project concept has been removed from the 2017-2019 Implementation Plan and Budget. |
| Appendix C, Desert Tortoise Predator Prey Dynamics | Science Advisor Panel | Suggest adding an element to the project intended to determine the population growth rates of predators and then determine if that is related to their prey base. | Text not revised. The project will be looking at population growth rates of both predators and prey. |
| Appendix C, Desert Tortoise Predator Prey Dynamics | Science Advisor Panel | Suggest clarifying how the health status of coyotes and jackrabbits will be determined (e.g., size, age, color of coat, blood analysis, etc.). | Text revised. A clarifying sentence has been added to the approach section. |
| Appendix C, Desert Tortoise Predator Prey Dynamics | Science Advisor Panel | The sample size in the slimmed down version (i.e., excluding SNPLMA funding) sounds too small. I recommend the pilot study be well-focused and well-designed to assist in how to better address the questions to be answered. | Text not revised. Thank you for the recommendation we will see that it is carried forward to the contractor. |

| Report Section | Commenter | Comment | Comment Action/Response |
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| Appendix C, Desert Tortoise Predator Prey Dynamics | Science Advisor Panel | Is it correct that the study is looking at the dynamics between jackrabbits and coyotes, and the connection to tortoises and tortoise populations are being addressed elsewhere? If this is the correct interpretation, please consider something like: "The goal of this project is to gain a better understanding of the presence and dynamics between canids and lepids on the BCCE....". Is the thought that low jackrabbit populations would lead coyotes to prey on tortoises? I suggest adding more background information or context for this study, and relating back to how this data will impact tortoise populations/management. | Text revised. One of the main project goals is to determine a way to survey in a cost effective manner for carnivores in a new translocation site and determine if that site is at high risk of predation. There is also a concurrent study on tortoise running out on the BCCE that can be used in conjunction with this study to address how these three species interact in a predator/prey community. The project concept has been updated. |

# Attachment G

*Fund Balance Projection*

| Fund Balance Projection | Prior Year Ending 6/30/2014 | Prior Year Ending 6/30/2015 | Prior Year Ending 6/30/2016 | Prior Year Ending 6/30/2017 | Prior Year Ending 6/30/2018 | Prior Year Ending 6/30/2019 | Prior Year Ending 6/30/2020 | Prior Year Ending 6/30/2021 |
|---|---|---|---|---|---|---|---|---|
| Beginning Fund Balance | $ 57,615,336 | $ 56,400,584 | $ 56,299,664 | $ 55,114,232 | $ 52,780,948 | $ 45,351,938 | $ 39,715,010 | $ 37,270,955 |
| **Revenue** | | | | | | | | |
| Disturbance Fee Revenue | $ 918,302 | $ 3,648,464 | $ 1,309,869 | $ 2,160,983 | $ 2,268,750 | $ 2,382,188 | $ 2,501,297 | $ 2,626,362 |
| Interlocal Cooperative Agreements (SNPLMA) | $ 362,503 | $ 399,765 | $ 392,217 | $ 384,800 | $ 236,575 | $ 243,672 | $ 250,982 | $ 258,512 |
| Interest Earnings | $ 614,404 | $ 647,511 | $ 401,321 | $ 554,410 | $ 527,809 | $ 527,809 | $ 397,150 | $ 372,710 |
| Other | | $ 42 | $ 104 | | | | | |
| Subtotal Revenues | $ 1,895,209 | $ 4,695,782 | $ 2,103,511 | $ 3,100,193 | $ 3,033,134 | $ 3,153,669 | $ 3,149,429 | $ 3,257,584 |
| Total Available Resources (Fund Balance plus Revenues) | $ 59,510,545 | $ 61,096,366 | $ 58,403,174 | $ 58,214,425 | $ 55,814,082 | $ 48,505,607 | $ 42,864,439 | $ 40,528,539 |
| **Expenditures** | | | | | | | | |
| Salaries & Wages | $ 844,493 | $ 950,790 | $ 839,898 | $ 851,564 | $ 1,452,415 | $ 1,540,722 | $ 1,634,398 | $ 1,733,769 |
| Employee Benefits | $ 420,327 | $ 417,972 | $ 400,944 | $ 412,308 | $ 674,565 | $ 715,579 | $ 759,086 | $ 805,238 |
| Services & Supplies | $ 1,821,889 | $ 3,416,863 | $ 2,048,101 | $ 4,132,616 | $ 5,346,242 | $ 6,534,296 | $ 3,200,000 | $ 3,360,000 |
| Capital Outlay | $ 23,252 | $ 11,077 | | $ 36,989 | $ 2,988,922 | | | |
| Subtotal Expenditures | $ 3,109,961 | $ 4,796,702 | $ 3,288,942 | $ 5,433,477 | $ 10,462,144 | $ 8,790,597 | $ 5,593,484 | $ 5,899,007 |
| **Ending Fund Balance (Resources less Expenditures)** | **$56,400,584** | **$56,299,664** | **$55,114,232** | **$52,780,948** | **$45,351,938** | **$39,715,010** | **$37,270,955** | **$34,629,532** |

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| Fund Balance Projection (continued) | Prior Year Ending 6/30/2022 | Prior Year Ending 6/30/2023 | Prior Year Ending 6/30/2024 | Prior Year Ending 6/30/2025 | Prior Year Ending 6/30/2026 | Prior Year Ending 6/30/2027 | Prior Year Ending 6/30/2028 | Prior Year Ending 6/30/2029 | Prior Year Ending 6/30/2030 |
|---|---|---|---|---|---|---|---|---|---|
| Beginning Fund Balance | $ 34,629,532 | $ 31,778,396 | $ 28,704,464 | $ 25,393,865 | $ 21,831,896 | $ 18,002,969 | $ 13,890,563 | $ 9,477,163 | $ 4,744,204 |
| **Revenue** | | | | | | | | | |
| Disturbance Fee Revenue | $ 2,757,680 | $ 2,895,564 | $ 3,040,342 | $ 3,192,359 | $ 3,351,977 | $ 3,519,576 | $ 3,695,555 | $ 3,880,332 | $ 4,140,400 |
| Interlocal Cooperative Agreements (SNPLMA) | $ 266,267 | $ 274,255 | $ 282,483 | $ 290,957 | $ 299,686 | $ 308,677 | $ 317,937 | $ 327,475 | $ 337,299 |
| Interest Earnings | $ 346,295 | $ 317,784 | $ 287,045 | $ 253,939 | $ 218,319 | $ 180,030 | $ 138,906 | $ 94,772 | $ 47,442 |
| Other | | | | | | | | | |
| Subtotal Revenues | $ 3,370,242 | $ 3,487,603 | $ 3,609,870 | $ 3,737,255 | $ 3,869,982 | $ 4,008,283 | $ 4,152,398 | $ 4,302,579 | $ 4,525,141 |
| Total Available Resources (Fund Balance plus Revenues) | $ 37,999,774 | $ 35,265,999 | $ 32,314,334 | $ 29,131,120 | $ 25,701,878 | $ 22,011,252 | $ 18,042,961 | $ 13,779,742 | $ 9,269,345 |
| **Expenditures** | | | | | | | | | |
| Salaries & Wages | $ 1,839,182 | $ 1,951,004 | $ 2,069,625 | $ 2,195,458 | $ 2,328,942 | $ 2,470,542 | $ 2,620,751 | $ 2,780,093 | $ 2,949,123 |
| Employee Benefits | $ 854,196 | $ 906,131 | $ 961,224 | $ 1,019,665 | $ 1,081,661 | $ 1,147,426 | $ 1,217,190 | $ 1,291,195 | $ 1,369,700 |
| Services & Supplies | $ 3,528,000 | $ 3,704,400 | $ 3,889,620 | $ 4,084,101 | $ 4,288,306 | $ 4,502,721 | $ 4,727,857 | $ 4,964,250 | $ 4,950,522 |
| Capital Outlay | | | | | | | | | |
| Subtotal Expenditures | $ 6,221,378 | $ 6,561,535 | $ 6,920,469 | $ 7,299,224 | $ 7,698,909 | $ 8,120,689 | $ 8,565,798 | $ 9,035,538 | $ 9,269,345 |
| **Ending Fund Balance (Resources less Expenditures)** | **$31,778,396** | **$28,704,464** | **$25,393,865** | **$21,831,896** | **$18,002,969** | **$13,890,563** | **$ 9,477,163** | **$ 4,744,204** | **$ 0** |