



IMPLEMENTATION PLAN AND BUDGET

2025-2027

Final – February 2025



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ACRONYMS

BCCE	Boulder City Conservation Easement
BLM	Bureau of Land Management
CpG	Cytosine-phosphate-guanine
DCP	Desert Conservation Program
DNA	Deoxyribonucleic acid
MSHCP	Multiple Species Habitat Conservation Plan
NDNH	Nevada Division of Natural Heritage
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NNPS	Nevada Native Plants Society
PCR	Polymerase chain reaction
RHDV2	Rabbit hemorrhagic disease virus type 2
SNPLMA	Southern Nevada Public Land Management Act
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

INTRODUCTION

The Clark County Desert Conservation Program (DCP) 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 (NDOT) - 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 DCP 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 (USFWS) 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 DCP 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 desert tortoise (*Gopherus agassizii*) 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 2025-2027 Implementation Plan and Budget for the Clark County MSHCP and the outcome of the budget deliberations.

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, and as such, the County Manager shall appoint a Plan Administrator to implement the MSHCP on behalf of the Permittees. The Director of the Clark County Department of Environment and Sustainability currently serves as the Plan Administrator and manages oversight and implementation of the MSHCP and Section 10(a)(1)(B) incidental take permit. The Plan Administrator has management oversight over the program and has authority over amendments, coordination with Permittees, and making recommendations to the Clark County Board of County Commissioners, which has final decision-making authority over implementation of the MSHCP.

The Principal Environmental Specialist serves as the Program Administrator and provides supervisory oversight of the DCP. The Program Administrator reports to the Plan Administrator. In general, the Program Administrator is responsible for day-to-day operations, the preparation and implementation of a biennial Implementation Plan and Budget, compliance monitoring, and reporting.

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
- USFWS 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 USFWS.

The Plan Administrator has identified the budget process as an area of the MSHCP requiring significant revision and thus has been working with the USFWS on a major amendment to the MSHCP. In the short-term, and 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. This same process continues to be used today to develop the 2025-2027 Implementation Plan and Budget.

EXPLANATION OF THE BUDGET PROCESS USED SINCE THE 2011-2013 BIENNIUM

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. Thus, 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 [USFWS] 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 USFWS, will determine the conservation measures to be funded and implemented. The Plan Administrator received formal concurrence from the USFWS on this clarification on April 14, 2010.

FUNDING SOURCES

SECTION 10 FUNDS

Funding to implement the permit conditions and conservation actions in the MSHCP is primarily 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.

SOUTHERN NEVADA PUBLIC LAND MANAGEMENT ACT FUNDS

Additional funding is available from the sale of federal land in Clark County as authorized by the Southern Nevada Public Land Management Act (SNPLMA) of 1998, as amended. This funding is awarded on a competitive basis and is not guaranteed. The Bureau of Land Management (BLM) administers the SNPLMA funding program and calls for project nominations approximately every 1 to 3 years, with each call for nominations referred to as a "SNPLMA Round". Nineteen rounds of nominated projects have been awarded to date with Round 20 currently in progress at the time of this writing. Projects identified for submission under Round 20 were described in the 2023-2025 Implementation Plan and budget report.

The BLM has announced their intent to open the Round 21 call for nominations in January 2026. In anticipation of this, DCP staff have begun identifying potential project concepts that would be suitable to nominate for SNPLMA funding under Round 21. These projects would be implemented as conservation actions under this 2025-2027 Implementation Plan and Budget. Round 21 nominations will be submitted to Board of County Commissioners for approval prior to submittal to the BLM. Projects that have been identified as suitable for nomination under Round 21 include the following:

- Muddy River Restoration Project (Project Concept #19) – Round 21 submission
- Rainbow Owl Preserve Acquisition (Project Concept #10) – to be submitted as an off-cycle, high-value property acquisition nomination

LICENSE PLATE FUNDS

Since 2018, the Desert Conservation Plan has been receiving additional revenue through the sale of specialty license plates in Nevada. Sales of the desert tortoise license plate earned approximately \$250,000.00 in revenue during the 2023-2025 biennium; this is additional revenue that is available to use towards the implementation of the MSHCP for the 2025-2027 biennium.

MISCELLANEOUS GRANT PROGRAMS

The DCP may submit applications for funding under a variety of federal and state-funded grant programs, as applicable. Per Clark County Fiscal Directive 2, any application for grant funding that is not included in a department's annual budget must be approved by the Board of County Commissioners prior to submittal of the application. Thus, grant opportunities that are not identified in this Implementation Plan and Budget report will need be submitted to the Board for approval.

Upcoming grant opportunities that have been identified for the 2025-2027 biennium include the Conserve Nevada program administered by the Nevada Department of Conservation and Natural Resources. Two projects have been identified that are suitable for submission under this grant funding program:

- BCCE Visitor Access Improvements (included in Project Concept #7, Management of the BCCE), and
- Riparian Reserve Units, Acquisition, Inventory, and Restoration Support (included in Project Concept #4, Management of Riparian Reserves).

DE-OBLIGATION OF PREVIOUSLY ALLOCATED FUNDS

De-obligation of previously allocated funds for two projects has been determined necessary, as described further below.

The U.S. 95 Telemetry Study project was included in the 2021-2023 Implementation Plan and Budget and \$300,000 in Section 10 funding was allocated to the project. The objective of this study was to determine how translocated tortoises and resident tortoises differ in their use of culverts to move across roadways. To complete this study, a source of tortoises eligible for translocation was required; however, we have been unable to secure the necessary number of animals required to carry out this study, thus the Section 10 funds allocated in the 2021-2023 Implementation Plan and Budget will be de-obligated.

The Artificial Neural Network to Identify Vegetation Classes project was included in the 2023-2025 Implementation Plan and Budget and \$60,000 in Section 10 funding was allocated to the project. This was a proof-of-concept study to determine whether artificial neural networks could be used to more cost-effectively and efficiently update spatial vegetation classifications. The researcher that was identified for this work is no longer available and we have been unable to find an alternative researcher with the appropriate qualifications. Therefore, Section 10 funds allocated in the 2023-2025 Implementation Plan and Budget will be de-obligated.

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 non-discretionary. Non-discretionary 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, and operation of the Wild Desert Tortoise Assistance Line. Additional actions that are considered non-

discretionary include actions specified by a Master Permit for the Removal or Destruction of Fully-protected Flora issued to the MSHCP Permittees by the Nevada Division of Forestry (NDF).

Other actions that further the goals and objectives of the MSHCP but are not directly specified in the incidental take permit or the master permit issued by NDF, are considered discretionary. These may include actions such as scientific research projects and desert tortoise augmentation projects. Both non-discretionary 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 2025-2027 Implementation Plan and Budget was an iterative process that began in June 2024. The Program Administrator prepared draft budget principles and a draft process and schedule, which were provided to the USFWS, NDF, and the independent Science Advisor Panel for review and comment on June 18, 2024. Attachment A outlines the process and schedule agreed to by the parties and used to prepare the 2025-2027 Implementation Plan and Budget. The budget principles, available in Attachment B, guide the development and selection of project concepts for the 2025-2027 biennium.

Based on the budget principles, the Science Advisor Panel prepared an independent review of the program and provided recommendations for discretionary funding projects. Additionally, the USFWS and NDF were invited to submit funding recommendations to the Program Administrator for consideration in the 2025-2027 Implementation Plan and Budget process. The Program Administrator then prepared project concepts and budgets considering the various funding recommendations, guidance in the incidental take permit and MSHCP, the budget clarification agreed to between the Plan Administrator and USFWS, status of these efforts, needs anticipated during the 2025-2027 biennium, the budget principles developed by the Program Administrator, and previous budgets and expenditures.

The Program Administrator prepared the following non-discretionary project concepts for the 2025-2027 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. Monitoring: provides for ongoing species and habitat monitoring efforts to determine whether biological goals and objectives are being met and to inform the adaptive management program.
3. 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 biological goals and objectives using a science-based approach and helps answer questions relevant to land managers. Includes funding for the independent Science Advisor Panel.
4. Management of the Riparian Reserves: provides for ongoing maintenance and management of the Riparian Reserve Units along the Muddy and Virgin rivers and for management of associated water rights.
5. Desert Tortoise Translocation: includes funding to conduct translocation of wild desert tortoises displaced by development, to identify additional sites suitable for translocation, to conduct pre- and post-translocation monitoring of tortoises, and provides for maintenance of the temporary holding facility, desert tortoise health assessments, and veterinary expenses.

6. Desert Tortoise Fencing: provides for installation of desert tortoise fencing in high-priority locations and to support ongoing monitoring and maintenance of existing fencing.
7. Management of the BCCE: provides for peace officer patrols of the BCCE and funding to conduct ongoing maintenance activities as outlined in the easement agreement and BCCE management plan.

The Program Administrator prepared the following discretionary project concepts for inclusion in the 2025-2027 Implementation Plan and Budget:

8. Permit Amendment Support: provides funding for supporting analyses necessary for the permit amendment application as well as consultants that will aid the County in preparing application documents and any associated agreements, management plans, or supplemental analyses.
9. Modeling Climate Refugia for Species Covered under the MSHCP Amendment: model climate refugia for proposed covered species to aid in identifying potential habitat areas for conservation and/or management.
10. Rainbow Owl Preserve Acquisition and Management: provides funding for the acquisition of two parcels that are currently managed as a preserve for burrowing owls (*Athene cunicularia*) within the urban development boundary; also provides for the development of a management plan and initial management of the preserve.
11. Web-accessible Data Portal: create a web-accessible database and an interface to allow MSHCP data to be collected, catalogued, visualized, filtered and accessed by staff and contractors.
12. Public Information, Education, and Outreach: provides funding for a variety of outreach efforts including the Mojave Max education program, updates to the construction worker education program, and miscellaneous advertising campaigns to promote responsible recreation.
13. Riparian Restoration: restore, create, and enhance riparian habitat for MSHCP covered species within the Muddy River and Virgin River reserve units.
14. Camel Herbivory Treatment: provides funding for an experimental design to examine the effectiveness of camel herbivory as a biological control for tamarisk (*Tamarix spp.*) on the Virgin River.
15. Demography Surveys for White-margined Penstemon: collect data to support the evaluation of the species status, including demographic data and population estimates.
16. Effects of Solar Farms on Threecorner Milkvetch: provides funding to study the effects of solar panels on seedling growth and recruitment of threecorner milkvetch (*Astragalus geyeri* var. *triquetrus*) within solar facilities.
17. Developing an Aging Method for the Desert Tortoise: develop a deoxyribonucleic acid (DNA) methylation clock that provides an accurate assessment of desert tortoise age to aid in determining desert tortoise vital rates.
18. Predator-Prey Dynamics: provides funding for the final year of the predator-prey dynamics study that is evaluating ecology of black-tail jackrabbits (*Lepus californicus*) and coyotes (*Canis latrans*) to provide data that will aid in improving management outcomes for desert tortoise.
19. Muddy River Restoration: conduct restoration activities on Muddy River Reserve Unit parcels A-E, to include reconnecting the river to the floodplain, non-native plant removal, and replanting with native species.

The complete project concepts are available in Attachment C.

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 DCP 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 DCP 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, except for funds budgeted for MSHCP Administration, which are fixed to each biennium and cannot roll over. 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.

SUMMARY OF DISCUSSIONS

STAKEHOLDER DISCUSSIONS TO DATE

Drafts of the Process and Schedule and Budget Principles were provided to the independent Science Advisor Panel, the USFWS, and the NDF on June 18, 2024. No substantive comments were received. The final Process and Schedule and Budget Principles are provided in Attachments A and B, respectively.

The Science Advisor Panel provided an independent analysis of the program with funding recommendations on July 30, 2024. Funding recommendations were also provided by USFWS on August 8, 2024, and by NDF on August 7, 2024. Senior-level staff within the DCP reviewed all funding recommendations to determine which projects should be advanced in the 2025-2027 Implementation Plan and Budget. A summary of all funding recommendations and response to recommendations is included in Attachment D.

A copy of the draft 2025-2027 Implementation Plan and Budget report, including project concepts and proposed budgets, was provided to USFWS, BLM, NDF, Nevada Department of Wildlife (NDOW), and the Science Advisor Panel on November 13, 2024, with comments due by December 13, 2024. Comments were submitted by NDF and the Science Advisor Panel. A summary of comments and response to comments is provided in Attachment E.

PUBLIC COMMENT PERIOD AND RESPONSE TO COMMENTS

The Draft 2025-2027 Implementation Plan and Budget report was posted on Clark County's website (https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/desert_conservation_program/index.php) on January 16, 2025. The public comment period closed at 5:00 p.m. PST on February 7, 2025. No public comments were received and the Final 2025-2027 Implementation Plan and Budget is scheduled to be presented to the Board of County Commissioners for approval at the April 1, 2025 meeting.

PROPOSED 2025-2027 IMPLEMENTATION PLAN AND BUDGET

Upon consideration of all the discussions and comments to date, the Program Administrator has proposed a 2025-2027 biennial budget of \$18,431,842. Proposed expenditures are detailed in Table 1 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 USFWS. This Implementation Plan and Budget Report will be submitted to the Clark County Board of County Commissioners for approval following all stakeholder discussions and the public review period (estimated February 2025).

Table 1.

Proposed 2025-2027 Implementation Plan and Budget

CONCEPT NUMBER	PROJECT TITLE	FUNDING SOURCE		
		SECTION 10 FUNDS	ROUND 21 SNPLMA FUNDS	LICENSE PLATE FUNDS
ADMINISTRATION*				
1	General Administration	\$ 1,854,420	\$ 0	\$ 0
1	Staff Salaries and Benefits to Implement Conservation Projects**	\$ 3,387,509	\$ 0	\$ 0
Subtotal (Administration)		\$ 5,241,929	\$ 0	\$ 0
NON-DISCRETIONARY CONSERVATION PROJECTS				
2	Monitoring	\$1,412,333	\$ 0	\$ 0
3	Adaptive Management Program	\$ 484,844	\$ 0	\$ 0
4	Management of the Riparian Reserves	\$ 102,749	\$ 0	\$ 0
5	Desert Tortoise Translocation	\$ 361,770	\$ 0	\$ 0
6	Desert Tortoise Fencing	\$ 200,000	\$ 0	\$ 100,000
7	Management of the BCCE	\$ 342,296	\$ 0	\$ 0
Subtotal (Non-discretionary Conservation Projects)		\$ 2,903,992	\$ 0	\$ 100,000
DISCRETIONARY CONSERVATION PROJECTS				
8	Permit Amendment Support	\$ 245,878	\$ 0	\$ 0
9	Modeling Climate Refugia for Species Covered under the MSHCP Amendment	\$ 350,000	\$ 0	\$ 0
10	Rainbow Owl Preserve Acquisition and Management	\$ 0	\$ 3,000,000	\$ 75,000
11	Web-accessible Data Portal	\$ 160,000	\$ 0	\$ 0

2025-2027 IMPLEMENTATION PLAN AND BUDGET

CONCEPT NUMBER	PROJECT TITLE	FUNDING SOURCE		
		SECTION 10 FUNDS	ROUND 21 SNPLMA FUNDS	LICENSE PLATE FUNDS
12	Public Information, Education, and Outreach	\$ 164,384	\$ 0	\$ 75,000
13	Riparian Restoration	\$ 376,340	\$ 0	\$ 0
14	Camel Herbivory Treatment	\$ 77,000	\$ 0	\$ 0
15	Demography Surveys for White-margined Penstemon	\$ 483,000	\$ 0	\$ 0
16	Effects of Solar Farms on Threecorner Milkvetch	\$ 97,493	\$ 0	\$ 0
17	Develop an Aging Method for the Desert Tortoise	\$ 141,570	\$ 0	\$ 0
18	Predator-Prey Dynamics	\$ 300,256	\$ 0	\$ 0
19	Muddy River Restoration	\$ 0	\$ 5,000,000	\$ 0
Subtotal (Discretionary Conservation Projects)		\$ 2,395,921	\$ 8,000,000	\$ 150,000
Total 2025-2027 Budget		\$ 10,181,842	\$ 8,000,000	\$ 250,000

BUDGET SUMMARY

Section 10 Funds	\$ 10,181,842
De-obligated Section 10 Funds	(\$ 360,000)
SNPLMA Funds	\$ 8,000,000
License Plate Funds	\$ 250,000
TOTAL	\$ 18,431,842

* 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 2025-2027 biennium as well as 66 existing conservation projects from previous biennia.

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ATTACHMENT A

Process and Schedule

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In 2010, an analysis of MSHCP funding determined that the Permittees had met the minimum required expenditures anticipated to be spent for the entire 30-year permit. Following this analysis, Clark County sought clarification from the USFWS regarding what to do in the event the Permittees' expenditures exceed the total required expenditures for the stated term of the incidental take permit. The agreed upon clarification specifies that the budget process outlined in the Implementing Agreement is no longer necessary for determining how mitigation funds will be expended; rather Clark County, as the Plan Administrator for the MSHCP, will determine the appropriate expenditure of funds in cooperation with USFWS. The following process and schedule is based on this clarification language formally agreed to by USFWS in writing on April 14, 2010.

In addition to the clarification language that was agreed to in 2010, this process and schedule also incorporates requirements for coordinating the expenditure of funds with the NDF (NDF). These requirements are memorialized in the terms and conditions of the Special Permit for the Removal or Destruction of Plant Species in Clark County, Nevada, issued by NDF on March 26, 2019.

- Early June 2024: The DCP Senior Team develops the draft Process and Schedule and draft Budget Principles documents.
- Late June 2024: The draft Process and Schedule and draft Budget Principles documents are provided to the Science Advisor Panel, NDF, and USFWS for review and comment.
- Early July 2024: Science Advisor Panel, NDF, and USFWS submit any comments on the draft Process and Schedule and draft Budget Principles.
- Mid July 2024: DCP prepares and distributes final Process and Schedule and final Budget Principles.
- June – July 2024: DCP staff prepares draft project concepts and budgets for non-discretionary conservation measures; submits to DCP Senior Team for review and editing.
- Late July 2024 DCP Senior Team compiles a summary of non-discretionary project budgets and submits this to the Science Advisor Panel, NDF, and USFWS along with a request for recommendations on discretionary action funding.
- Early August 2024: Science Advisor Panel, NDF, and USFWS submit their discretionary project funding recommendations¹.
- Mid-August 2024: DCP Senior Team discusses discretionary project recommendations provided by the Science Advisor Panel, NDF, and USFWS; develops initial list of projects for inclusion in the draft Implementation Plan and Budget report.
- Late August – Early February 2025: DCP staff prepares draft project concepts and budgets for discretionary conservation measures; submits to DCP Senior Team for review and editing.

¹ At DCP's discretion, discretionary project funding recommendations may also be solicited from other stakeholders (e.g., BLM, NDOW, etc.).

- Mid-October – Early February 2025: DCP Senior Team staff compiles the draft Implementation Plan and Budget report; draft Implementation Plan and Budget report is provided to the Executive Committee, Science Advisor Panel, NDF, and USFWS for review and comment.
- Mid December 2024: DCP revises the draft Implementation Plan and Budget report as appropriate, and posts draft Implementation Plan and Budget report for public comment.
- December 2024: DCP Plan Administrator briefs Clark County management on upcoming Implementation Plan and Budget process.
- February 2025: DCP responds to public comment, finalizes Implementation Plan and Budget, and schedules item for Board of County Commission approval.
- February 2025: Board of County Commissions will vote on approving/adopting the 2025-2027 Implementation Plan and Budget.
- March – June 2025: DCP works with the Science Advisor Panel and other experts to determine detailed methods for implementing conservation measures and for conducting effectiveness monitoring, if needed.
- July 1, 2025: The 2025-2027 Implementation Plan and Budget goes into effect. Project implementation may begin.

TBD: If applicable, DCP staff prepares and submits proposals for funding under Round 21 and/or Round 22 of the SNPLMA. This timeframe is to be determined; the call for nomination dates have not yet been established by the BLM. Funding awarded under SNPLMA is typically made available approximately 14-18 months following the call for funding nominations.

ATTACHMENT B

Budget Principles

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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 to be responsive to these principles.

1. Fulfills explicit permit conditions outlined in the Section 10 incidental take permit.
2. Responds to recommendations from the NDF 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 2021 through Spring 2023, approximately 7,527 acres of habitat were disturbed on private land. Disturbance by ecosystem type for the 2021-2023 biennium is as follows:
 - Mojave Desert scrub – 7,088 acres
 - Salt desert scrub – 47 acres
 - Blackbrush – 34 acres
 - Playa – 92 acres
 - Mesquite/acacia – 253 acres
 - Desert riparian – 11 acres
4. Provides for continued funding of ongoing and effective conservation measures.
5. Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program.
6. Responds to the most recent Science Advisor Panel 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 2025-2027 biennium include:
 - Develop conservation actions for ecosystems undergoing the highest total loss and the highest proportional loss. These include Mojave desert scrub, mesquite/acacia, salt desert scrub, playa, and desert riparian habitat. Begin transitioning to the 2019 United States National Vegetation Classification System (USNVC) dataset; determine which of the 2019 USNVC divisions warrant conservation focus.
 - Focus on projects that improve connectivity of desert tortoise populations.
 - Continue to expand species and habitat monitoring under the Adaptive Management Program.
 - Implement a monitoring program for ecosystem health.

- Begin laying the foundations for transitioning to a new permit.
10. Addresses changed and unforeseen circumstances, which are described in Section 2.10 of the MSHCP. At the time of this writing, no changed and unforeseen circumstances have been identified.

ATTACHMENT C

Project Concepts

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MSHCP ADMINISTRATION

BACKGROUND AND NEED FOR PROJECT:

Administration of the DCP encompasses all aspects of implementing the MSHCP and complying with the incidental take permit issued by the USFWS. 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 predictable 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 USFWS on a project-by-project basis. Administration of the MSHCP has allowed the orderly economic development of over 127,000 acres and has generated nearly \$5 billion in economic output since its inception in 2001².

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

COUNTY INTERNAL SERVICE CHARGES TO THE DCP

The DCP is a Division within the Department of Environment and Sustainability. As such, since 2008, the DCP 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 2025-2027 biennium, these expenses are estimated to be \$557,000.00.

DCP OPERATIONAL EXPENSES

In addition, the DCP 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 2025-2027 biennium these expenses are estimated to be \$93,250.00.

² Applied Analysis, 2017. Economic Analysis: MSHCP. Prepared for the Clark County DCP under contract 2013-AA-1460B.

Available online at:

<https://www.clarkcountynv.gov/Environmental%20Sustainability/DCP%20Reports/2017/MSHCP%20Economic%20Analysis.pdf>.

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 DCP and achieve a sustained response to Recommendation Number 27 in the Clark County DCP Management Analysis published by Kirchoff and Associates in December 2005³ and adopted by the Board of County Commissioners. This independent analysis determined that the DCP 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 DCP 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 overstaffing 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 DCP is currently authorized for up to 17 full-time equivalents (FTEs), with 10 FTEs and 1 part-time position currently filled and 6.5 FTEs vacant. The DCP 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 DCP is proposing to staff the 2025-2027 Implementation Plan and Budget with 10 FTEs; and two part-time positions. This would leave 6 FTEs vacant and result in an estimated program vacancy savings of \$1,726,965.50 for the 2025-2027 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 SNPLMA assistance agreements and compliance therewith.
- Adaptive Management. The Adaptive Management Program team provides the following:
 - Oversight and project management of Science Advisor Panel, peer reviews, and spatial and statistical analysis contracts;
 - Analysis of land use trends, habitat loss by ecosystem, species and habitat monitoring data, and implementation status;

³ Kirchoff and Associates, 2005. A Program Management Analysis of the Clark County Desert Conservation Program. Available online at:

<https://webfiles.clarkcountynv.gov/Environmental%20Sustainability/Desert%20Conservation/Program%20Reporting/Program%20Management%20Analysis-December%202005.pdf>

- Production of periodic status reports on the Adaptive Management Program;
- Participation in regional 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 DCP staff efforts, agencies, consultants, and commercial sources to address the above analyses.
- Project/Contract Management. The project/contract management team is responsible for overseeing procurement, contract and agreement management for the Program, and for providing project management and oversight for all projects, including but not limited to:
 - BCCE management
 - Wild desert tortoise assistance
 - Fencing (for wildlife and habitat protection)
 - Riparian property and water rights management
 - Restoration
 - GIS and data management
 - 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 DCP 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 DCP receives dedicated and priority support, the DCP funds 50 percent of the salary and benefits for the position and these figures are included in the DCP's salaries and benefits budget.
- Programmer Analyst. The Department of Environment and Sustainability maintains a dedicated information technology support team, including a programmer analyst position that provides maintenance and support for technology and software systems used by DCP staff. The DCP funds 50 percent of the salary and benefits for the position and these figures are included in the DCP's salaries and benefits budget.

For the 2025-2027 biennium, the total required salaries and benefits budget is \$4,516,679. It is important to note that only a portion, 25 percent or \$1,129,170.00, of this budget is allocated for general administrative activities and that 75 percent of this budget, or \$3,387,509.00, consists of the staff salaries and benefits dedicated to the direct implementation by staff of 66 existing and 19 proposed conservation projects.

ADMINISTRATIVE BUDGET AMOUNTS IN CONTEXT

The total recommended Implementation Plan and Budget for 2025-2027 is \$18,431,842. County internal service charges, DCP operating expenses, capital expenses, and salaries and benefits for general administration of the program amounts to \$1,854,420, or 10.1 percent of the total proposed budget. It should be noted that 66 "master project" budgets totaling \$35,400,872 are currently ongoing and will continue to be administered into the upcoming biennium, 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 \$1,854,420 is 3.4 percent of the total funds being administered during the 2025-2027 Implementation Plan and Budget.

The remaining \$16,577,422 or 89.9 percent of the 2025-2027 budget is comprised of the direct project costs of the proposed conservation projects (\$13,189,913) and the DCP staff salaries and benefits to implement the existing and proposed conservation projects (\$3,387,509).

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is not suitable for an adaptive management approach.

PROJECT GOAL(S):

The goal of the administration of the DCP 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 DCP 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 DCP will be done in accordance with the MSHCP, incidental take permit, and Clark County policy, procedure, and practice. In the past, the DCP outsourced much of the work related to implementation of the MSHCP. Over the last five biennia, there has been a shift towards DCP staff taking a much more active role in performing the work necessary to comply with plan and permit requirements. The DCP will continue to use a combination of outsourcing and conducting work in-house to meet program requirements.

PROJECT COST

County Internal Service Charges	\$557,000
Operational Expenses	\$93,250
Salaries and Benefits for General Administration	\$1,129,170
Salaries and Benefits for Implementation of Conservation Projects	\$3,387,509
Capital Expenses	\$75,000
Total Administration Budget	\$5,241,929

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

Principle #1 - Fulfills explicit permit conditions outlined in the Section 10 incidental take permit. Permit Condition F 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.

MONITORING

BACKGROUND AND NEED FOR PROJECT:

Monitoring is a required component of any habitat conservation plan as it informs the adaptive management program and provides information necessary to evaluate the effectiveness of conservation actions. In addition to being a requirement, species and habitat monitoring can serve multiple purposes under the MSHCP. Monitoring can aid in understanding how populations are responding to management actions, in detecting changes in habitat quality over time, and in determining when management actions need to be adjusted. Monitoring data can also be used to support the evaluation of a species listing status by regulatory agencies and may ultimately be used to support species listing or de-listing decisions. And finally, monitoring is essential in determining whether Biological Goals and Objectives established under the MSHCP are being met.

This project would continue monitoring efforts for covered species and their habitat throughout Clark County as described in the 2023 Adaptive Management and Monitoring Plan⁴, or any subsequent version.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is essential to the adaptive management program as it provides funding to conduct effectiveness monitoring and provides data used by the Science Advisor Panel to assess whether Biological Goals and Objectives are being met. It also provides for species-specific and habitat monitoring, which facilitates assessment of population status, habitat quality, and trends over time.

PROJECT GOAL(S):

The goal of this project is to conduct effectiveness monitoring in accordance with the Adaptive Management and Monitoring Plan for the MSHCP.

PROJECT OBJECTIVE(S):

The objectives of this project are:

- Conduct line-distance sampling protocols to estimate desert tortoise density within six Tortoise Conservation Areas to provide a population estimate for each of the areas over a 2-year period.
- Continue occupancy monitoring for desert tortoise and other reptiles on the BCCE.
- Continue point count surveys for birds within the Reserve System and continue implementing established protocol surveys for the federally listed birds across the riparian properties.
- Continue acoustic surveys for bat species within the Reserve System.
- Continue vegetation and habitat monitoring across the Reserve System.

⁴ Alta, 2023. Adaptive Management and Monitoring Plan Version 2. Prepared for the Clark County DCP. 99 pp. Available online at: <https://www.clarkcountynv.gov/Environmental%20Sustainability/Desert%20Conservation/Adaptive%20Mgt%20Program%20Reports/AMMP%20-%20Updated%2020230202.pdf>.

- Acquire imagery to support a variety of analyses.

PROJECT APPROACH:

Methods for species surveys and habitat monitoring will use established protocols as described in the Adaptive Management and Monitoring Plan and in collaboration with the Science Advisor Panel. Each of the objectives outlined above will be accomplished as further described below.

DESERT TORTOISE POPULATION ESTIMATE

Population estimates for the six Tortoise Conservation Areas occurring in Clark County will be achieved using standard range-wide line-distance transect sampling protocol that was established and is overseen by the USFWS. DCP will coordinate with the USFWS to carry out surveys and analyze data to determine population densities and trends.

REPTILE OCCUPANCY SAMPLING ON THE BCCE

Occupancy sampling for desert tortoise has been conducted on the BCCE since 2013, and beginning in 2020, these surveys were modified to include the collection of data on other reptile species covered under the MSHCP. Reptile occupancy sampling will continue to use the same protocols as used in previous years, although the number of plots and/or plot visits may be adjusted as appropriate.

BIRD MONITORING

Surveys for federally listed bird species, southwestern willow flycatcher (*Empidonax traillii extimus*) and yellow-billed cuckoo (*Coccyzus americanus*), will continue using established federal protocols. In addition to the protocol-level surveys for federally listed species, point count survey methods will be used to monitor bird populations on Reserve System properties. The DCP will also test the effectiveness of passive acoustic detectors to determine if this method can serve as a suitable replacement for point-count survey methods.

BAT MONITORING

DCP will continue to conduct passive acoustic monitoring for bat species within the Reserve System. Analysis of acoustic data will be completed by contractors with appropriate training in acoustic analysis for passive detectors.

HABITAT MONITORING

DCP will continue to monitor desert upland and riparian ecosystems based on protocols described in the latest version of the Adaptive Management and Monitoring Plan.

PROJECT COST

\$ 1,412,333

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

Principle # 1. Fulfills explicit permit conditions outlined in the Section 10 incidental take permit. Permit condition H requires monitoring as specified in section 2.8 of the MSHCP. This project will fund monitoring of covered species and their habitats.

Principle # 5. Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project relates to multiple Biological Objectives by providing data on species and populations trends as well as data on habitat so that an adaptive management approach can be implemented if declines in species populations or habitat quality are detected.

Principle # 7. Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project will result in measurements of species density and/or occupancies that will inform the MSHCP and provide information on the effectiveness of mitigation actions.

Principle # 9. Addresses program goals. This project will continue to provide monitoring of covered species as well as continue to expand the monitoring program to evaluate ecosystem health.

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 will 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. Funding under this project concept also provides for field testing and refinement of various protocols and methodologies. Results can be used to guide future 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 to determine effectiveness and to assess whether Biological Goals and Objectives are being met, and is therefore, a crucial component in adaptively managing all projects implemented under the MSHCP.

PROJECT GOAL(S):

The goal of this project is to ensure that the best available scientific and technical data is collected to inform sound management recommendations for MSHCP implementation, as required by the Section 10 incidental take permit.

PROJECT OBJECTIVE(S):

The objectives of this project are:

- Administer a contract with 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 and evaluating project effectiveness to help ensure an adaptive management approach to all appropriate projects. The Science Advisor Panel also develops the biennial Adaptive Management Report, which details land use trends, habitat loss by ecosystem, implementation status, and progress towards achieving Biological Goals and Objectives.
- 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.

PROJECT APPROACH:

Staff and contractors will be used to perform the above functions using the best available scientific and commercial data. The Science Advisor Panel will continue to contribute their expertise to ensure that the best

available science is being used in the development of new projects and to help determine appropriate places for adaptive management to be used within the program.

PROJECT COST

\$484,844

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

Principle #1. Fulfills explicit permit conditions outlined in the Section 10 incidental take permit. 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 #5. Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. Implementation of the Adaptive Management Program addresses all Biological Goals and Objectives. This project will influence all projects that are implemented to achieve the Biological Goals and Objectives for the program.

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 occupied by covered species, etc.

Principle #9. Addresses program goals. The Adaptive Management Program will play a role in supporting or achieving many program goals, including augmentation of desert tortoise populations, restoration of desert tortoise habitat, restoration of riparian habitat, mitigation of impacts to mesquite/acacia, salt desert scrub, playa, and desert riparian habitats, and expanding species and habitat monitoring under this program.

MANAGEMENT OF THE RIPARIAN RESERVES

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 in Clark County, Nevada. To comply with this permit condition, the DCP 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 within the Riparian Reserve Units and management of water rights held by the DCP.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project includes maintenance and monitoring of the riparian properties. The science behind this is sound and the methods are fully accepted and have been standard practice within the DCP-managed Reserve System for many years. This project would do well under a structured decision-making approach, but a full adaptive management approach is not necessary at this time.

PROJECT GOAL(S):

The project goals are to:

- Mitigate impacts to MSHCP covered species by providing ongoing monitoring, maintenance, and management of the Riparian Reserves. This will ensure the properties' value for species covered by the MSHCP and facilitate successful habitat restoration.
- Maintain DCP's water rights in good standing and allow for acquisition or lease of additional water rights, if necessary.

PROJECT OBJECTIVE(S):

RIPARIAN RESERVE UNITS MANAGEMENT

- Review and analyze management actions for consistency with the *Riparian Reserve Units Management Plan*.
- Review and update the management plan to reflect current conditions.
- 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 positive interactions with neighbors.

- Review applications for activities that may affect the Riparian Reserve Units.
- Install perimeter fencing as necessary.
- Inspect and repair property improvements (e.g., fences, groundwater pump and associated infrastructure, irrigation system, municipal water hookup, etc.) on a regular basis.
- 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.
- Investigate and appropriately respond to unauthorized uses of the Riparian Reserve Units; coordinate with law enforcement and regulatory agencies as needed.

MANAGEMENT OF INVASIVE SPECIES

- Conduct surveys of invasive non-native plant species.
- Control incipient occurrences of invasive, non-native vegetation.
- 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 control of invasive and noxious weeds. Weed control efforts will consist of targeted herbicide spraying and mechanical control. Contractors will be hired to conduct routine property maintenance, as necessary, and to advise the DCP 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.

PROJECT COST

\$102,749

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

Principle #1 – Fulfills explicit permit conditions outlined in the Section 10 incidental take permit. Condition K of the incidental take permit requires the acquisition of riparian properties along the Muddy and Virgin rivers and the Meadow Valley Wash.

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. From Spring 2021 through Spring 2023, approximately 11 acres of desert riparian and 253 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 and mesquite/acacia habitat.

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 address the following Biological Goals and Objectives: Objectives R1.2 to maintain suitable breeding habitat for MSHCP-covered birds; R1.4 inventory, remove, and control invasive and non-native plant species; and R3.1 to collaborate with other stakeholders.

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

Principle #9 – Address program goals. This project addresses the program goal that specifies identifying conservation actions for ecosystems undergoing the highest total loss and the highest proportional loss. These include Mojave Desert scrub, mesquite/acacia, salt desert scrub, playa, and desert riparian habitat.

DESERT TORTOISE TRANSLOCATION

BACKGROUND AND NEED FOR PROJECT:

The 1995 Desert Conservation Plan and the 2001 MSHCP and associated Section 10 incidental take permit require Clark County to provide a hotline and pickup service to manage wild desert tortoises which are displaced by development or appear to be in harm's way due to construction activity. The DCP operates the Wild Desert Tortoise Assistance Line to meet this requirement. Developers can report desert tortoises using the hotline and DCP staff will retrieve wild desert tortoises from construction sites. These tortoises are brought to a temporary holding facility where they undergo health assessments and a quarantine period before being evaluated for release. Following health assessments and the quarantine period, desert tortoises are then translocated to a USFWS-approved translocation recipient site.

Translocation as a tool for conservation of desert tortoises has been in practice for nearly three decades. However, there are still many uncertainties related to the long-term outcomes of translocated desert tortoises. 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 newly hatched 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 expand our knowledge of these issues.

This project provides for continued monitoring of translocated desert tortoises that began in 2014, as well as the operation of the Wild Desert Tortoise Assistance Line and maintaining the temporary holding facility.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is ideal for an adaptive management approach. There are many uncertainties regarding translocation that need to be addressed, especially considering the long lifespan of desert tortoises. There are opportunities to alter strategies as a large portion of development in Clark County occurs within the range of the tortoise. This project may also provide information that is useful in evaluating the need for adaptive management in other projects on the BCCE.

PROJECT GOAL(S):

The goals of this project are to:

- Assess the state of translocated populations of desert tortoises on the BCCE to inform future translocation efforts and to allow for a better understanding of whether translocation is effective over the long term.
- Ensure tortoises displaced from construction sites are properly cared for and safely released into an approved translocation site.

PROJECT OBJECTIVE(S):

The objectives of this project are to:

- Continue monitoring movement patterns, mortality rates, and health status of translocated versus resident tortoises on the BCCE over an extended period.
- Continue to operate the Wild Desert Tortoise Assistance Line and the temporary holding facility.
- Perform health assessments on tortoises removed from construction sites and ensure appropriate health status prior to translocation to an approved site.

PROJECT APPROACH:

The Wild Desert Tortoise Assistance Line is monitored by DCP staff. Calls received on the line are screened daily to ensure tortoises reported are wild tortoises in harm's way (i.e., on an active construction site and not an unwanted pet). Tortoises removed from construction sites are quarantined in pens for a minimum of two weeks until they are cleared of disease and considered healthy for translocation, at which point they are moved to an approved location.

The DCP will continue to coordinate with the Desert Tortoise Recovery Office in conducting activities related to translocation of desert tortoises. This project will combine the use of radio telemetry and health assessments to obtain pertinent information relevant to translocations. Projects will focus on post-translocation effectiveness monitoring, recording mortalities, tortoise health, and movement patterns. These data can be used in a larger analysis to assess the success of population augmentation.

PROJECT COST

\$361,770

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

Principle # 1. Fulfills explicit permit conditions outlined in the Section 10 incidental take permit. This project supports permit condition M by providing funding for the translocation program. This funding allows for tortoises to be assessed for disease and to ensure they are fit for translocation.

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 would implement minimization/mitigation actions by translocating tortoises that are removed from construction sites.

Principle # 4. Provides for continued funding of ongoing and effective conservation measures. This project would continue monitoring of translocated tortoises that has been ongoing since late 2014. This project has been very useful, not only for its intended purpose of determining the successfulness of the translocation, but the data has

also been used to publish a peer-reviewed journal article on survival rates within the Eldorado Valley⁵. The project also provides continued funding for the operation of the Wild Desert Tortoise Assistance Line, which has been an effective minimization measure implemented since permit issuance.

Principle # 5. Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project would address 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 may be suitable.

Principle # 9. Addresses program goals. This project addresses the program goal for 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 for translocation.

⁵ Harju, S. M., Cambrin, S. M., Averill-Murray, R. C., Nafus, M., Field, K. J., & Allison, L. J. 2020. Using incidental mark-encounter data to improve survival estimation. *Ecology and Evolution*, 10(1), 360-370.

DESERT TORTOISE FENCING

BACKGROUND AND NEED FOR PROJECT:

Desert tortoise mortality and illegal capture along roads and highways has been identified as a significant issue relative to recovery of this species. Further, the construction of roads and highways over the past century has permanently fragmented previously contiguous desert tortoise habitat and reduced connectivity among populations. Restricted movement may limit or entirely prohibit access to suitable habitat, resources, and mates on either side of existing roads and highways. The installation of tortoise fencing to limit mortality and encourage re-colonization of habitat has been recommended, yet many roads throughout desert tortoise habitat remain unfenced.

Condition N of the incidental take permit stipulates that the Permittees shall retrofit, repair, and construct desert tortoise proof fencing along highways and roads in Clark County. This project will provide funding for two fencing efforts to meet this permit condition: 1) Road Warriors, which uses a volunteer network to monitor and report maintenance needs for installed fencing and to conduct road mortality surveys to aid with effectiveness monitoring and prioritization of future fencing needs, and 2) support for the installation of desert tortoise exclusion fencing, connectivity culverts, and related infrastructure along 33 miles of U.S. 93 adjacent to designated critical habitat (Coyote Springs Fencing Project).

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

While the methods of fencing and fence maintenance would not require an adaptive approach, an adaptive approach may be useful in determining the selection of sites where these actions occur. It is important to focus efforts in the most impactful locations and an adaptive management approach may help achieve that goal.

PROJECT GOAL(S):

ROAD WARRIORS

The goals of this project are to:

- Identify “tortoise hot-zones” that could be prioritized for installation of traffic signage, fencing, culverts, and demographic population surveys.
- Assist the NDOW with collection of road mortality data for the desert tortoise and other species they are responsible for monitoring and assist with collection of genetic samples for on-going studies and natural diversity archives.
- Further evaluate benefits of tortoise fencing to other species.
- Assist NDOT with maintaining desert tortoise exclusion fencing and connectivity culverts in good operating condition.

COYOTE SPRINGS FENCING

- Construct desert tortoise exclusion fencing and related infrastructure along 33 miles of U.S. 95.

PROJECT OBJECTIVE(S):

ROAD WARRIORS

- Collect road mortality data for desert tortoise and other species monitored by NDOW; collect genetic samples for NDOW analysis; dispose of tortoise remains off of roads to reduce additional wildlife road mortalities.
- Collect data on raven nests and on signs of raven predation of desert tortoises adjacent to roads.
- Conduct inspections of desert tortoise exclusion fencing and connectivity culverts to document maintenance needs.
- Conduct monitor maintenance of fencing and culverts; report major maintenance and repair needs to NDOT maintenance crews for action.

COYOTE SPRINGS FENCING

- Provide matching funds to support NDOT's application under the Wildlife Crossing Pilot Program grant.

PROJECT APPROACH:

ROAD WARRIORS

Volunteers with The Tortoise Group will be deployed to document observations of tortoise road mortality, live tortoise encounters, carcasses, tortoise burrows, and tortoise sign on or near roads. Photos, GPS location, and condition of carcasses or live tortoise will be recorded and submitted to the USFWS and NDOW for review. Other data, such as date, time, weather conditions, and habitat quality will be documented as well.

The citizen scientist volunteers will also collect data regarding road mortality of other species observed during surveys and be trained to collect samples for genetic studies from all observed mortalities, including tortoises, that will be submitted to NDOW for their monitoring programs and genetic databases. Road surveys may also be conducted prior to and after installation of desert tortoise fencing to help collect data regarding potential benefits to other species monitored by NDOW.

During the inactive season, when tortoises are in brumation (October to March), volunteers will conduct inspections of existing tortoise fencing, fill out reports, and make minor repairs. Volunteers will also inspect culverts that suitable for tortoise passage to determine any maintenance needs; minor clearing of culverts will be performed, but any major cleanup or repairs will be reported to NDOT maintenance staff. Observations of major fence damage will also be reported to NDOT maintenance staff, who will be responsible for those repairs.

COYOTE SPRINGS FENCING

DCP will provide a letter of support and a commitment to provide up to \$200,000 in matching funds to support the application by NDOT. Grant funds may be applied for under the Wildlife Crossing Pilot Program or other federal funding opportunities, as appropriate. If awarded the grant, DCP will transfer funds to NDOT using standard County practices and procedures. If a grant for the Coyote Springs Fencing project is not awarded, then funds will not be transferred and instead will be de-obligated and made available for other conservation efforts.

PROJECT COST

\$300,000

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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 will provide funding to implement fencing construction, make minor repairs to installed fence, and notify NDOT of any major repairs needed. This project also aids in the identification and prioritization of locations appropriate for future fence installation.

Principle #4 - 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 Clark County. Further, the successful Road Warriors pilot project demonstrated that this is a highly cost-effective and efficient method of conducting regular minor maintenance on over 450 miles of desert tortoise exclusionary fencing.

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 address Biological Goals and Objectives D 1.2, by helping to maintain intact functional habitat within the Coyote Springs critical habitat unit by reducing roadway mortalities of desert tortoise and other wildlife, and D 3.1, collaboration with other stakeholders, as we will be collaborating with the USFWS, NDOT, NDOW, and The Tortoise Group on these projects.

MANAGEMENT OF THE BCCE

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 treatment.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

As this project is mostly on-site property management and resource protection it does not lend itself to an adaptive management approach. Weed control may benefit from an adaptive management approach, however the DCP contracts with professionals who are tasked with determining what weed control measures are the most efficient and cost-effective.

PROJECT GOAL(S):

The work conducted in this project will address elements of the Clark County MSHCP. Work will be conducted in accordance with the BCCE Agreement, as amended and restated in 2019, and the most updated version of the BCCE Management Plan.

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, including but not limited to the desert tortoise, as well as other native plants and animals.
- Manage the property and public use to meet conservation obligations and legal requirements.
- Deter the incidence of illegal activities and prohibited uses that occur on the BCCE, with a focus on those activities that threaten the desert tortoise and/or degrade suitable habitat.

PROJECT OBJECTIVE(S):

BCCE MANAGEMENT

- Review and analyze management actions for consistency with the BCCE Agreement, as amended and restated in 2019.
- 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 USFWS and monitor permitted project activities and restoration as required by Attachment F of the BCCE Agreement.

- Review and update the BCCE Management Plan to reflect current conditions and program goals.
- Respond to Permittee and public questions regarding the BCCE and allowable activities.
- Coordinate with Boulder City, neighbors, and other easement holders as needed.
- Visit the BCCE weekly to monitor and maintain signage, fencing, desert tortoise guards, barriers, and kiosks in good condition.
- 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 30 to 40 hours a week over three to four days. Patrols are always on Saturday and Sunday and then any other days Monday through Friday.
- Review law enforcement patrol reports weekly to determine trouble spots and to adjust patrol schedules and routes as needed.
- Meet on-site at least monthly with DCP staff 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.
- Make contact with all visitors to the BCCE and give them brochures indicating permitted activities and maps of open roads. Educate users of the BCCE first and cite repeat offenders.
- 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 reports on weed monitoring activities and recommendations.

BCCE SITE MAINTENANCE AND CLEANUP

- Cleanup along roadways, dump sites and target shooting sites every four months.
- Repair kiosks, energy zone fencing, fences and barriers, plus clean out cattle guards, desert tortoise culvert, 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 and restated in 2019, and the most updated version of the BCCE Management Plan.

PROJECT COST

\$342,296

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 7,088 acres of this type of habitat was disturbed during the 2021-2023 biennium.

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, and signage and fencing maintenance 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 addresses Biological Goals and Objectives D1.4 - 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 results in measurable outcomes such as number of patrol hours, number of visitors encountered, number of warnings and citations, and acres of weeds treated. This information can be compared across months and years to get a picture of activities on the BCCE.

PERMIT AMENDMENT SUPPORT**BACKGROUND AND NEED FOR PROJECT:**

The MSHCP Permittees have been pursuing a formal amendment to the Clark County MSHCP and Section 10 incidental take permit since 2007. The primary reasons for pursuing this amendment are to 1) increase the amount of take authorized by the permit to provide coverage for lands that are currently available for development or may become available in the future, 2) to revise the list of species covered by the permit, 3) to revise the conservation strategy, and 4) to increase the permit term to 50 years. This project would provide funding for supporting analyses necessary for the permit amendment application as well as consultants that will aid the County in preparing application documents and any associated agreements, management plans, or supplemental analyses.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project would not require an adaptive management approach. This is a project to support permit amendment and is not management in nature. It may have a large effect on how the adaptive management program is implemented in the future but does not require an adaptive approach to implementation.

PROJECT GOAL(S):

The goal of this project is to prepare a revised MSHCP and associated application materials and environmental analyses to obtain an amended incidental take permit.

PROJECT OBJECTIVE(S):

The goal of this project will be achieved through several contracts as described below:

- Habitat Conservation Planning Consultant - Continue to fund the contract with the Habitat Conservation Planning consultant to assist the County with preparing the amended MSHCP and associated documents and analyses.
- Outside Legal Counsel - Will provide advocacy and legal advice and services to the Permittees, conduct critical reviews of draft documents, and assist with the preparation of legal agreements.
- Third-party NEPA Consultant. This consultant will be jointly selected by the Permittees and the USFWS to prepare an Environmental Impact Statement, which will be required to issue an amended incidental take permit and to meet regulatory requirement under NEPA.
- Miscellaneous supporting surveys and analyses. Additional species surveys and model development may be necessary to finalize components of the MSHCP Amendment conservation strategy and impacts analysis.

PROJECT APPROACH:

Required components of the amendment application will be completed in cooperation with outside consultants. Once draft documents have been prepared, staff will work with USFWS to coordinate internal

review and publication for public comment. Following public comment periods, staff and consultants will coordinate document revisions with the USFWS and other stakeholders to develop a final amended MSHCP, prepare implementing agreements, and/or execute cooperative management agreements.

PROJECT COST

\$230,478

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

Principle #8 – Advances the amendment of the MSHCP and its conservation strategy. The purpose of this project is to advance the MSHCP amendment by providing for all necessary actions and supporting analyses.

MODELING CLIMATE REFUGIA FOR SPECIES COVERED UNDER THE MSHCP AMENDMENT

BACKGROUND AND NEED FOR PROJECT:

Future climate change potentially threatens the biodiversity of Clark County, Nevada. Rising average temperatures and shifts in precipitation patterns will change the ranges and distribution patterns of many species that are proposed to be covered under the MSHCP Amendment. Current large-scale climate models predict habitats will shift towards the poles and towards higher elevation areas and most habitats and species ranges are expected to undergo substantial transformations. As current habitats become increasingly inhospitable local extinctions are anticipated in the lower elevation areas. High elevation areas, which could serve as climate refugia, currently may lack suitable habitat, or are not managed for purposes suitable for species, such as the Desert Tortoise, which may utilize those areas in the future.

To plan for the long-term viability of species proposed for coverage under the MSHCP Amendment a proactive approach is required. Under the current expected climate change scenarios, it is crucial to identify future climate refugia so that potential habitat areas can be conserved and managed for the continued existence of imperiled species. This project will support science-informed planning, conservation, and management strategies under a changing climate. Identifying potential areas of habitat loss and climate refugia, this project will aid in the development of targeted conservation plans, to identify new areas that may require management, and to aid in maintaining connectivity between populations as species distributions shift in response to a changing climate.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is a research-based modeling effort to evaluate how climate change may affect species habitat in Clark County and how we can prepare for future scenarios appropriately. As a modeling project this would not be appropriate for an adaptive approach but may help inform management and the adaptive management program in the future.

PROJECT GOAL(S):

Create models for local climate change scenarios to predict habitat and species range shifts to support development of proactive conservation management strategies for species proposed for coverage under the MSHCP Amendment.

PROJECT OBJECTIVE(S):

The objectives of the project are

- Develop habitat models that simulate the effects of climate change under different scenarios.
- Identify climate refugia for species proposed for coverage under the MSHCP Amendment.
- Identify climate induced habitat loss for proposed covered species.
- Identify species populations which may become isolated under specific climate change scenarios.

9. MODELING CLIMATE REFUGIA FOR SPECIES COVERED UNDER THE MSHCP AMENDMENT**PROJECT APPROACH:**

DCP will work with a science-based research institution or university to develop climate change models. The project will consist of developing multiple models across Clark County to predict shifts in habitats and species ranges under different climate change scenarios. Models will use standard scientifically defensible variables and datasets to create accurate climate predictions. This project will take a multidisciplinary approach utilizing experts in the fields of climate change, biology, botany, and habitat modelling. These modeling efforts will aid in identifying management issues that can be incorporated into long-term conservation management strategies for proposed covered species.

PROJECT COST

\$350,000

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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 identifies crucial areas for mitigation and minimization of habitat loss to ensure future climate refugia are not disproportionately impacted.

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project addresses the following biological goals and objectives.

- Objective 1.4: Incorporate natural ecological, hydrological, and geomorphological processes into restoration design and implementation.
- Objective 1.5: Identify critical uncertainties.
- Objective 1.6: Incorporate concepts of ecosystem redundancy and representation to promote ecological resiliency in the biennial updates to the Reserve System Management Plans.
- Objective 1.7: Protect and enhance connectivity.
- Objective 2.3: Translocate and augment desert tortoise populations.
- Objective 2.4: Ensure the best available scientific information is being evaluated and incorporated.

Principle #6 - Responds to the most recent Science Advisor Panel recommendations. This responds to a specific project recommendation submitted by the Science Advisor Panel.

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project has measurable outcomes in identifying specific habitats in Clark County crucial for the conservation of MSHCP listed species.

Principle #8 - Advances the amendment of the MSHCP and its conservation strategy. This project will be crucial for planning future conservation strategies under permit amendment.

Principle #9 - Addresses program goals. This project will help to identify where connectivity of desert tortoise and other species populations can be maintained and/or managed under various climate change scenarios. This will

also aid in implementing a monitoring program for ecosystem health by identifying expected habitat changes due to climate change.

RAINBOW OWL PRESERVE ACQUISITION AND MANAGEMENT

BACKGROUND AND NEED FOR PROJECT:

Burrowing owl populations are known to be declining across its range, primarily due to habitat alteration and loss. Therefore, burrowing owl has been designated special conservation status by numerous agencies including:

- Sensitive Species - Southern Nevada District, BLM
- Species of Greatest Conservation Need - Nevada Division of Wildlife 2022
- At-Risk Species - Nevada Division of Natural Heritage (NDNH)
- Bird of Conservation Concern, Sonoran and Mohave Deserts Bird Conservation Region – USFWS

The DCP has been presented with a unique opportunity to acquire two parcels of active burrowing owl nesting habitat on land within the urban growth boundary that would otherwise be slated for development. Acquisition of these properties would serve as advance mitigation under the MSHCP Amendment. Under the MSHCP Amendment, the burrowing owl would be reclassified from an evaluation species to a covered species.

The DCP is currently in the process of applying for grant funding through SNPLMA which would be used for acquisition of the properties. If acquired, these properties would be enrolled into the Reserve System and managed for the benefit of burrowing owl nesting habitat. This project would provide funding for acquisition of the properties, the development of a reserve unit management plan, and general maintenance of the properties throughout the 2025-2027 budget cycle.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

General property acquisition, management, and the creation of a management plan would not require an adaptive management approach. However, the management plan should incorporate an adaptive management approach into the management of the property where appropriate.

PROJECT GOAL(S):

The goal of this project is to acquire the properties comprising the Rainbow Owl Preserve and to provide for initial management of the Preserve.

PROJECT OBJECTIVE(S):

Objectives include:

- Securing SNPLMA funds to acquire a total of nine parcels comprising the Rainbow Owl Preserve.
- Conduct activities necessary to support acquisition of the properties including appraisal, title reports, and Phase I environmental site assessment.
- Develop a reserve unit management plan, including development of management goals and objectives, for the Rainbow Owl Preserve.

- Provide for ongoing maintenance of the property, to include weed inventory and removal, maintenance of fences and gates, maintenance of artificial burrows, and clean-up activities, as needed.

PROJECT APPROACH:

The DCP will work with the USFWS, Partners for Fish and Wildlife Program to leverage the existing volunteer network that has been established for care and protection and ongoing monitoring of the Rainbow Owl Preserve. Contractors may be used to carry out maintenance activities, including removal of weeds and maintenance fences, gates, and other infrastructure.

PROJECT COST

\$3,075,000

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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. Mojave Desert scrub habitat and degraded habitats within the urban development boundary experience the highest rate of impacts from development activities. This project would support preservation and management of remnant habitat within the urban development boundary for the Las Vegas valley.

Principle #8 - Advances the amendment of the MSHCP and its conservation strategy. Acquisition and management of the Rainbow Owl Preserve will provide advance mitigation credit under the MSHCP amendment.

Principle #9 - Addresses program goals identified for the 2025-2027 biennium. Specifically, this project would address the goal to begin laying the foundation for transitioning to a new permit.

WEB-ACCESSIBLE DATA PORTAL

BACKGROUND AND NEED FOR PROJECT:

As administrator of the MSHCP, the DCP is required to monitor habitat loss and conduct a wide range of analyses. To meet these needs, a comprehensive scoping exercise has been completed and the requirements for a centralized data management system have been defined. This effort confirmed the need for a web-accessible data portal to manage the program's large amounts of data, which is currently not easily accessible by collaborating agencies or stakeholders. This portal will serve as a central location where species observations, conservation actions, and project data can be tracked and managed, fulfilling the identified requirements for data accessibility, security, and integration with existing DCP workflows. The portal will also enable real-time project tracking for improved collaboration and oversight, and ensure data quality through automated validation and verification, leading to more efficient data management for all DCP field projects.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project would not require an adaptive management approach. This project would benefit the DCP and adaptive management program by helping to disseminate the data we collect to other agencies and stakeholders. Existing data archived by the DCP could be used in conjunction with other data collected by agencies and stakeholders to create stronger inferences and help create best practices that can be incorporated into future DCP projects.

PROJECT GOAL(S):

The goal of this project is to allow data to be more easily collected and accessed by cooperating agencies, vendors, and stakeholders. Maintain data in standardized formats and managed in ways to be accessible while maintaining proper permissions to project data.

PROJECT OBJECTIVE(S):

The project objectives are to:

- Create a database and an interface or interfaces to allow data to be collected, catalogued, visualized, filtered and accessed.
- Incorporate existing datasets into the database and interface.
- Ensure proper permissions are enforced to ensure sensitive data is available only to those authorized to access the data.

PROJECT APPROACH:

The DCP will work with software development contractors and internal County GIS staff to create the web-based mapping application. This is a software development project and a standard process will be followed. This will include a cycle of planning and scoping by engaging specific stakeholders, designing requirements and testing protocols, and implementation of the design, testing, integration, and maintenance.

PROJECT COST

\$160,000

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 will aid in most data collection and data analysis projects advancing projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program.

Principle #9: Addresses program goals. This will address the goal of continuing to expand species and habitat monitoring under the Adaptive Management Program by simplifying the process to access authoritative datasets and increasing the ease of analyses and reporting.

PUBLIC INFORMATION, EDUCATION, AND OUTREACH

BACKGROUND AND NEED FOR PROJECT:

An essential component of the DCP is a Public Information, Education, and Outreach program. Public information, education, and outreach efforts focus on three themes:

1. Informing people of the purpose of the Clark County MSHCP and the roles and functions of the DCP;
2. Encouraging people to respect, protect, and enjoy the desert; and
3. Increasing public understanding of the value of Clark County's natural ecosystems.

DCP staff accomplish these goals by implementing a variety of outreach projects. Some examples of the work conducted in this program include the Mojave Max education program, Mojave Max mascot appearances at public events, and social media outreach on Facebook, Twitter, and Instagram. The program also distributes information through its websites and a variety of educational materials, videos, and outreach campaigns that spread messages on environmental topics throughout the year.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project has been a staple of the DCP for many years. It would be advantageous to work out a reliable method for monitoring effectiveness of the public information, education, and outreach program over time which could help to determine the effectiveness of different sections of the program. Determining success of a public education program such as this is difficult at best but until a feasible method is developed an adaptive approach isn't practicable for this program.

PROJECT GOAL(S):

This project will provide for education and information efforts to encourage respect, protection, and enjoyment of natural ecosystems in Clark County. The purpose of this project is to increase public understanding and awareness of the DCP and its mission and to promote environmental awareness and responsible recreation within the community.

PROJECT OBJECTIVE(S):

Efforts during the 2025-2027 biennium will include:

- Mojave Max Education Program. Provide funding for the administration of the Mojave Max Education Program including materials for school assembly programs and Tortoise Talks, maintenance of the camera at the Mojave Max habitat, appearances by the Mojave Max mascot, website administration, printed materials, and advertising costs. Provide funding to purchase promotional items and giveaways. Branded giveaways are used at the Mojave Max assemblies and given to students who answer quiz questions correctly. Obtain a new mascot costume for public appearances, promotional events, and outreach efforts.

- Construction Worker Education. Develop and maintain online training modules for construction personnel with messaging and instructions regarding proper procedure when handling desert tortoises found on non-federal construction sites. Efforts will include additional website development including development of a registration process, creation of online training modules and knowledge testing, and development of a certification/verification of training process.
- Volunteer to the Max. Materials for the new Volunteer to the Max program which engages community members in various outreach and cleanup activities within Clark County and in identifying volunteers and promoting the program to other potential volunteers. This will include necessary support to carry out clean up events, including portable restroom rentals, shade structures, safety equipment, and dumpsters.
- Miscellaneous Outreach and Education Efforts.
 - Advertising Fees. Develop and produce advertisements via social media, radio, print, or television regarding responsible desert use and messages promoting themes such as “Stay on the Trail”, “Explore to the Max” and “Don’t Give Weeds a Free Ride”.
 - Production of Brochures and Other Informational Materials. Develop, produce, and distribute a variety of printed materials.
 - Branded Giveaways. The Mojave Max website is included on branded items to direct the public to additional information about the program.
 - Program Vehicle. Obtain a reasonable commuter vehicle and have it wrapped with the program logo to further promote the program while traveling to and from community events, school assemblies, and agency meetings.

PROJECT APPROACH:

Historically, Clark County has contracted with various agencies and companies to help 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

\$239,384

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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 occurring. 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 incidental take permit and to encourage respect, protection and enjoyment of natural ecosystems in Clark County.

Principle #5 - Advances projects that support achieving Biological Goals and Objectives or those that are designed to inform the Adaptive Management Program. This project addresses objective R3.2 and D3.2 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.

RIPARIAN RESTORATION

BACKGROUND AND NEED FOR PROJECT:

Desert riparian habitats have been significantly reduced in extent by development, agriculture, fire, and the lowering of the local and regional aquifers, and reduced in quality primarily by the invasion of tamarisk. The restoration, creation, and enhancement of desert riparian habitats is necessary for survival of MSHCP covered riparian bird species. Under this project, the DCP will restore, create, and enhance habitat within the Riparian Reserve Units for the benefit of covered riparian bird species. Restoration efforts on the Reserve Units are ongoing and habitat has been enhanced through fuels 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 Reserve Units.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is well suited for an adaptive management approach. It will be important to monitor outcomes and document lessons learned from habitat restoration to ensure those lessons are carried forward to future restoration projects.

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 objectives are as follows:

- Create, restore, and enhance riparian habitat within the Riparian Reserve Units to increase suitable nesting habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and other covered riparian bird species.
- Create, restore, and enhance mesquite/acacia habitat within the Riparian Reserve Units to benefit covered bird species.

PROJECT APPROACH:

Contractors will be hired to conduct the following activities, which may include but are not limited to:

- Site planning and preparation: development of restoration plans, plant collection/ propagation/ acquisition, nursery development, species surveys, non-native species removal, site clearing, and planting area preparation
- Restoration implementation: outplanting of material, seeding, irrigation installation, and fence installation
- Post-planting: watering, irrigation maintenance, monitoring, and non-native species removal

This project may include the development and/or implementation of restoration plans for priority restoration sites, and monitoring and adaptive management of restored habitats.

PROJECT COST

\$376,340

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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. From Spring 2021 through Spring 2023, approximately 11 acres of desert riparian and 253 acres of mesquite/acacia habitat were disturbed. This project will focus on mitigation actions by enhancing and restoring riparian habitat. Habitat at the riparian reserve units is maintained and restored as mitigation for the take of desert riparian bird species and their habitat through development activities authorized by the incidental take permit.

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

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 help address objectives R1.2 to maintain suitable breeding habitat for MSHCP-covered birds; R1.3 to incorporate elements of natural riparian processes into restoration design and implementation; R1.4 to inventory, remove, and control invasive and non-native plant species; R1.5 to reduce habitat fragmentation and/or improve connectivity and habitat quality through restoration design and implementation; R3.1 to collaborate with other stakeholders; and R4.1 to identify critical uncertainties and address these through planning and adaptive management, when feasible (e.g., land use changes, catastrophic events—fire, climate change).

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project is pertinent to the MSHCP because DCP staff can create measurable outcomes such as number of acres of riparian and mesquite/acacia habitat restored.

Principle #9 – Address program goals. This project addresses the program goal that specifies identifying conservation actions for ecosystems undergoing the highest total loss and the highest proportional loss. These include Mojave Desert scrub, mesquite/acacia, salt desert scrub, playa, and desert riparian habitat. Creating and enhancing these ecosystems will allow more native species to populate the property and facilitate the natural restoration of desert riparian and mesquite/acacia habitat.

CAMEL HERBIVORY TREATMENT

BACKGROUND AND NEED FOR PROJECT:

Non-native tamarisk, a Nevada state-listed noxious weed, is widespread along rivers in the western United States and has multiple negative impacts, including increasing the frequency and intensity of fire, reducing biodiversity, and reducing access to the riverbank. The riparian forests along the Virgin River have been invaded by tamarisk, decreasing the habitat value for several endangered bird species. Thus, the DCP has been engaged in tamarisk control activities within the Riparian Reserve Units. However, control and management of tamarisk requires long-term commitment of time and resources.

Land managers have been exploring various methods to control tamarisk, including implementation of mechanical and biological mastication. Camel (*Camelus spp.*) herbivory has recently been hypothesized as a novel method to target tamarisk resprouts that will reduce the amount of herbicide used and encourage native species. The USFWS Partners and Wildlife Program has proposed testing the use of camel grazing treatments. These treatments have the potential to provide land managers a new integrated pest management tool for managing riparian corridors in Nevada, where grazing treatments by domestic sheep and goats pose a health threat as they may transmit pneumonia to wild populations of desert bighorn sheep (*Ovis canadensis nelsoni*).

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is well suited for an adaptive management approach. Close attention will need to be paid to what worked and what didn't so adjustments can be made in the future to maximize the results of camel herbivory moving forward.

PROJECT GOAL(S):

The goal of this project is to investigate the effectiveness of grazing by camels as a novel biological control compared with conventional herbicide application for tamarisk control.

PROJECT OBJECTIVE(S):

Project objectives include:

- Implementing a robust BACI (Before-After-Control-Impact) design for the three treatments (camel herbivory, herbicide, control).
- Monitoring responses of soils (potential compaction from camel movements), salt cedar reduction (mortality, resprouting, and canopy cover), and vegetation community (native perennial cover and species richness, invasive non-native annual species).
- Reporting of positive and negative effects of treatment results with implications communicated to managers.

PROJECT APPROACH:

DCP staff will work with USFWS Partners for Fish and Wildlife Program to coordinate with private landowner(s) and researchers from the USGS. The Partners for Fish and Wildlife Program is providing partial funding for this project and is already working with a landowner, located adjacent to property that is managed by the DCP, to masticate tamarisk. DCP will fund the monitoring component. USGS will advise on the project design for implementing camel grazing, herbicide application, and control treatments (such as plot size, placement, and replication) and will coordinate with Partners for Fish and Wildlife Program on timing and duration of grazing and implementation of herbicide treatments to accommodate vegetation and soil monitoring. USFWS will coordinate the execution of the grazing and herbicide treatments. USGS will conduct the pre- and post-treatment monitoring, data analysis and final publication in collaboration with the Partners for Fish and Wildlife Program to determine the effectiveness of camel grazing as a novel approach for tamarisk control in riparian zones.

PROJECT COST

\$77,000

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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. From Spring 2021 through Spring 2023, approximately 11 acres of desert riparian and 253 acres of mesquite/acacia habitat were disturbed. This project will evaluate a novel biological control agent for use in controlling tamarisk that has invaded riparian and mesquite/acacia ecosystems.

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 address R1.4 to inventory, remove, and control invasive and non-native plant species; R1.5 to reduce habitat fragmentation and/or improve connectivity and habitat quality through restoration design and implementation; and R3.1 to collaborate with other stakeholders.

DEMOGRAPHY SURVEYS FOR WHITE-MARGINED PENSTEMON

BACKGROUND AND NEED FOR PROJECT:

White-margined penstemon (*Penstemon albomarginatus*) is a rare perennial herb that occupies alluvial sands, stabilized dunes, and sparsely vegetated washes in the Mojave and Sonoran Deserts. In 2023, the USFWS received a petition to list this species as Threatened or Endangered under the Endangered Species Act. NatureServe has recently updated the global conservation status rank for this species from G2/Imperiled to G1/Critically Imperiled due to substantial population declines and the seriousness of threats to the species.

Demographic data and population estimates have been collected for white-margined penstemon in the past, but reinstating these types of surveys is necessary to get a clearer picture of the degree of decline over time. Comprehensive demographic monitoring for this species would provide improved data to support the USFWS listing decision and updated state conservation status evaluation efforts.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

Demography surveys generally employ established survey methods and data analysis protocols. This information is crucial for upcoming listing decisions for the species, but the project does not lend itself to an adaptive management approach.

PROJECT GOAL(S):

The goal of this project is to provide land managers and regulatory agencies with full demographic data and population estimates for the white-margined penstemon at all its occurrences within Clark County. This information will help to determine the appropriate level of protection for the species.

PROJECT OBJECTIVE(S):

Project objectives are as follows:

- Conduct demographic monitoring surveys for white-margined penstemon during at least two years at all major documented occurrences within Clark County.
- Conduct population estimate surveys for white-margined penstemon at all major documented occurrences within Clark County.
- Provide resulting data to all relevant agencies, including, but not limited to NDF, USFWS, BLM, and NDNH.

PROJECT APPROACH:

Demographic surveys for white-margined penstemon will be conducted at every known major occurrence within Clark County. It is recommended that this be done during normal to high rainfall years to avoid missing individuals that may be viable but below ground due to inhospitable conditions.

The two primary aspects of plant demography are abundance (population size) and vital rates (survival, individual growth, and fecundity/reproduction). These will be documented within sampling plots at each site. Up to 12,000 acres of occupied habitat will be surveyed to generate population estimates. Population boundaries, habitat conditions, and threats will be recorded. If feasible, plant phenology and ecological interactions will also be recorded. Qualified consultants will utilize established strategies used in past demographic and species observation surveys for this species to provide a point of comparison.

The resulting data will be compiled, and a project report will be produced. These will be provided to relevant stakeholders.

PROJECT COST

\$483,000

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 #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 mitigation and minimization actions by providing information as to where potentially protected plant species are located and on relative population abundance and health. Areas where these species are located can then be monitored, prioritized, and protected.

Principle #8 – Advances the amendment of the MSHCP and its conservation strategy. This project will provide information necessary to develop a robust conservation strategy that effectively mitigates impacts to covered plant species.

EFFECTS OF SOLAR FARMS ON THREECORNER MILKVETCH

BACKGROUND AND NEED FOR PROJECT:

Threecorner milkvetch is currently under review to be listed under the Endangered Species Act. This species is a rare endemic restricted to specific geological substrates found within a constrained distribution in the Mojave Desert of southeastern Nevada and adjacent Arizona. Threecorner milkvetch faces increasing challenges from development, leading to the disturbance or destruction of suitable habitat, in combination with climate change impacts, such as more frequent drought conditions that can limit annual germination. Taken together, the species remains at risk of population reductions. As a result, this species is Covered under the Clark County MSHCP, is listed as Critically Endangered by the State of Nevada, as Sensitive by the BLM, as At-Risk by the NDNH, and as Threatened by the Nevada Native Plant Society (NNPS).

The previous biennium allocated funding to investigate the seed ecology of threecorner milkvetch in both field and laboratory settings to better understand seed dormancy and germination requirements, and the seed bank longevity of this threatened plant. Solar field development may disproportionately impact threecorner milkvetch, as there is significant overlap between ideal solar field project sites in southern Nevada and threecorner milkvetch habitat. According to a census survey conducted in 2024 at the Gemini Solar facility, one threecorner milkvetch was found under a solar panel, four plants were found in the panel drip line, and 88 plants were found in the interspaces between panels (Desert Research Institute, personal communication, September 6, 2024). The interactions between heat, shade, and precipitation resulting from solar fields and their effects on threecorner milkvetch are not yet understood. This project would provide funding to investigate the effects of solar panels on seedling growth and recruitment through establishment of experimental seeding plots within a solar facility.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

While set up more as a research project, the results could inform the adaptive management of this and other species. Data in this research project should be collected to inform an adaptive management process going forward.

PROJECT GOAL(S):

The goal of this project is to better understand the germination dynamics of the threecorner milkvetch within solar fields.

PROJECT OBJECTIVE(S):

The project objectives are as follows:

- Establish in-situ germination study plots at Gemini Solar
- Conduct monthly monitoring of abiotic conditions at study plots throughout the year
- Conduct monthly monitoring of threecorner milkvetch growing responses throughout the growing season

- Compare responses to seed placed under solar panels, in the drip line, and within interspaces between solar panels through analysis of the resulting monitoring data

PROJECT APPROACH:

This project will be completed over a two-year period with field work beginning in the summer.

Seed will be collected from threecorner milkvetch plants at the Gemini Solar site or an area adjacent to the site if directed by BLM and/or NDF. Seed from Gemini Solar will be prioritized. Number of seed pods collected will be determined in coordination with BLM and NDF.

Study plots will be established at two distinct areas at Gemini Solar, one among the solar panels, and one in an area without solar panels, possibly outside the solar project footprint. In each study plot, seed will be placed in designated panel zones: under the panel, within the panel drip line, and in interspaces between panels. The area without panels will act as a control. A minimum of three replicate plots will be established for each treatment combination. The same number of seeds will be placed in each study plot.

After seeds are dispersed, monthly monitoring will take place. Abiotic conditions (e.g., temperature and precipitation) will be monitored throughout the year. Germinants will be counted, tagged, and tracked for recruitment and survivorship. Phenological stages of each plant, plant size, numbers of flowers, and reproductive output will be documented.

PROJECT COST

\$97,493

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 NDF for actions to mitigate impacts to fully protected flora species. This project will help to mitigate impacts to the fully protected threecorner milkvetch by providing information about its requirements for reproduction, germination, and persistence of populations so that the permittees can implement actions that support the survival of this species.

Principle #4 – Provides for continued funding of ongoing and effective conservation measures. This project will continue ongoing research intended to help land managers protect threecorner milkvetch populations.

DEVELOPING AN AGING METHOD FOR THE DESERT TORTOISE

BACKGROUND AND NEED FOR PROJECT:

Understanding the age structure of wild populations is a key aspect of animal ecology and can assist in conservation efforts by providing information on reproductive life history, mortality, population growth rates and viability. Measuring the chronological age of wild animals can be difficult especially when there is a lack of measurable external changes that reflect age, and when individuals are long-lived, such as the Mojave desert tortoise. The only reliable methods to determine age in tortoises require the animal to be euthanized which making it impractical for a threatened species.

A non-lethal and practical method of aging desert tortoises would help us better understand their life history including population growth rates and viability, and individual survival, mortality and life expectancies. Epigenetic clocks have been developed for a wide range of animals, including some reptiles. Clocks consist of sites throughout the DNA where methylation occurs. A DNA methylation clock is an estimator built from epigenetic DNA methylation marks that are strongly correlated with chronological age. Ultimately this aging technique can be integrated into demographic and genetic monitoring of wild tortoise populations to better understand factors like reproductive output over time, senescence, and population age structures. This information could greatly inform the efficacy of ongoing habitat restoration and translocation efforts.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project will provide information useful to several projects undertaken by the adaptive management program. It will greatly reduce the time needed for demography monitoring of desert tortoises and will provide actionable results that can be used to direct translocation to more appropriate locations.

PROJECT GOAL(S):

The goal of this project is to test the viability of using an epigenetic clock to determine the age of a desert tortoise.

PROJECT OBJECTIVE(S):

The objectives for this project will be to develop the multiplex polymerase chain reaction (PCR) assay for the previously mapped methyl groups which will allow researchers a way to age tortoises through DNA.

PROJECT APPROACH:

This project will comprise the second phase of a two-phase project. The first phase will use reduced representation bisulphate sequencing to identify and map cytosine-phosphate-guanine (CpG) sites throughout the genome. A supervised machine learning method, such as a penalized regression trained against chronological age will be used to identify an informative predictive set of CpG sites. This phase would use the identified CpGs from the first phase to develop a cost-effective multiplex PCR assay that can be applied widely in demographic monitoring of desert tortoise currently being conducted by the USFWS and other conservation and research partners. This study represents a novel application of a relatively new and evolving molecular

technique to conservation of wild populations. The marker panel could also be used to assess how different hatching and growing conditions (indoors, outdoors), nutrition, and other factors may influence differences in chronological versus biological age, supporting the headstart program.

PROJECT COST

\$141,570

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 is designed to inform the Adaptive Management Program in demographic studies of tortoises, which will allow us to see age structure in one year instead of multiple years under current procedures. This will also aid in population augmentation studies and has potential for helping to better understand many aspects of population growth or decline.

Principle # 9 - Addresses program goals. This project addresses the program goal of continuing to expand species and habitat monitoring under the Adaptive Management Program. This will aid species monitoring by providing more detailed information in demography studies and provide information that can be acted upon more quickly than current methods.

PREDATOR-PREY DYNAMICS

BACKGROUND AND NEED FOR PROJECT:

Recently, concern has increased regarding the rates and causes of presumed coyote predation on a translocated population of the federally-listed Mojave desert tortoise in the BCCE. In 2018, the DCP began a study to look at the abundance, distribution, movement patterns, habitat use, and ecology of coyotes in concert with their primary prey species, the black-tailed jackrabbit in the BCCE. This project concept would continue and build upon the work begun in 2018 to provide additional data on the dynamics of predator and prey relationships within the BCCE. Continued 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.

Additionally, there has recently been a disease spillover event that occurred in the American southwest. Rabbit Hemorrhagic Disease Virus 2 (RHDV2) escaped from domestic rabbits and has infected 5 native lagomorph species causing dramatic die-offs in six states in the U.S., and five states in Mexico. The disease is not believed to affect species other than lagomorphs. However, disease and wildlife specialists have conferred extensively, and their primary concerns are: 1) potential prey switching of meso-predators (coyote and kit fox) and apex-predators (golden eagles) with the loss of their primary prey sources; 2) the potential effects of lagomorph die-offs on threatened and endangered species and other species at risk; 3) epidemiological behavior of the virus, (e.g., if any lagomorphs acquire immunity or the pattern and timeframe during which die-offs will affect lagomorph populations); and 4) how a potential drop in rabbit abundance (as important herbivores) will affect primary production (especially of perennial plants) in habitats across the United States. The two top concerns are consistent with goals and objectives of the work initiated in 2018.

The Clark County Predator-Prey Dynamics study is uniquely positioned, first, to answer the original management questions posed in the 2018 project, and secondly, because this project appears to be the only research project with rabbits and coyotes already radio-collared in a location prior to the disease spreading to this location. Therefore, this study can also capture the events of this disease spillover event in real time and can document ecosystem changes that have not been previously quantified during an epidemic of this novel disease outbreak. This project concept would provide funding to extend the project an additional year and to see if tortoise predation rate stabilizes or is reduced once rabbit populations rebound.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project will inform the adaptive management program on current and future population augmentation projects. This project may also provide vital information related to a new virus in lagomorphs which may also lead to an adaptive management approach for addressing the impacts of the virus.

PROJECT GOAL(S):

The goal of this project is to provide information about predator and prey population dynamics of coyotes and their main prey source (*leporids*) as well as habitat use and health that is relevant to management of the BCCE as a sustainable habitat reserve to improve success of desert tortoise translocation programs.

PROJECT OBJECTIVE(S):

The objectives for this project are as follows:

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

Since RHDV2 has now been documented within the BCCE as part of this study, the researchers will also aid the U.S. Geological Survey (USGS) National Wildlife Health Center and others in addressing the following concerns in relation to the novel virus in whatever way practical:

- Potential prey switching of meso-predators (coyote and kit fox) and apex-predators (golden eagles) with the loss of their primary prey sources.
- The potential effects of lagomorph die-offs on threatened and endangered species and other species at risk.
- Epidemiological behavior of the virus (e.g., if any lagomorphs acquire immunity or the pattern and timeframe during which die-offs will affect lagomorph populations).
- How a potential drop in rabbit abundance (as important herbivores) will affect primary production (especially of perennial plants) in habitats across the United States.

PROJECT APPROACH:

The DCP will work with researchers in the USGS to continue research efforts that were initiated in 2018. The project will consist of up to ten 1-kilometer survey plots located across the BCCE. Each plot would contain a grid of digital trail cameras. The project would also seek to undertake operations to mark and deploy GPS/VHF collars on 25 to 36 jackrabbits and similarly capture 10 to 12 coyotes 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

\$300,256

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 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. This project could also result in vital information regarding a new virulent disease and its effects on native rabbit populations which could have indirect negative effects on tortoise populations across their range.

Principle # 9. Addresses program goals. 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.

MUDDY RIVER RESTORATION

BACKGROUND AND NEED FOR PROJECT:

The Muddy River is a short river in the Mojave Desert, approximately 60 miles north of Las Vegas, in Clark County, Nevada. It is one of the region's most ecologically important and threatened riparian landscapes. However, due to settlement that began in the 1800s, the Muddy River has become deeply entrenched and channelized because of water diversions from both surface and groundwater sources and floodplain alteration for agricultural and other domestic purposes. Historically, the Muddy River provided suitable nesting area for many riparian-associated bird species, including the federally endangered southwestern willow flycatcher and the federally threatened yellow-billed cuckoo. As the landscape has been developed, the riparian zone has been greatly reduced, leaving a narrow strip of riparian corridor along a cut bank. Non-native plants such as tamarisk, Russian knapweed (*Rhaponticum repens*), Malta starthistle (*Centaurea melitensis*), and Australian saltbush (*Atriplex semibaccata*) have further degraded the quality of habitat in this region. Efforts to control non-native species are ongoing, but the need to actively remove weeds and dead tamarisk and replant with native species is more important than ever to restore the sustainability of the ecosystem and enhance habitat for native species.

This project would provide funding to conduct restoration work to reestablish native riparian and upland vegetation within the Muddy River Reserve Unit properties, parcels A through E. This will include non-native plant removal throughout the project area and replanting with native vegetation. It may also include earth moving techniques such as grading, excavating, and ground contouring to reconnect the habitat within the floodplain and reduce bank line incision and flooding impacts.

This project concept is intended to replace and supersede prior related projects submitted under Rounds 16 and 19 of the SNPLMA program.

ADAPTIVE MANAGEMENT REVIEW SUMMARY:

This project is well suited for an adaptive management approach. It will be important to monitor outcomes and document lessons learned from habitat restoration to ensure those lessons are carried forward to future restoration projects.

PROJECT GOAL(S):

The goal of this project is to restore, create, and enhance habitat with a focus on providing suitable nesting areas and associated foraging habitat for the federally endangered southwestern willow flycatcher and/or the federally threatened yellow-billed cuckoo.

PROJECT OBJECTIVE(S):

The objectives of the project are as follows:

- Prepare restoration design and implementation plan.
- Remove and treat non-native vegetation throughout the parcels.

- Conduct earth-moving activities to increase the suitable planting zone for native riparian species that comprise preferred nesting substrate for focus bird species, the southwestern willow flycatcher and/or the yellow-billed cuckoo.
- Replant with native vegetation.
- Monitor restoration area to ensure adequate establishment and survival of native vegetation.

PROJECT APPROACH:

Contractors will be hired to conduct the following activities, which may include but are not limited to:

- Prepare restoration design plans and assist with securing necessary permits, as applicable.
- Site planning and preparation: plant collection/ propagation/ acquisition, nursery development, species surveys, non-native species removal, site clearing, and planting area preparation
- Earthwork to increase the riparian planting zone, as determined through restoration design phase.
- Restoration implementation: outplanting of material, seeding, irrigation installation, and fence installation
- Post-planting: watering, irrigation maintenance, monitoring, and non-native species removal
- Monitoring and adaptive management of restored habitat to ensure project effectiveness.

PROJECT COST

\$5,000,000

BUDGET PRINCIPLES ADDRESSED BY THIS PROJECT CONCEPT

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. From Spring 2021 through Spring 2023, approximately 11 acres of desert riparian and 253 acres of mesquite/acacia habitat were disturbed. This project will focus on mitigation actions by enhancing and restoring riparian habitat. Habitat at the riparian reserve units is maintained and restored as mitigation for the take of desert riparian bird species and their habitat through development activities authorized by the incidental take permit.

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

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 help address objectives R1.2 to maintain suitable breeding habitat for MSHCP-covered birds; R1.3 to incorporate elements of natural riparian processes into restoration design and implementation; R1.4 to inventory, remove, and control invasive and non-native plant species; R1.5 to reduce habitat fragmentation and/or improve connectivity and habitat quality through restoration design and implementation; R3.1 to collaborate with other stakeholders; and R4.1 to identify critical uncertainties and address these through planning and adaptive management, when feasible (e.g., land use changes, catastrophic events—fire, climate change).

Principle #7 - Focuses on projects with measurable outcomes that are pertinent to the MSHCP. This project is pertinent to the MSHCP because DCP staff can create measurable outcomes such as number of acres of riparian and mesquite/acacia habitat restored.

Principle #9 – Address program goals. This project addresses the program goal that specifies identifying conservation actions for ecosystems undergoing the highest total loss and the highest proportional loss. These include Mojave Desert scrub, mesquite/acacia, salt desert scrub, playa, and desert riparian habitat. Creating and enhancing these ecosystems will allow more native species to populate the property and facilitate the natural restoration of desert riparian and mesquite/acacia habitat.

ATTACHMENT D

Funding Recommendations and Responses

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AGENCY	FUNDING RECOMMENDATION	DCP RESPONSE
Science Advisor Panel	Project Goal: The goal of this project is to understand threats to MSHCP-covered species on lands managed by Clark County to facilitate development of conservation and management priorities. Project Objectives/Description: County land managers need an understanding of occurrence and severity of threats at a local level, as well as their relative importance in causing ecological effects, to prioritize management and conservation actions. The objectives of the project are to identify and map threats and create a spatially explicit database of their occurrences. Examples of specific threats that could be included are: • roads and trails, • developments (e.g., buildings, utilities, urbanized areas), • subsidized predator population concentrations, • sources of open water, • illegal dumping and other potential subsidies for predators, • public recreation areas (e.g., OHV, target shooting, camping), • areas previously burned by or at risk of being burned by wildfires, • areas where tortoise diseases have been documented, and • invasive plant population concentrations. Other threats relevant to specific MSHCP-listed species may be included in the mapping effort, as needed. The first phase of the mapping effort could be accomplished via desktop analysis through a review of aerial photography, maps, and literature. An optional second phase of mapping would involve field verifications of the desktop mapping and field reconnaissance surveys to collect more detailed information about the occurrence and distribution of threats on County-managed lands. The threats mapping would allow for an identification of threats concentrations or overlapping where they may be interacting to cause cumulative or synergistic effects, as well as areas where threats intersect with known MSHCP-listed populations or habitats. This information will allow the County to prioritize both the type of threats and specific threat areas within each management area. Lastly, the spatially explicit database of threats may be paired with population models to simulate the response of species populations or habitats to threats and threats management. The information gained from the threats mapping, analysis, and modeling will aid in the development of better-informed management recommendations and decisions and could be explicitly included in the riparian property and BCCE management plans.	Agreed, but not included as a project concept in this Implementation Plan and Budget. The DCP has an existing project, described in the 2023-2025 Implementation Plan and Budget (Project #14, Web-based MSHCP Data Clearinghouse). It has been determined that much of the work for this project can be completed in-house which has left ample budget available to increase the scope to include spatial threats as described in this recommendation.
Science Advisor	Project Goal: This project will identify lands within Clark County that may function as important climate refugia for MSHCP-	Agreed. Funding for this work is included under Project #9,

AGENCY	FUNDING RECOMMENDATION	DCP RESPONSE
Panel	listed species. Project Objectives/Description: Climate change models generally predict that habitat for species will shift to poleward locations and higher elevations. Within Clark County, climate refugia will occur at higher elevation areas, whereas lower elevation areas will be marked by local extinctions. For most species, high elevation climate refugia occur in areas that are not currently inhabited by the species, nor managed for imperiled species such as the desert tortoise. The objectives of the project are to develop habitat models that simulate the effects of climate change under different scenarios to identifying climate refugia and lost habitat for MSHCP-listed species. This will aid in identifying areas that may support habitat under future climate change scenarios that are not currently inhabited by MSHCP-listed species, as well as areas in which species populations may become isolated. This information will allow for the development of plans that consider conserving and managing new areas, maintaining corridors and connectivity to these areas or between isolated populations, or performing human-assisted migrations (translocations) to climate refugia.	Modeling Climate Refugia for Species Covered Under the MSHCP Amendment.
Science Advisor Panel	Project Goal: To better understand the distribution of Mojave poppy bees and their habitats. Project Objectives/Description: The primary objective of this project is to determine presence/absence of Mojave poppy bee (<i>Perdita meconis</i>) at discrete survey locations using eDNA technology. If Mojave poppy bee are detected, follow-on objectives (may be part of the current project idea, or may be future project ideas) are to: • map current distribution of Mojave poppy bees in the survey area, • describe ecological context of verified populations, • identify priority sites for protection and/or enhancement based on ongoing or pending threats, and • identify unoccupied areas to target for potential reintroduction. A second objective is to perform a comparison of findings from eDNA survey with traditional survey methods. eDNA is the genetic material residue left by organisms in the environment, and recent advances in eDNA processing methods and technology make it a powerful tool to identify recent presence of cryptic or rare species, such as Mojave poppy bees. eDNA surveys also have the benefit of reducing field effort and eliminating the need for destructive surveys (i.e., mortality of the study species) associated with traditional capture-based survey methods. The eDNA survey method has	Agreed, but not included as a project concept in this Implementation Plan and Budget. Included in the 2023-2025 Implementation Plan and Budget was a project entitled "Surveys for Gypsum Endemics" (Project #21). Objectives outlined in this project included targeted surveys and development of eDNA techniques for the Mojave poppy bee. Adequate funds remain to continue this work and address this funding recommendation.

AGENCY	FUNDING RECOMMENDATION	DCP RESPONSE
	been successfully applied to other native bee species (USGS 2023), and a near chromosome-level genome has recently been established for the Mojave poppy bee (USDA 2024). Some upfront lab work may be required to definitively establish species or individual-level identification of Mojave poppy bees, although the work of USDA (2024) may already be sufficient. The ‘eDNA Explorer’ platform (www.ednaexplorer.org) may also facilitate field sampling design and laboratory analysis.	
USFWS	I think a Camel Herbivory of Salt Cedar would be very useful to Clark County for managing their riparian reserves, to benefit the MSHCP covered southwestern willow flycatcher and yellow-billed cuckoo. Non-native salt cedar (<i>Tamarix ramosissima</i>), a Nevada state-listed noxious weed, is widespread along the Virgin River where the County manages several riparian reserves. This camel grazing treatment may give land managers a new integrated pest management tool for managing riparian corridors in Nevada, where grazing treatments by domestic sheep and goats pose a health threat to wild populations of desert bighorn sheep (<i>Ovis canadensis nelsoni</i>). Property owners along the Virgin River (Clark County, BLM, Camel Safari) have been implementing salt cedar mastication projects, and camel herbivory may be a new targeted option to treat salt cedar resprouts, reducing the amount of herbicide used and enhancing native species. I have been working with Mr. Guy Seeklus who owns the Camel Safari property near Bunkerville and has around 30 camels. Inside the camel pens salt cedar is readily eaten, is extremely stunted, and never gets a chance to flower. Sahara mustard is also eaten by the camels. I am paying him to masticate salt cedar on his property and then install electric-fence around 2-acre plots so that we can look at efficacy of camels treating salt cedar resprouts post-mastication vs foliar herbicide treatments post-mastication. Working with Lesley DeFalco we have a study design but need funding for her to do the monitoring. I do not have time or skills to do in-depth monitoring and would only be able to do photo-point monitoring. If Clark County would want to do a camel herbivory experiment on their riparian reserve, I am sure Mr. Seeklus would be happy to use his camels. He would however need to be paid for their use and care while on County lands.	Agreed. Funding for an experimental treatment using camel herbivory to examine their effectiveness in controlling tamarisk is included under Project #14, Camel Herbivory Treatment.

AGENCY	FUNDING RECOMMENDATION	DCP RESPONSE
NDF	Threecorner milkvetch, <i>Astragalus geyeri</i> var. <i>triquetrus</i>, is currently under review to be listed under the Endangered Species Act. Threecorner milkvetch faces increasing challenges from development, leading to the disturbance or destruction of suitable habitat, in combination with climate change impacts, such as more frequent drought conditions that can limit annual germination. Taken together, the species remains at risk of population reductions. The previous biennium allocated funding to investigate the seed ecology of threecorner milkvetch in both field and laboratory settings to better understand seed dormancy and germination requirements, and the seed bank longevity of this threatened plant. We recommend continuing this research to inform future management and mitigation activities. Additionally, solar field development may disproportionately impact threecorner milkvetch as there is significant overlap between ideal solar field project sites in southern Nevada and threecorner milkvetch habitat. We recommend investigating the effects of solar panels on seedling growth and recruitment through different heat and shade experimental treatments.	Agreed. Funding allocated towards the study of threecorner milkvetch seed ecology was included in the 2023-2025 Implementation Plan and Budget and is sufficient to continue the work through the 2025-2027 biennium. Additional funding to study the impacts of solar farms is included in Project #16, Effects of Solar Farms on Threecorner Milkvetch.
NDF	White-margined penstemon, <i>Penstemon albomarginatus</i>, is a rare perennial herb that occupies alluvial sands, stabilized dunes, and sparsely vegetated washes in the Mojave and Sonoran Deserts. In 2023, the Center for Biological Diversity submitted a petition to list this species as Threatened or Endangered under the Endangered Species Act. In Clark Co., this species has declined by 73.2% in the most recent surveys compared to historical population estimates (CBD 2023). NatureServe has recently updated the global conservation status rank for this species from G2/Imperiled to G1/Critically Imperiled due to substantial population declines and seriousness of threats to the species. We recommend that demographic monitoring for this species be re-instituted, and that comprehensive surveys be conducted for this species during a normal precipitation year at all occurrences within Clark County. These activities would provide improved data to support the USFWS listing decision and updated state conservation status evaluation efforts.	Agreed. Funding for this work is included under Project #15, Demography Surveys for White-margined Penstemon.

ATTACHMENT E

Stakeholder Comments and Responses

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ENTITY	PROJECT CONCEPT	COMMENT	DCP RESPONSE
Science Advisor Panel	Project Concept #4: Management of Riparian Reserves	Project Objectives - Does this include any species? Or is it just plants? If it is for a specific species then include that here. If not, revise to indicate it includes all or any species.	Only includes plants; text revised.
Science Advisor Panel	Project Concept #5: Desert Tortoise Translocation	Background and Need for Project - So it has been 30 years since trans-location began, why aren't there more results if it will take over 20 years to get results? Just wondering, if the wording in this paragraph should be revised.	There are plenty of reasons for the lack of results given changes in technologies, research requirements, as well as interest or willingness of researchers to publish data. All of which is not within DCP control. We will continue to collect data and publish any interesting findings from our projects.
Science Advisor Panel	Project Concept #5: Desert Tortoise Translocation	Budget Principles Addressed by this Project Concept - If trans-located tortoises have only been monitored for 10 years, this should be mentioned above in the paragraph about trans-location as a tool.	Revised text under Background and Need to include the year that monitoring began.
Science Advisor Panel	Project Concept #5: Desert Tortoise Translocation	Budget Principles Addressed by this Project Concept - Include the citation and a hyperlink to it, if possible.	Citation added.
Science Advisor Panel	Project Concept #7: Management of the BCCE	It is interesting that the BCCE was created to protect desert tortoises and their habitat, but none of the goals of the BCCE specifically mention the desert tortoise.	Added some language that specifically mentions desert tortoise. The management plan for the BCCE, which is at the core of our routine management and decision making for the easement, extensively details how management should benefit the species. However, the commenter is correct that for clarity of purpose adding mention of the species to planning documents is helpful.

ENTITY	PROJECT CONCEPT	COMMENT	DCP RESPONSE
Science Advisor Panel	Project Concept #9: Modelling Climate Refugia for Species Covered under the MSHCP Amendment	Modeling climate refugia for species covered under the MSHCP amendment'. This project is very timely and necessary. However, the cost seems quite excessive given that the current species distribution models and relevant predictor data are already available, and the contractor need simply to run time-series simulations using existing spatial data. Is there a time-intensive data-development component that is required for this project but is not described?	The estimated project cost of \$350,000 is based on initial consultations with potential collaborators. However, the project will be put out to bid to ensure competitive pricing. It's important to note that the currently available climate data has a resolution of 4km. This resolution is insufficient for achieving the project's goals, which require finer-scale analysis to accurately predict habitat shifts and identify climate refugia. Therefore, the project will necessitate data development and interpolation processing to enhance the resolution and accuracy of the climate models.
Science Advisor Panel	Project Concept #9: Modelling Climate Refugia for Species Covered under the MSHCP Amendment	Project Cost - This seems like a lot of money for a modeling project. How long will this project take? Based on the description, most of the data should already be available and DCP has species distribution models that can inform this project. What are the specific costs of this project?	The species distribution models and occurrence data are available. However, our models operate at a much finer scale than the resolution available in existing climate projections, specifically LOCAv2, which has a 4 km grid with daily output of precipitation, temperature, humidity, and wind. This price may be lower if other bidders have access to finer-scale climate projections. The current estimate assumes the need for literature reviews and the development of finer-scale climate projections that are compatible with our existing species habitat models.
Science Advisor Panel	Project Concept #10: Rainbow Owl Preserve Acquisition and Management	Excellent project! This appears to be directly in line with the goals of SNPLMA. However, if not selected for funding, is there an alternate funding route planned for acquisition of, or possibly establishing a conservation easement on, these parcels?	There are certainly other grant opportunities that can be pursued if SNPLMA funding is not made available. Currently, there is no plan in place to use Section 10 funds for acquisition.

ENTITY	PROJECT CONCEPT	COMMENT	DCP RESPONSE
Science Advisor Panel	Project Concept #10: Rainbow Owl Preserve Acquisition and Management	Background and Need for Project - This sounds like a great opportunity. However, is there any information regarding the current population trend for this population of burrowing owls? Could it potentially be a population sink, which would not help with the conservation of this species. In other words, is the burrowing owl population in the preserve stable or increasing? If not, are the specific actions that can be taken to ensure this population can become stable or increasing?	Population of resident mated pairs has historically been stable, increasing when additional artificial burrows were installed. The site(s) fledge multiple chicks per nest every year, presumably the surviving chicks disperse to neighboring suitable habitat. Due to nest density constraints, resident population of the parcels is unlikely to increase further. We will contact USFWS for the population monitoring data collected during their partnership with the property owner. This is volunteer collected data and may be less consistent and/or reliable than data collected by funded research.
Science Advisor Panel	Project Concept #11: Web-accessible Data Portal	Adaptive Management Review Summary - Unclear to me what 'that data' and 'other data' are specifically and the difference between them. Please revise.	Revised text for clarity.
Science Advisor Panel	Project Concept #12: Public Information, Education, and Outreach	Adaptive Management Review Summary - Should a method for evaluating this program be part of this IPB and listed as a project goal here? Or should there be a goal of developing a method? I think evaluating this project could be a huge benefit to DCP. Providing stats on the value of their education program can generate a lot of support for it.	This is a project we can consider for the next IPB period. In the meantime, could add this to a future agenda to discuss further with the Science Advisor Panel.
Science Advisor Panel	Project Concept #12: Public Information, Education, and Outreach	Budget Principles Addressed by this Project Concept - Based on the text under the Adaptive Management Review Summary, it is not known if education is an important mitigation measure. On what information are you basing this statement?	This statement is based on direct feedback from people in the construction and recreation communities through interactions at targeted outreach events.

ENTITY	PROJECT CONCEPT	COMMENT	DCP RESPONSE
Science Advisor Panel	Project Concept #12: Public Information, Education, and Outreach	Budget Principles Addressed by this Project Concept - I think this would be a great place to start evaluating a method for monitoring the effectiveness of this program. If these data are collected, then it should be used to determine effectiveness. This comment is in relation to the comment in the Adaptive Management Review Summary section above.	Thank you for the suggestion.
Science Advisor Panel	Project Concept #14: Camel Herbivory Treatment	The project cost seems quite low to pay for renting/managing the camels, herbicide treatment, field monitoring of vegetation response, data analysis, and writing/publication. Is this a cost-share project with another program or agency?	The mastication and camel treatment are paid for by USFWS Partners for Fish and Wildlife Program on and will occur on the adjacent privately-owned property. This project concept proposal is for DCP to fund the USGS monitoring component. Text revised for clarity.
Science Advisor Panel	Project Concept #15: Demography surveys for White-margined Penstemon	This seems like a high project cost. If the high cost is not due to the large (12,000 acre) survey area, please clarify or add additional justification for cost.	The most recent GIS data points for white-margined penstemon in Clark County indicate clusters that measure close to 11,000 acres total. For the population abundance estimate surveys, I budgeted for up to 12,000 survey acres to allow for a buffer around known historic and recently documented populations. An alternative approach would be to only survey a portion of the known habitat and extrapolate the data to produce a total population estimate within the County. However, this would not reduce the baseline cost of the project, only the cost associated with population abundance survey acres. The provided budget represents the maximum cost for the project.
NDF	Project Concept #15: Demography surveys for White-margined Penstemon	Project Objectives - and collect updated data on (priority 1) population boundaries, habitat condition, and threats, and (priority 2) phenology and ecological interactions, as time allows. See the NDNH Survey123 form at https://heritage.nv.gov/data_and_resources/submit-data .	These will be included in the project. The text has been revised to improve clarity.

ENTITY	PROJECT CONCEPT	COMMENT	DCP RESPONSE
NDF	Project Concept #15: Demography surveys for White-margined Penstemon	Project Approach - May also wish to refer to the other types of data recommended for collection above under Project Objectives.	Revised as recommended.
NDF	Project Concept #15: Demography surveys for White-margined Penstemon	Project Approach - change to native species observation (borrowing language from the NDNH data submission form/Survey123, this broadens potential data to be collected beyond just abundance)	Revised as recommended.
Science Advisor Panel	Project Concept #15: Demography surveys for White-margined Penstemon	Project Cost - This seems like a high project cost. How many years does this cover? Surveying 12,000 acres is a lot. Is it feasible to complete all surveys over this area during a year with normal to high rainfall? Maybe the high cost is to hire enough technicians to conduct all the needed surveys. Just wondering if this cost is too high for the described project.	The provided cost includes a baseline cost for the demography plots and population abundance estimates as well as a cost per acre for up to 12,000 acres of surveys for the population estimate surveys. The project survey acreage could potentially be reduced. The provided budget represents the maximum the project would cost.
NDF	Project Concept #15: Demography surveys for White-margined Penstemon	Budget Principles Addressed by this Project Concept - and on relative population abundance and health	Revised as recommended.
Science Advisor Panel	Project Concept #16: Effects of Solar Farms on Threecorner Milkvetch	Strongly suggest increasing the number of sample plots, as the current design has no replicates (and thus, whatever the findings are, you never know if they just happened by chance). Ideally there would be at least three replicates each of treatment plots (among the panels) and control plots (away from panels), so six total plots, not two. This would also allow for three replications of each level of the treatment (i.e., under panel, under dripline, between panels).	The number of plots and replicates was previously miscommunicated in the text. This has been revised as recommended.

ENTITY	PROJECT CONCEPT	COMMENT	DCP RESPONSE
NDF	Project Concept #16: Effects of Solar Farms on Threecorner Milkvetch	Background and Need for Project - delete, the use of 'only' in this sentence implies that the overlap (preceding sentence) is insignificant.	Revised as recommended.
NDF	Project Concept #16: Effects of Solar Farms on Threecorner Milkvetch	Project Objectives - monthly monitoring of abiotic conditions (throughout year), and of threecorner milkvetch growing response (seed reproductive output, plant size, number of flowers, etc.) during the growing season.	Revised as recommended.
NDF	Project Concept #16: Effects of Solar Farms on Threecorner Milkvetch	Project Approach - It may be useful to place the control plots outside the solar project footprint (such as across the Valley of Fire Highway) to ensure there are no residual heat effects due to proximity to the solar panels.	We will consider this approach, but I would like to make sure we can ascribe the outcomes to the presence or absence of the solar project and not broader variations in site characteristics.
Science Advisor Panel	Project Concept #17: Developing an Aging Method for the Desert Tortoise	Background and Need for Project - This sounds like an interesting project. What sample size is needed to get good results? I would guess tortoises of different ages would be important. Is that worth mentioning here or in the Project Approach below?	We are attempting to obtain access to between 100-200 tortoises of different ages. The funds identified in this project concept would cover the second phase of the project and we will know the exact sample size by the time this phase begins, thus, a range is not necessary at this stage of development as we will be subject to what is available.
Science Advisor Panel	Project Concept #18: Predator-Prey Dynamics	I did not see where the project is addressing "How a potential drop in rabbit abundance (as important herbivores) will affect primary production (especially of perennial plants) in habitats across the United States." Is there a perennial plant survey component in this project that wasn't described? Or should this project objective/goal be dropped?	This objective addresses aiding the National Wildlife Health Center with research in RHDV2. This location has not had a substantial die-off in relation due to RHDV2 so no work is currently being completed related to those objectives. If we do see a substantial die-off during the course of this project and the National Wildlife Health Center wants to pursue those objectives then this project would help to aid them in that research. They do not need to be removed as they are still objectives that could be pursued under certain circumstances.