# Chapter 2

# Multiple Species Habitat Conservation Plan

## 2.1 Executive Summary of the Multiple Species Habitat Conservation Plan

### 2.1.1 Introduction

Clark County; the Cities of Las Vegas, North Las Vegas, Boulder City, Mesquite, and Henderson; and the Nevada Department of Transportation (Applicants) have prepared a Multiple Species Habitat Conservation Plan (MSHCP) and Environmental Impact Statement (EIS) for Clark County, Nevada. The MSHCP/EIS was prepared in cooperation with the Clark County Implementation and Monitoring Committee (I & M Committee), the United States Fish and Wildlife Service (USFWS), the Nevada Division of Wildlife (NDOW), the United States Bureau of Land Management (BLM), the United States National Park Service (NPS), the United States Forest Service (USFS), the U.S. Geological Survey Biological Resources Division (BRD), the United States Environmental Protection Agency (EPA), the University of Nevada, Las Vegas (UNLV), the University of Nevada, Reno (UNR), the Biological Resources Research Center at UNR (BRRC), the Nevada Natural Heritage Program (NNHP), the Nevada Division of Forestry (NDF), the Southern Nevada Water Authority (SNWA), and Utah State University (USU) (collectively, the Participants).

The MSHCP is intended under Section 10(a) of the Endangered Species Act to support the issuance, by the USFWS, of a permit or permits (Section 10(a) Permit) which would:

- Allow the "take" of threatened or endangered species resulting from otherwise lawful activities on non-Federal properties within the county; and

- Allow the "take" of threatened or endangered species that are currently unlisted but may become listed in the future.

The MSHCP is an extension of the effort begun with the Clark County Desert Conservation Plan (DCP), which was prepared in response to the Federal listing of the desert tortoise as a threatened species. Whereas the DCP focused primarily on the conservation of the desert tortoise, the intent and purpose of the MSHCP is to establish a means to address the conservation needs of the entire range of biological resources within Clark County. The provisions of the DCP have been integrated into the MSHCP, and if approved by the USFWS, the MSHCP will supersede the provisions of the DCP.

The key purpose of the MSHCP is to achieve a balance between:

- Long-term conservation and recovery of the diversity of natural habitats and native species of plants and animals that make up an important part of the natural heritage of Clark County; and

- The orderly and beneficial use of land in order to promote the economy, health, well-being, and custom and culture of the growing population of Clark County.

Implementation of the conservation measures in the MSHCP is anticipated to be a cooperative effort among the Applicants and many of the Participants, including but not limited to the USFWS, BLM, USFS, NPS, NDOW, NDF, and other Federal and state land managers and regulators.

This document is being prepared as Phase 1 of a Multiple Species Habitat Conservation Plan in support of an application for a Section 10(a) Permit pursuant to the provisions of Section 10(a) of the Endangered Species Act (ESA). It is anticipated that additional phases of the MSHCP will follow after additional data collection and conservation information has been accumulated sufficient to move species from the category of Evaluation Species to the category of Covered Species as those terms are defined hereinafter. It will also serve as an Environmental Impact Statement as part of the public process followed by the U.S. Fish and Wildlife Service in making their determination regarding whether to issue permit(s) as required by the National Environmental Policy Act.

## 2.1.2 Regulatory Framework

In preparing this MSHCP, legal requirements that directly or indirectly apply have been taken into account. These include the Endangered Species Act (particularly Section 10), the National Environmental Policy Act (NEPA), Federal Land Policy and Management Act (FLPMA), National Forest Management Act, Nevada Revised Statutes, and local plans and ordinances.

On August 5, 1995, the DCP was approved and the Section 10(a) Permit was issued (PRT 801045). The DCP and its implementing agreements are incorporated into this document by reference and the documents are intended to be complementary to each other. However, in the event of a direct conflict between the terms of the DCP and the MSHCP, the terms of the MSHCP shall prevail.

## 2.1.3 MSHCP Plan Area

The MSHCP plan area includes all of Clark County. In addition, specifically for the desert tortoise, the MSHCP plan area also includes Nevada Department of Transportation (NDOT) rights-of-way (including material sites) below 5,000 feet in elevation, south of the 38$^{th}$ parallel in Nye, Lincoln, Mineral, and Esmeralda Counties.

Land uses in Clark County have been dictated largely by patterns of land ownership and management and four decades of rapid population growth. Key issues to be addressed in this conservation plan include existing uses and activities on lands managed by public agencies as well as proposed land uses within Clark County.

About 89.0 percent of the land in Clark County is owned by the U.S. and managed by seven Federal agencies, five of which are agencies within the Department of the Interior. The seven agencies are BLM, NPS, USFWS, U.S. Air Force (USAF), USFS, Bureau of Indian Affairs, and Federal Aviation Administration.

Lands held by the State of Nevada, local government, and private parties comprise 10.9 percent of the county's area, or about 553,600 acres. Major state holdings include Valley of Fire, Floyd Lamb, and Spring Mountain Ranch State Parks. Local government holdings consist primarily of parks, office complexes, and storage and maintenance facilities. Sixty percent of all state, local government, and private holdings are located in Las Vegas Valley.

Existing and proposed land uses of primary concern with respect to the species addressed by this MSHCP and their habitats include agriculture, flood control, livestock grazing, mineral extraction, off-highway vehicle activities, parks and recreation, residential and commercial development, solid waste facilities, transportation, utilities, and water and sewage facilities. These activities will be covered by the terms and conditions of the MSHCP on non-Federal lands within Clark County. While changes in these land uses will be the result of the growth of the population in the Las Vegas Valley and rural communities, with the exception of residential, industrial, and commercial land development, these activities will occur on both non-Federal and Federal lands.

The MSHCP will provide coverage under Section 10(a) for Covered Species on non-Federal lands. Although the MSHCP will not provide for incidental take on Federal lands

or resulting from Federal actions on non-Federal lands, it does provide the framework for avoidance and minimization of impacts to Covered Species on Federal lands or resulting from Federal actions on non-Federal lands.

## 2.1.4 Scope of the MSHCP

Clark County and the Cities of Las Vegas, North Las Vegas, Henderson, Mesquite, and Boulder City are seeking a Section 10(a) Permit for the incidental take of Covered Species, as hereinafter defined, in connection with the development of non-Federal lands within Clark County for a 30-year period. In addition, NDOT has joined as an Applicant for the permit to allow the incidental take of desert tortoises within desert tortoise habitat, south of the 38$^{th}$ parallel and below 5,000 feet in elevation, and the incidental take of other Covered Species within Clark County in connection with:

- The construction and maintenance of roads, highways, and material sites outside of Intensively Managed Areas (IMAs) and Less Intensively Managed Areas (LIMAs) within Clark County and desert tortoise critical habitat outside of Clark County; and

- The maintenance of roads, highways, and material sites within IMAs and LIMAs within Clark County and desert tortoise critical habitat outside of Clark County.

Because some Federal lands within Clark County will be transferred to non-Federal owners during the permit period, a projected level of such transfers from Federal to non-Federal ownership has been included in the potential estimated loss of habitat in the permit area as well. The permit is intended to apply to such lands as they are transferred out of Federal ownership, with the exception of such lands that are within established IMAs and LIMAs. Thus, the permit will apply to all non-Federal lands that currently exist and all non-Federal lands which result from sales or transfers from the Federal government after the issuance of the Section 10(a) Permit if they are located outside of established IMAs and LIMAs as hereinafter defined. In no event, however, shall the total amount of take exceed 145,000 acres.

The total number of acres of Federal and non-Federal lands within the permit area that potentially are available for future development is approximately 418,200. This total excludes existing development, the Boulder City Conservation Easement area, and state lands managed for wildlife values. The total also includes the 175,000 acres projected to be disposed of by BLM during the term of the MSHCP. In no event, however, shall the total amount of "take" exceed 145,000 acres.

Some of NDOT's routine maintenance activities may impact species addressed in this MSHCP. These routine maintenance activities will not disturb areas outside of NDOT's

rights-of-way. Therefore, NDOT's maintenance activities should not significantly impact species covered by this MSHCP unless they are found within NDOT's rights-of-way

Species in Clark County were listed in one of three categories defined for the MSHCP:

- Covered Species
- Evaluation Species
- Watch List Species

For the purposes of this MSHCP, Clark County is providing a comprehensive list of "target" species, as discussed in the Region 1 Guidelines for Determining Covered Species Lists (1995).

As part of this MSHCP analysis, land management planning documents for BLM, USFS, NPS, state parks, and other Participants were used to evaluate existing management policies and actions that may have a potential effect on species conservation. In the context of the pattern of land management in Clark County, and based upon the analysis of the management designations and the rules applicable to such designations, the landscape has been divided into four basic conservation management categories:

- Intensively Managed Areas IMAs
- Less Intensively Managed Areas LIMAs
- Multiple Use Managed Areas MUMAs
- Unmanaged Areas UMAs

## 2.1.5 Ecosystem Analyses

Each ecosystem in Clark County was evaluated based upon the pattern of existing land ownership, management, and actions proposed for implementation as part of the MSHCP. Although these analyses are organized by ecosystem, they primarily address potential threats to those species that occur within each ecosystem. The intent of these analyses is to provide a landscape-scale perspective for addressing the conservation needs of plant and wildlife species in Clark County and the habitats upon which they depend.

In order to implement an ecosystem-based approach to the conservation of biological resources in Clark County, the plan area is organized by elevation and range into ecological zones and vegetation types:

- **Alpine**
- **Bristlecone Pine**
- **Mixed Conifer** (White Fir, Ponderosa Pine, Ponderosa Pine/Mountain Shrub)
- **Pinyon-Juniper** (Mountain Shrub, Pinyon Pine, Pinyon Juniper, Juniper)
- **Sagebrush** (Sagebrush and Sagebrush/Perennial Grasslands)
- **Blackbrush** (Blackbrush and Hopsage)
- **Salt Desert Scrub**
- **Mojave Desert Scrub** (Creosote-Bursage and Mojave Mixed Scrub)
- **Mesquite/Catclaw**
- **Desert Riparian/Aquatic** (Lowland Riparian, including Muddy and Virgin River systems and Las Vegas Wash)
- **Springs**
- **Other** (sand dune, gypsiferous soil, rock outcrop, dry lake bed and playa, barren, agriculture, non-native grassland, urban)

Ecological zones are used as the primary organization for habitat conservation planning. Within each ecological zone, land management is assessed for each habitat and its associated species.

In addition to the major ecosystems that occur in Clark County, several other assemblages of species with shared characteristics or habitat requirements are discussed with respect to special conservation needs not adequately addressed at the ecosystem level (as defined in the MSHCP). These include bats, Mojave desert lizards and snakes, butterflies, and species associated with rock outcrops, boulder fields, lava flows, sand dunes, gypsum soils, dry lake beds and playas, and boreal islands.

# 2.1.6 Covered Species, Evaluation Species, and Watch List Species

Based on the criteria and analyses detailed in the MSHCP, the following 79 species are included as Covered Species. Another 103 species are listed as Evaluation Species and 51 as Watch List Species.

Silver-haired bat
Long-eared myotis
Long-legged myotis
Palmer's chipmunk
American peregrine falcon
Yellow-billed cuckoo
Vermilion flycatcher
Southwestern willow flycatcher
Phainopepla
Summer tanager
Blue grosbeak
Arizona bell's vireo
Desert tortoise
Banded gecko
Desert iguana
Western chuckwalla
Western red-tailed skink
Large-spotted leopard lizard
Great Basin collared lizard
California kingsnake
Glossy snake
Western long-nosed snake
Western leaf-nosed snake
Sonoran lyre snake
Sidewinder
Speckled rattlesnake
Mojave green rattlesnake
Relict leopard frog
Dark blue butterfly
Spring Mountains icarioides blue
Mt. Charleston blue butterfly
Spring Mountains acastus checkerspot
Morand's checkerspot butterfly
Carole's silverspot butterfly
Nevada admiral
Spring Mountains comma skipper
Spring Mountains springsnail
Southeast Nevada springsnail
Clokey eggvetch
Blue Diamond cholla
Rough angelica
Sticky ringstem
Charleston pussytoes
Las Vegas bearpoppy
White bearpoppy
Rosy king sandwort
Clokey milkvetch
Threecorner milkvetch
Spring Mountains milkvetch
Alkali mariposa lily
Clokey paintbrush
Clokey thistle
Jaeger whitlowgrass
Charleston draba
Inch high fleabane
Forked (Pahrump Valley) buckwheat
Sticky buckwheat
Clokey greasebush
Smooth pungent (dwarf) greasebush
Pungent dwarf greasebush
Red Rock Canyon aster
Hidden ivesia
Jaeger ivesia
Hitchcock bladderpod
Charleston pinewood lousewort
White-margined beardtongue
Charleston beardtongue
Jaeger beardtongue
Parish's phacelia
Clokey mountain sage
Clokey catchfly
Charleston tansy
Charleston kittentails
Charleston grounddaisy
Limestone violet
*Anacolia menziesii*
*Claopodium whippleanum*
*Dicranoweisia crispula*
*Syntrichia princeps*

Potential impacts were evaluated for each species on the basis of its distribution within IMAs, LIMAs, MUMAs, and UMAs. IMAs and LIMAs are considered to be conserved. The potential for incidental take of each species is estimated as the proportion of the known populations or potential habitat for the species in UMAs, although it is not expected that all of these will be affected. Populations within MUMAs may be affected by permitted activities. Where substantial portions of Covered Species populations occur within MUMAs, management actions are proposed and measurable biological goals apply to the MUMAs as well as IMAs and LIMAs.

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

- Allow no net unmitigated loss or fragmentation of habitat in IMAs and LIMAs (or MUMAs where they represent the majority of habitat for the species);

- Maintain stable or increasing population numbers; and

- Develop, through the Adaptive Management Process, appropriate detailed and quantifiable population or habitat goals for each Covered Species or, if possible, quantifiable goals for an appropriate surrogate indicator (ecosystem measure or key, umbrella, flagship species).

# 2.1.7 Estimated Loss of Habitat

## 2.1.7.1 Estimated Loss of Tortoise Habitat

Although the entire 10(a) Permit area includes an estimated 418,200 acres with potential for development, not all of the land will be developed during the 30-year permit period. The DCP assumed that the amount of land likely to be developed in the permit area between 1994 and 2023 would be 111,000 acres. Revised population projections described in this MSHCP project an increase in the rate of land disturbance to approximately 121,000 acres at the end of the term of the DCP in the year 2023 and 130,000 acres at the end of the proposed term of the MSHCP in the year 2028. Although this projection represents an estimate of the expected total number of acres of disturbance in Clark County given current projections of population growth, an additional 15,000 acres of land disturbance within the plan area would not be subject to fees.

It should be noted that it is estimated that more than 3.5 million acres of tortoise habitat occur within Clark County. Thus, even if all 130,000 acres were actually tortoise habitat, its development would result in less than a four percent loss.

## 2.1.7.2 Estimated Loss of Other Habitats

The MSHCP proposes to cover incidental take on 145,000 acres of habitat in Clark County, including 130,000 acres subject to fee collection and approximately 15,000 acres of land disturbance not subject to fee collection. The projected level of land disturbance subject to the collection of fees is based on population growth and needs of supporting infrastructural development over the term of the permit.

It is anticipated that approximately 15,000 acres of land disturbance exempt from fee collection will occur during the term of the permit, including areas to be developed by the County and Cities as parks and roads, and limited areas disturbed by mining and agriculture on non-Federal lands. The County shall develop a cost-effective means to provide an estimate of the number of acres of land disturbance per biennium resulting from activities not requiring payment of the development fee.

# 2.1.8 Measures to Minimize, Mitigate, and Monitor Impacts of Take

The following are recommended conservation actions to be undertaken by each local, state, and Federal agency participating in the MSHCP. The conservation actions include public information and education, adaptive management, and land use policies and actions. For adaptive management, the conservation actions include research, monitoring for trends, and inventories to assess the status of habitats and species. The land use policies and actions include habitat restoration and enhancement measures; protective measures which may include regulatory prescriptions, use restrictions, or other land management actions; and changes to underlying management policies.

## 2.1.8.1 The Adaptive Management Process

While the I & M Committee believes that the initial measures to be funded by the MSHCP (during the period commencing in July of 1999 through June of 2001) will be effective to conserve both habitats and the Covered Species, conditions within Clark County, the status of habitats, and the overall conditions of individual species over time will change. The Applicants and the I & M Committee, with the cooperation of USFWS, NDOW, BRRC, and BRD, are proposing an Adaptive Management Process (AMP) to gauge the effectiveness of existing conservation measures and to propose additional or alternatives conservation measures, as the need arises, and to deal with changed circumstances.

AMP recommendations will be constructed from evaluation of the results of ongoing land management, inventory, monitoring, and research activities and other information. This means that biological management techniques and specific objectives will be evaluated regularly in the light of monitoring results and new information on species' needs, land use, and a variety of other factors. These periodic evaluations will be used in both the short and long terms to adapt management objectives and techniques to the stated measurable biological goals.

Development of the AMP will be completed in a cooperative and coordinated manner with, and under the direction of, the I & M Committee, with direct input from the land managers from its inception. During the first two years, the AMP will focus, as stated above, on evaluation of MSHCP processes for their relevance to and potential for meeting the stated measurable biological goals. In year one, the AMP will apply that focus to (a) development of the Resources Database and (b) establishment of a fully functional Adaptive Management Subcommittee.

The I & M Committee will implement the AMP by identifying, specifying, and adapting the short-term MSHCP biological goals to the stated measurable biological goals for the

ultimate outcome, habitat perpetuation, species conservation and recovery, and addition of new species as Covered Species.

### 2.1.8.2 Clark County Measures to Minimize and Mitigate the Impacts of Take

The mitigation and conservation measures discussed in this section include the continuation and augmentation of many measures proposed and implemented during the DCP for the desert tortoise, many of which, subject to future decisions made pursuant to the AMP, may be funded during the entire 30-year term of the proposed permit. However, because the DCP and the MSHCP have been integrated into one plan, the mitigation measures proposed in this MSHCP are intended to supersede and replace those set forth in the DCP. The mitigation measures that will be implemented, subject to future modifications, during the term of the MSHCP include the following.

- Imposition of $550-per-acre development fee and implementation of an endowment fund
- Funding of conservation measures
- Administration of the MSHCP
- Public information and education program
- Purchase of grazing allotments and interest in real property and water
- Maintenance and management of allotments, land, and water rights which have been acquired
- Construction, monitoring, and maintenance of barriers along linear features
- Translocation of desert tortoises
- Participation in and funding of local rehabilitation and enhancement programs (Muddy River Regional Environmental Impact Alleviation Committee, Las Vegas Wash Wetlands Park, rural roads, and development and implementation of an Adaptive Management Process)
- Develop and administer the AMP

### 2.1.8.3 Federal and State Land Managers

In addition to the agreement to participate in the Adaptive Management Process, Federal and state land managers will implement a total of approximately 650 specific conservation measures. The conservation measures include:

- Public information and involvement
- Research
- Inventory
- Monitoring
- Protective measures
- Restoration and enhancement measures
- Land use policies and actions

These incorporate agreements such as the Spring Mountains National Recreation Area Conservation Agreement, the Blue Diamond Cholla Conservation Agreement, the Las Vegas Bearpoppy Memorandum of Agreement, and existing general management plans and land use plans and the recently approved BLM Las Vegas Resource Management Plan. The Federal and state land and resource managers include:

- U.S. Forest Service
- U.S. Fish and Wildlife Service
- Bureau of Land Management
- National Park Service
- Nevada Division of Wildlife
- Nevada Department of Transportation
- Nevada Division of State Parks
- Nevada Division of Forestry

# 2.1.9 Financial Assurances for the MSHCP

## 2.1.9.1 Funding the MSHCP through Continuation of Development Fees

The MSHCP proposes to minimize and mitigate the impacts of take of Covered Species on non-Federal lands in Clark County through expenditures of funds raised through imposition of its development fee of $550/acre on all lands in Clark County as they are developed that require a permit from the County and Cities (which imposition will be made by the adoption of County and City ordinances in substantially the same form as set forth in Chapter 28.46 of the Clark County Code, but which will be modified to cover all lands within the County and the Cities) to assist in the implementation of conservation

policies and activities carried out primarily within IMAs and LIMAs. In addition, the imposition of the development fee will apply to all NDOT rights-of-way in Clark County and NDOT rights-of-way in Lincoln, Nye, Mineral, and Esmeralda Counties that occur south of the 38th parallel and below 5,000 feet.

The MSHCP proposes to integrate the financial assurances and commitments of the DCP into the MSHCP which would provide an additional $400,000 per year (in constant dollars) to those already committed to implementation of the DCP. Thus, the MSHCP proposes to expend a total of $2,050,000 per year, or $4,100,000 per biennium, adjusted biennially to reflect cost of living increases (Consumer Price Index, or CPI), not to exceed 4 percent per year, to fund implementation of measures identified in this MSHCP for conservation of Covered Species, including the desert tortoise, and development of information and/or mitigation measures to enable addition of Evaluation Species to the Covered Species list. The primary source of funding will be derived from the continuation of fees collected for each acre of disturbance of non-Federal lands in the plan area and interest from the endowment fund.

Subsequent to Phase 1, as additional species are added as Covered Species to the permit, up to an additional $1,000,000 per year, with cost of living adjustments as set forth above, may be added to the funds available for implementation of MSHCP measures.

All funds collected pursuant to the MSHCP will be deposited with the County and made a part of the endowment fund to be used exclusively for the administration and implementation of the conservation measures.

In the event the I & M Committee recommends and the USFWS and the Board of County Commissioners approves expenditures in excess of $4,100,000 during any biennium to take advantage of early implementation of conservation measures, market conditions, or any other factor they deem appropriate, additional expenditures may be authorized (Excess Expenditures), which will be deducted from expenditures required during future biennial periods.

### 2.1.9.2 Potential Sources of Extramural Funding for the MSHCP

The Las Vegas Wash Wetlands Park plan is being implemented in the Las Vegas Wash area of Clark County to deal with the impacts of past changes in the quantity and quality of water flows resulting, in part, from the urbanization of the Las Vegas Valley. This program includes significant opportunities for the incorporation of conservation measures that would complement the MSHCP. These measures could provide specific benefits to the desert riparian and wetlands ecosystems and species that depend upon them.

Funding for the conservation measures in the park will further the general and specific goals of the MSHCP. The biological resources in the park will be managed as part of the AMP.

The Southern Nevada Public Lands Management Act, will provide an unprecedented opportunity to enhance both growth management and environmental planning in Clark County. The sale of the approximately 27,000 acres of Federal lands scattered within the urban areas within the Las Vegas Valley, as mandated in the act, is expected to generate an estimated $420 million during the initial six years of implementation of its provisions, from 1998 to 2003. The Special Account from which Clark County would draw funds would receive an estimated $357 million over the six-year period, or approximately $60 million per year (85 percent of total proceeds).

At the present time, and subject to any requirements imposed by the Secretary of the Interior, it is the intent of the I & M Committee that funds granted to the Clark County MSHCP would be subject to the I & M budgetary process and would be expended only to fulfill the goals and intent of the MSHCP with the consent of the I & M Committee, the USFWS, and the Clark County Board of County Commissioners.

Additional sources of extramural funding are expected to include matching funds grants currently under discussion with UNR in collaboration with BRRC as well as grants solicited from foundations such as John D. and Catherine T. MacArthur Foundation, the Pew Charitable Trust, and the Richard Mellon Foundation, among others, whose interests in conservation principles and practices are particularly reflected in this plan's ecosystem-centered approach to conservation.

## 2.1.10 Changed Circumstances, Unforeseen Circumstances, No Surprises, and Other Federal Commitments

The Applicants and Participants have made every effort to anticipate the minimization, monitoring, and mitigation measures (conservation measures) necessary to conserve the Covered Species and the habitats which support those species and, to that end, have relied upon the best scientific and commercial information available concerning the Covered Species and their habitats. In addition, the AMP and the flexible provisions regarding the expenditure of mitigation funds provided by the Applicants are intended to meet and address future exigencies and emergency situations. Thus, the MSHCP is intended to reduce the potential for adverse changed or unforeseen circumstances on the Covered Species and their habitats to a level of insignificance.

However, notwithstanding the provisions of the MSHCP, should adverse changed or unforeseen circumstances result in, or threaten, a substantial change in the population of

any Covered Species or the overall quality of any habitat of that species, as determined pursuant to the procedure outlined hereinafter, the Applicants and the USFWS shall cooperate to resolve the adverse impacts in accordance with Section 2.10.

Prior to making a determination regarding the occurrence of any changed or unforeseen circumstance, the USFWS shall comply with a procedure that provides for meaningful input from other Participants and the public.

## 2.1.11 Clarifications, Minor Administrative Amendments, and Amendments

Experience with the DCP has shown that from time to time it is necessary for the USFWS and Clark County, as Administrator of the DCP, to clarify provisions of the DCP, the Implementation Agreement, or the Permit (together, the Plan Documents) to deal with issues that arise with respect to the administration of the process or to be more specific regarding the precise meaning and intent of the language contained within those documents. Clarifications do not change the provisions of any of the documents in any way but merely clarify and make more precise the provisions as they exist.

It is also anticipated that, over time, the AMP will recommend additions as well as modifications and changes to conservation measures undertaken and/or financed by the MSHCP. Such future conservation measures may or may not be proposed in this first phase of the MSHCP but may be developed by the I & M Committee, the Federal and state land managers, and the USFWS over time. Conservation measures undertaken pursuant to the AMP shall not require formal amendment of any of the Plan Documents but shall be processed and approved by the USFWS and the Board of County Commissioners in connection with the review and approval of the biennial implementation plan and budget, as hereinafter described.

Except for minor amendments and clarifications, neither the MSHCP, the Permit, nor the Implementation Agreement may be amended or modified in any way without the written approval of the Board of County Commissioners of Clark County, as Administrator of the MSHCP; all other signatories, including the land managers; and the USFWS. All proposed material changes or amendments shall be reviewed by the I & M Committee, which shall make its recommendation to the Board of County Commissioners. Material changes shall be processed as an amendment to the permit in accordance with the provisions of the ESA and appropriate environmental review under the provisions of NEPA.

# 2.1.12 Implementation of the MSHCP

## 2.1.12.1 Progress Report Implementation Plan and Budget

It is expected that the entity or entities contracted to prepare the Adaptive Management Plan shall regularly report to the Plan Administrator and the I & M Committee according to the time frame and format mutually agreed upon and enumerated in the contract for consulting services. The following steps will be taken in the development of biennial budgets.

- AMP recommendations and available funding
- Ensuing biennium proposals
- Budget sessions
- Submittal of implementation plan and budget
- USFWS review of implementation plan and budget

After review, analysis, and approval of the implementation plan and budget, and concurrence by the USFWS, a complete budget shall be presented to the Board of County Commissioners for approval. The Board of County Commissioners may approve or disapprove the budget, in whole or in part; however, disapproval of the budget or any portion thereof deemed essential by the USFWS may be grounds to suspend or terminate the Section 10(a) Permit(s), in whole or in part. The County shall disburse funds pursuant to the budget finally approved by the Board of County Commissioners. Funds remaining at the end of the permit will be used solely and exclusively for conservation measures at the discretion of the County and USFWS.

## 2.1.12.2 Reporting

For all projects in the permit area and prior to authorizing any land disturbance that requires a permit, or, in the case of NDOT, prior to disturbing land within its permit area, a project land disturbance report must be completed by the permittee (the County, the Cities, or NDOT). The following calendar shall be adhered to with respect to the MSHCP budget cycle and reporting.

1. All contracts will become effective on the date of the first commission meeting in July of odd-numbered years.

2. Proposals must be complete and include a completed biennium budget request form.

3. Proposals not in any current budget (i.e., that are not mandated by permit conditions of the MSHCP) will be submitted to the I & M Committee members on an as-needed basis for review and comment.

**MSHCP BIENNIUM CALENDAR**

| Date | Year | Action | Responsible Entity |
|---|---|---|---|
| March 15 | Even | AMP report | Contractor(s) |
| April 15 | Even | AMP review | I & M Committee |
| May 15 | Even | Letter to agencies re proposals/budgets with suggestions from AMP, USFWS, I & M | Clark County |
| July 15 | Even | Accounting report on money available including COLA and excess expenditure credits<br>MSHCP endowment financial performance projections | Clark County |
| August 1 | Even | Proposals/budgets | Contractors/agencies |
| Sept 1–Dec 31 | Even | Budget sessions | I & M Committee |
| February 15 | Odd | Budget and proposed credit to USFWS | I & M Committee |
| April 15 | Odd | Approval of budget and credits | USFWS |
| July 1 | Odd | Approval by BCC | BCC |
| September 1 | Odd | Progress reports | Contractors and agencies receiving funds |
| October 15 | Odd | Composite report of accounting and progress reports, including contractors progress reports, updated financial projections, final biennial expense report, land disturbance report, and tortoise disposition report | Clark County |
| December 15 | Odd | Approval by USFWS | USFWS |
| Quarterly | All | Financial land disturbance and tortoise disposition reports | Clark County |

## 2.1.12.3 Implementation Agreement

Each of the participating agencies will enter into an agreement with USFWS regarding the implementation of the MSHCP. The purpose of an Implementing Agreement is to ensure that each party understands its obligations under the MSHCP and Section 10(a) Permit and to provide remedies should any party fail to fulfill its obligations. This agreement will specify the responsibilities of each agency; the minimization, conservation, and mitigation measures to be implemented; reporting and enforcement procedures; and any other permit conditions USFWS may require.

# 2.2 Regulatory Framework

## 2.2.1 Background

On April 2, 1990, the desert tortoise was listed as threatened by the USFWS (1990a), thereby bringing it under full protection of the Federal ESA of 1973. This listing was based on ongoing threats to the continued existence of the species, including loss of habitat to urban development and agriculture, potential degradation of habitat by grazing and off-highway vehicle (OHV) use, illegal collection, spread of an upper respiratory tract disease, excessive predation of juvenile tortoises by common ravens, and other contributing factors (USFWS 1990a). The April listing was preceded by an emergency listing of the tortoise as endangered on August 4, 1989 (USFWS 1989).

In Nevada, the tortoise has been categorized as "protected" pursuant to Nevada Revised Statute (NRS) 501.110 and Nevada Administrative Codes (NAC) 503.080 and 503.090.

Early in September, 1989, Clark County and the cities of Las Vegas, North Las Vegas, Henderson, Boulder City, and Mesquite (collectively, the Cities) began investigating the possibility of applying for a permit issued by the USFWS pursuant to the provisions of Section 10(a) of the Federal Endangered Species Act of 1973. Shortly thereafter, the County and the Cities entered into an Interlocal Agreement wherein the County and the Cities agreed to fund the preparation of a Habitat Conservation Plan to provide conservation measures for the desert tortoise and which would support a Section 10(a) Permit which would allow the incidental take of that species. That plan was designated the Short-Term Habitat Conservation Plan for the Desert Tortoise. The Short-Term HCP was approved and a Section 10(a) Permit was issued on August 24, 1991 (PRT 756260) for an initial term of three years, during which time the County and the Cities agreed to continue working to develop appropriate additional conservation measures for the desert tortoise and to thereafter apply for a long-term permit with a term of 30 years.

Over the next several years, the committee appointed by the Clark County Board of County Commissioners (I & M Committee) continued to work on the long-term HCP for the desert tortoise, which plan was designated the Clark County Desert Conservation Plan. On or about August 5, 1995, the DCP was approved and a new Section 10(a) Permit (PRT 801045) was issued to allow the incidental take of desert tortoises for a term of 30 years. In addition to providing funds to implement conservation measures for the desert tortoise, the DCP contained a provision that provided funds (up to $250,000 per year) to provide conservation measures (primarily collection of information, data, and inventories regarding species likely to be listed in the near future) for species other than the desert tortoise. However, neither that provision nor the Section 10(a) Permit allowed the incidental take of species other than the desert tortoise.

In May of 1996, the I & M Committee began discussing the possibility of preparing a Multiple Species Habitat Conservation Plan and applying to the USFWS for one or more Section 10(a) Permits to allow the incidental take of many species in addition to the desert tortoise. In August of 1996, after additional study, the Board of County Commissioners and the City Councils of the Cities authorized the preparation of this MSHCP by means of an amendment to their existing Interlocal Agreement.

In addition to amending the Interlocal Agreement to allow the expenditure of funds for species other than the desert tortoise, it was necessary to amend state law to allow the expenditure (NRS Section 244.386). The amendment was passed by the Nevada State Legislature in 1997.

## 2.2.2 ESA Requirements and Guidelines for Habitat Conservation Plans

### 2.2.2.1 Prohibition Against Take of Listed Species

When an animal species is listed by USFWS, the ESA prohibits any "taking" of the species. As defined in the ESA, "take" means:

> to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (Section 3 [19]).

Definitions of "harass" and "harm" are not included in the ESA but are provided in Federal regulations. "Harass" means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3).

"Harm" means an act that actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3).

For listed plant species it is prohibited:

> to remove and reduce to possession any species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any Federal jurisdiction; or remove, cut, dig-up, damage or destroy any species on any other area in knowing violation of a state criminal trespass law.

In general, the Federal laws that protect the listed species take precedence over state and local statutes (unless state or local laws prescribe stricter standards) and apply equally to the activities of Federal agencies, states, local public agencies, private enterprise, and individuals. Violations are punishable by fines of up to $50,000 and sentences of up to one year in jail.

## 2.2.2.2 HCP Requirements

In 1982, recognizing that take of listed species cannot always be avoided, Congress amended the ESA to add Section 10 to the ESA. That amendment included provisions for the issuance of permits which would allow the taking of listed species that are incidental to, but not the purpose of, otherwise lawful activities. An application for a Section 10(a) incidental take permit must be accompanied by an HCP that adheres to Federal regulations and guidelines prepared by USFWS.

### a. Contents of HCPs

An application for a Section 10(a) incidental take permit must be submitted on an official form (Form 3-200) and be accompanied by the following attachments:

1. A complete description of the activity for which the permit is being sought.

2. The common and scientific names of the species to be covered by the permit.

3. A habitat conservation plan that specifies:

    - The impact that will likely result from the proposed taking of the species;
    - Steps the applicant will take to monitor, minimize, and mitigate such impacts;
    - The level and source of funding available to implement such steps;
    - Procedures that will be used to deal with unforeseen circumstances;
    - The names of the responsible party or parties;
    - Alternatives to the taking and the reasons why they were not pursued; and
    - Other measures required by USFWS as necessary or appropriate.

### b. Required Findings

The application is submitted to the USFWS, which, after a public comment period, must issue the permit if it is found that:

- The take will be incidental;
- The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the take;
- The applicant will ensure that adequate funding for the plan will be provided;
- The take will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
- Other measures required by USFWS will be met.

### c. Section 7 of the Endangered Species Act

Section 7 of the ESA requires all Federal agencies to consult with USFWS regarding any Federal action that may affect a Federally listed species. This requirement applies to all Federal land management decisions and actions and Federally funded actions on non-Federal lands, as well. Such consultations require preparation of a biological evaluation or assessment by the Federal action agency.

When the USFWS prepares a biological opinion for a Federal action affecting a listed species, it is required to determine whether the proposed Federal action is likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of any area which has been designated as Critical Habitat. In addition, the USFWS makes a determination as to whether the proposed Federal action is consistent with the goals established by any recovery plan which may have been adopted for any listed species in the area affected by the Federal action.

Federal actions that require consultation pursuant to Section 7 include the issuance of Section 10(a) Permits by the USFWS. Thus, prior to issuance of the permit requested by this MSHCP, the USFWS will prepare an internal biological opinion that will analyze the effects of the issuance of permits on the species proposed to be covered by the permit. The biological opinion will also assist the California/Nevada Operations Manager in making the findings required to be made by the California/Nevada Operations Manager prior to issuance of the permit.

## d. Guidelines

### (1) The National HCP Handbook—Guidelines for HCPs, in General

The National Habitat Conservation Planning Handbook adopted and published by the USFWS and National Marine Fisheries Service in 1996 identifies four critical subtasks which must be completed to determine the probable impacts which would result from the proposed incidental take. These subtasks include the following:

a) Delineation of plan boundaries, which, as stated in the guidelines, "typically should encompass all areas to be affected during the length of the permit by activities that may result in the incidental take of a listed wildlife species."

b) Collection and synthesis of existing information on the distribution, occurrence, and ecology of Federally listed species and other species of concern within the plan boundaries.

c) Detailed description of the activities to be covered by the Section 10(a) Permit, including activities that have already been proposed and those that are "reasonably certain" to occur.

d) Quantifying anticipated take levels, including the determination of (1) how incidental take will be calculated, (2) the level of incidental take and related impacts expected to result from proposed project activities, and (3) the level of incidental take that the Section 10(a) Permit will actually authorize.

Regarding habitat mitigation measures in the HCP, the handbook notes that they can take many forms:

a) Acquisition of existing habitat.

b) Protection of existing habitat through conservation easements or other legal instruments.

c) Enhancement or restoration of disturbed or former habitats.

d) Prescriptive management of habitats to achieve specific biological characteristics.

e) Creation of new habitat.

Regarding funding, the guidelines indicate that the applicant must specify the funding that will be made available for the proposed mitigation measures and the funding must be sufficient (over the life of the permit).

Regarding funding of recovery measures as mitigation, the handbook acknowledges that it is acceptable in some cases for funding to be provided to state or Federal agencies to implement recovery actions within critical habitat, to restore degraded habitat, to address anthropogenic influences, and for conservation actions on larger, more secure populations of affected species on public lands.

Regarding "additional measures," the guidelines note that the plan must demonstrate how monitoring and mitigation will be implemented and what steps will be taken to ensure that incidental take does not exceed what the plan specifies.

This MSHCP is based on current existing information on the ecology, distribution, and occurrence of the species addressed by the MSHCP and contains all the information required as part of a Section 10(a) Permit application for species proposed to be covered by the permit (Covered Species). An implementation agreement will be used to provide legal assurances regarding plan implementation.

### (2) Guidelines for MSHCP in Region 1 of the USFWS

On August 1, 1995, Region 1 of the USFWS issued its guidelines for the preparation of an HCP that covered listed and unlisted species in one HCP. Among other issues addressed by these Guidelines are the following:

a) "To conserve a listed species, an HCP must either contribute to its recovery or at least not preclude it. To conserve unlisted species, an HCP must not significantly contribute to the subsequent need to elevate that species to candidate or emergency listing status."

b) "The Service recognizes that multiple species planning efforts may, by necessity, be based on ecosystem health. This means that a multi-species HCP will be analyzed to determine how the proposal will adequately provide for the quality of natural habitat and the species that depend upon those habitats in the planning area. This analysis may find that not all species within the planning area will receive equal benefits from the mitigative measures of the plan, but the overall benefits of a successful plan to the natural ecosystem will provide for the species that inhabit that ecosystem."

### (3) "No Surprises" Rule

Assurances (pursuant to the "No Surprises Policy" issued by the Secretary of the Interior on August 11, 1994) will be given for those species that are adequately covered by the HCP; that is, (a) the HCP must address the conservation of the species and its habitat (either individually or by habitat association) and (b) all Section 10 issuance criteria specified in the act and its implementing regulations must be met [see Section 10(a)(2)(B)

of the act which covers permit exceptions, 50 CFR 17.22 and 17.32 (b)(5) and (6) for Habitat Conservation Plan Assurance ("No Surprises") Rule, and Chapter 7 of the Habitat Conservation Planning Handbook (61 FR, December 1, 1996)].

The "No Surprises" policy provides regulatory assurances to the holder of a habitat conservation plan incidental take permit issued under Section 10(a) of the ESA. It provides that no additional land use restrictions or financial compensation will be required of a permittee with respect to species covered by the permit, even if unforeseen circumstances arise after the permit is issued indicating that additional mitigation is needed. Assurances remain in effect for the duration of the permit. Species not initially listed on an HCP permit may not be automatically covered by an HCP and "No Surprises" policy when subsequently listed.

### 2.2.2.3 Critical Habitat

When a species is listed as threatened or endangered, Section 4 of the ESA requires USFWS to identify critical habitat for that species to the extent that it is prudent and determinable. Critical habitat is defined as (a) the specific areas within the geographical area occupied by the species at the time it is listed on which are found those physical or biological features which are essential to the conservation of the species and which may require special management considerations or protection; and (b) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species.

#### a. Desert Tortoise

On August 20, 1980, the USFWS determined the Beaver Dam Slope population of the desert tortoise located in southwestern Washington County, Utah, to be threatened and also designated 35 square miles of critical habitat (USFWS 1980). However, when the balance of the Mojave population was listed as threatened in April of 1990, no additional critical habitat was designated.

In January 1993, several public environmental organizations sued the USFWS for not having proposed critical habitat for the Mojave population of the desert tortoise. On August 30, 1993, the USFWS announced in the *Federal Register* that it was proposing to designate critical habitat for the tortoise. Written comments about the proposed designation and economic analysis were received no later than October 29 and three hearings were conducted. The USFWS published a final decision on this issue on February 8, 1994.

Designation of an area as critical habitat does not affect the ownership of land in the area. According to the USFWS, it does not change the rights of private landowners and does

not limit private, local, or state actions unless Federal funding or authorization is involved. Designation does provide a means by which the conditions an endangered or threatened species requires for survival can be protected from adverse changes or destruction resulting from Federal actions. This protection is accomplished through a series of consultations pursuant to Section 7 of the ESA.

### b. Other Species

There are no other designated critical habitats within the plan area, although a court has ordered that critical habitat for the Virgin River fishes shall be designated.

## 2.2.2.4 Recovery Plans

Section 4 of the ESA also requires that USFWS develop and implement recovery plans for the survival and recovery of a listed species, unless it is determined that such a plan will not promote conservation of the species. Required components of recovery plans include:

a) A description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species;

b) Objective, measurable criteria which, when met, would result in a determination, in accordance with the Federal ESA, that the species be removed from the list of threatened and endangered species; and

c) Estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal.

Recovery teams may be appointed to prepare the plans, and the development and implementation of the plans must be reported to the U.S. Senate Committee on Environment and Public Works every two years. Draft plans also are subject to public review and comment prior to final approval.

Criteria for approval of HCPs as stated in the Federal ESA and the HCP Handbook (USFWS 1996) ensure that approved HCPs are consistent with recovery goals. Specifically, the ESA indicates that an approved HCP must demonstrate that the permitted acts "will not appreciably reduce the likelihood of the survival and recovery of the species in the wild." This statement is further clarified in the HCP Handbook, which states that an HCP is not a recovery plan and that:

> . . . the activities proposed within a conservation plan must mitigate and minimize the proposed incidental take to the maximum extent practicable, not necessarily recover the species. Therefore, even though some species

do not have an approved or current recovery plan, an approved habitat conservation plan is still possible.

However, for severely depleted species and species for which an HCP covers all or a significant portion of their range, the HCP must provide a high probability that the habitat functions essential to the species' long-term survival will be achieved and maintained during the term of the permit.

The MSHCP proposes that the conservation program shall adopt conservation measures consistent with the recovery plans and contribute to the implementation of the measures suggested in each of the recovery plans.

### a. Desert Tortoise

A desert tortoise recovery team, consisting mostly of academic scientists with a variety of expertise, was formed to develop recovery strategies and recommendations. During development of the draft recovery plan, the recovery team solicited input from the desert tortoise management oversight group, an interagency committee established to coordinate desert tortoise activities among Federal and state agencies, establish funding priorities for research, and set forth rangewide management policies (USFWS 1994).

The recovery plan designates six recovery units within the range of the Mojave population of the desert tortoise: northern Colorado, eastern Colorado, upper Virgin River, eastern Mojave, northeastern Mojave, and western Mojave. Clark County includes portions of the eastern Mojave and northeastern Mojave recovery units.

Each recovery unit includes one or more Desert Wildlife Management Areas (DWMAs). In the eastern Mojave are the Fenner, Ivanpah, and Piute-Eldorado DWMAs and in the northeastern Mojave recovery unit are the Beaver Dam Slope, Coyote Spring, Gold Butte-Pakoon, Piute-Eldorado, and Mormon Mesa DWMAs. The DWMAs that fall primarily within Clark County are Piute-Eldorado, Coyote Spring, Gold Butte, and Mormon Mesa.

The population within a recovery unit may be considered for delisting when the following criteria are met:

- As determined by a scientifically credible monitoring plan, the population within a recovery unit must exhibit a statistically upward trend or remain stationary for at least 25 years;

- Enough habitat must be protected within a recovery unit, or the habitat and desert tortoise populations must be managed intensively enough to ensure long-term viability;

- Provisions must be made for population management within each recovery unit so that population growth rates (lambdas) are maintained at or above 1.0;

- Regulatory mechanisms or land management commitments must be implemented in order to provide long-term protection of desert tortoises and their habitat; and

- The population in the recovery unit is unlikely to need protection under the ESA in the foreseeable future.

It is the goal of the Clark County DCP and MSHCP to accomplish the five targets stated above such that tortoise populations in the recovery units recommended in Clark County can be delisted and not require the protection of the ESA in the foreseeable future and that outlying public lands containing desert tortoise habitat will not be encumbered by ESA regulations and restrictions.

### b. Virgin River Fishes

Recovery plans were prepared in 1979 and 1985 and later revised in the Virgin River Fishes Recovery Plan (USFWS 1995). This plan, along with the Virgin River Basin Integrated Resources Management and Recovery Plan (for populations within Utah), provides the framework for conservation of the Federally endangered woundfin and Virgin River chub, as well as three other fish species of special concern. Recovery goals for these species include:

- Establishment and protection of additional self-sustaining populations within historical ranges;

- Protection of essential habitats, important migration routes, required stream flows and water quality of both the Virgin River and the habitat of transplanted populations; and

- Removal of other significant threats associated with physical, chemical, or biological modifications that might make the habitat unsuitable for the endangered fish.

### c. Rare Aquatic Species of the Muddy River Ecosystem

The objective of the Recovery Plan for Rare Aquatic Species of the Muddy River Ecosystem (USFWS 1996) is to improve the status of one Federally listed species (Moapa dace) so that it may be delisted, and to improve the status of seven species of special concern (three fish, two snails, and two insects) in the Muddy River ecosystem in Clark County, Nevada. The species will be considered for reclassification from endangered to threatened when:

- Existing in-stream flows and historical habitat in three of the five occupied spring systems and the upper Muddy River have been protected;

- 4,500 adult Moapa dace are present among the five spring systems and the upper Muddy River; and

- The Moapa dace population is comprised of three or more age classes, and reproduction and recruitment are documented from three spring systems.

Moapa dace will be considered for delisting provided that all reclassification criteria have been met and when:

- 6,000 adult Moapa dace are present in the five spring systems and the upper Muddy River for five consecutive years;

- 75 percent of the historical habitat in the five spring systems and upper Muddy River provides Moapa dace spawning, nursery, cover, and/or foraging habitat;

- non-native fishes and parasites no longer adversely affect the long-term survival of Moapa dace.

Moapa dace only occupy the unique habitats of the Warm Springs area, and the recovery tasks are focused on habitats within their range. However recovery tasks that would benefit the seven species of special concern throughout the ecosystem are also included in the recovery plan.

### d. American Peregrine Falcon

Since the recovery plan for the American peregrine falcon was approved in 1977 (revised in 1984), the recovery efforts for this species have been extremely successful. Since 1977, more than 2,700 captive reproduced birds have been released into the wild in the U.S., including 800 in the west.

The primary cause of the decline of the species was the widespread use of the pesticide DDT. The combination of the ban of DDT use and recovery efforts has led to the increase of population numbers. The USFWS is considering delisting of the subspecies.

Ongoing recovery needs for the species include evaluation of the need for further population monitoring, contaminant studies, and habitat protection, particularly at nest sites and foraging areas.

### e. Razorback Sucker

A recovery plan exists for the razorback sucker. Because this species occurs in the Colorado River, its conservation is being addressed in the HCP for the Lower Colorado River and it is not included in this plan.

# 2.2.3 Other Legal Requirements

In preparing this MSHCP, other legal requirements that directly or indirectly apply have been taken into account. These include the National Environmental Policy Act, Federal Land Policy and Management Act (FLPMA), Nevada Revised Statutes, and local plans and ordinances.

## 2.2.3.1 NEPA

The National Environmental Policy Act of 1969 requires Federal agencies to evaluate and disclose the effects of their proposed actions on the human environment in a written statement that addresses:

a) The environmental impact of the proposed action;

b) Any adverse environmental effects that cannot be avoided should the proposed action be implemented;

c) Alternatives to the proposed action;

d) The relationship between short-term uses of the human environment versus the maintenance and enhancement of long-term productivity; and

e) Any irreversible and irretrievable commitments of resources that would be involved if the proposed action is implemented.

Compliance with NEPA generally begins with an internal screening process. If a preliminary review determines that the proposed action does not have a significant effect on the quality of the human environment (individually or cumulatively) and, therefore, neither an environmental assessment (EA) nor an environmental impact statement (EIS) is generally required (40 CFR 1508.4), then a categorical exclusion may be determined to exist and no further environmental documentation is required. Some actions which are covered in an existing EA or EIS prepared by a Federal agency may not require analysis in a completely new environmental document. Actions which are neither categorically excluded, covered in an existing environmental document, nor normally subject to the EIS requirements need be analyzed in an EA to determine if an EIS is warranted or required.

An EA is a concise public document that briefly discusses the need for and alternatives to an action and provides sufficient evidence and analysis to support a determination of no significant impacts or a determination to prepare an EIS.

a) If the EA confirms that the impacts of the action are not significant, then a finding of no significant impact (FONSI) is issued and the NEPA review process is complete.

b) If the EA reveals a significant impact, the action cannot be approved unless it is either analyzed in an EIS or modified to avoid significant impacts.

An EIS is a detailed document that requires extensive public involvement, facilitates interagency coordination, and provides the basis for permit approvals and other legal clearances that may be required for the proposed action. There are several mandatory steps in the EIS process, including public scoping meetings, publication of a notice of intent in the *Federal Register,* preparation and public circulation of draft and final versions of the document, formal public hearings, and inclusion of public comments and the responses to those comments in the final EIS.

With respect to HCPs in general, compliance with NEPA is not a direct obligation or requirement of the applicant for the Section 10(a) Permit; however, USFWS must comply with NEPA in making its decision on the application. Consequently, the appropriate environmental documentation must be prepared before a Section 10(a) Permit can be issued.

For the Short-Term HCP, an EA accompanied the Section 10(a) Permit application. In addition, the Short-Term HCP was prepared in a way that incorporated the public involvement goals and provided the documentation required by NEPA. For the Clark County Desert Conservation Plan, an EIS was prepared.

### 2.2.3.2 Federal Land Policy and Management Act

The Federal Land Policy and Management Act of 1976 directs the Secretary of the Interior to develop, maintain, and, where appropriate, revise plans for the use of public lands. Furthermore, the Code of Federal Regulations requires all resource management authorizations and actions to conform to an approved land use plan. Where a proposed action does not conform but warrants further consideration, the land use plan may be amended. At a minimum, plan amendments require an EA under NEPA and must comply with the public involvement, interagency coordination, and consistency requirements of Federal planning regulations.

FLPMA also requires the Secretary to report to Congress any management decision or action that excludes one or more principal land uses for two or more years on 100,000 acres or more of public lands. In addition, any permanent exclusion of principal uses of public lands on 100,000 acres or more must be approved in a land use plan.

### 2.2.3.3 National Forest Management Act

The National Forest Management Act of 1976 requires the preparation of forest plans and the regulation to guide their development. Forest plans are land management plans designed and adopted to guide forest management activities in a National Forest or BLM District. As with FLPMA, the Code of Federal Regulations requires all forest management authorizations and actions to conform to an approved land use plan. Where a proposed action does not conform but warrants further consideration, the forest plan may be amended. At a minimum, plan amendments require an EA under NEPA and must comply with the public involvement, interagency coordination, and consistency requirements of Federal planning regulations.

### 2.2.3.4 Nevada Revised Statutes

In 1969, revision of a Nevada Revised Statute expanded the state's requirement to classify wildlife; reptile classification became either protected or unprotected. Currently, protected species may be further classified as sensitive, threatened, or endangered. NRS also provides for creation of the Nevada Board of Wildlife Commissioners and county advisory boards. Policies and regulations necessary to the preservation, protection, management, and restoration of wildlife and habitat are established by the Nevada Board of Wildlife Commissioners through adoption of rules and regulations as set forth in the Nevada Administrative Code.

The desert tortoise has been classified as protected since 1969 (NRS 501.110) and is further classified as threatened (NAC 503.080) with protective regulations primarily afforded in NACs 503.090 and 503.093.

Six plant species occurring in Clark County are listed as critically endangered by the State of Nevada (NRS 527.270, 527.050). These include Las Vegas bearpoppy, three-corner milkvetch, halfring milkvetch, unusual catseye, sticky buckwheat, and Blue Diamond cholla. As such "no member of its kind may be removed or destroyed at any time by any means except under special permit issued by the state forester." The Nevada Division of Forestry also regulates the collection of cactus and yucca through permit requirements under NRS 527.070.

As a part of the Short-Term HCP, the County and the Cities decided that the most practical, efficient, and fair way of providing long-term financing for the HCP would be the imposition of a development fee on all property below 5,000 feet located in Clark County, payable when developed, subject to permitting by Clark County. However, the laws of the state of Nevada did not then authorize the imposition of such a fee. Therefore, during the 1991 session of the Nevada State Legislature, Clark County proposed an addition to Chapter 244 of the NRS which would allow such an imposition. On May 10, 1991, the legislature passed NRS 244.386 which allowed the imposition of

development fees to be utilized exclusively for the conservation of "species or subspecies of wildlife that has been declared endangered or threatened pursuant to the Federal Endangered Species Act."

During the 1995 and 1997 sessions of the legislature, NRS Section 244.386 was further amended to provide that the development fee could be imposed and expended upon conservation measures affecting any and all species "which have been determined by a committee, appointed by the board of county commissioners, to be likely to have a significant impact upon the economy and lifestyles of the residents of the county, if listed as threatened or endangered" thus allowing both the preparation and implementation of this MSHCP which addresses both listed and currently unlisted species.

### 2.2.3.5 Local Ordinances

The County and each of the Cities will approve this Multiple Species Habitat Conservation Plan prior to its submittal to the USFWS. In addition, Clark County and the five Cities applying for the Section 10(a) Permit will adopt ordinances that facilitate the implementation of the MSHCP, including the imposition of a mitigation fee of $550.00 a gross acre for development permits for all property located within Clark County, requiring property owners within this area to complete a land disturbance report prior to the issuance of a development permit, and providing for other matters properly relating thereto.

## 2.2.4 Desert Conservation Plan

### 2.2.4.1 Short-Term HCP

The Short-Term Habitat Conservation Plan for the Desert Tortoise in Las Vegas Valley, Clark County, Nevada, was approved and PRT 756260 was issued on July 24, 1991, which allowed the incidental take amounting to no more than 3,710 tortoises on approximately 22,350 acres in the Las Vegas Valley. Any incidental take in the Las Vegas Valley during the term of the Short-Term HCP was minimized, monitored, and mitigated under the terms of that permit, the HCP, and the Implementation Agreement.

The Short-Term HCP focused on initial establishment of conserved habitat through the conservation and management of incrementally delineated blocks (100,000 acres) of habitat. Conservation and management of the blocks of habitat, together with other actions, serve as mitigation for incidental take within the Las Vegas Valley occurring over the term of the Short-Term HCP. Minimization and monitoring of the impacts of take during the term were provided in the plan and the permit. It was intended that habitat conserved under the Short-Term HCP would be protected and managed in perpetuity. The Short-Term HCP and PRT 756260 terminated on August 5, 1995.

### 2.2.4.2 The DCP

On August 5, 1995, the DCP was approved and the Section 10(a) Permit was issued (PRT 801045). Important features of the DCP include:

- The term of the permit is 30 years.
- The area covered by the permit was all of Clark County located below 5,000 feet in elevation and Nevada Department of Transportation (NDOT) rights-of-way in Lincoln, Nye, Mineral, and Esmeralda Counties, south of the 38th parallel below 5,000 feet.
- Incidental take of desert tortoises was allowed over 113,000 acres of non-Federal land within the plan area.
- Clark County initiated a county-wide pickup service for desert tortoises.
- Clark County funded the continued operation of a tortoise transfer/holding facility for desert tortoises.
- It initiated studies to determine the feasibility of a large-scale desert tortoise translocation plan to return desert tortoises to the wild.
- It initiated an aggressive public information and education program to educate the public regarding habitat conservation and the benefits of the DCP to the public.
- It instituted a project monitoring and reporting process.
- It imposed a $550-per-acre development fee and committed to expend from $1,350,000 to $1,650,000 per year on conservation measures for the desert tortoise and other species.

### 2.2.4.3 Integration of the DCP into the MSHCP

On August 1, 1995, the USFWS issued a 10(a)(1)(B) incidental take permit (PRT 801045) to the County; the Cities of Las Vegas, North Las Vegas, Boulder City, Mesquite, and Henderson; and the Nevada Department of Transportation based on the provisions and commitments set forth in the Clark County Desert Conservation Plan, a habitat conservation plan designed to provide for the survival and recovery of the desert tortoise, a species listed as threatened by the USFWS in 1990. The DCP provides for conservation measures for the desert tortoise in the county and for incidental take consistent with the long-term viability of the species in this portion of its range.

In addition, the DCP includes provisions for a proactive approach to conservation planning for many other species in the county. The specified intent of this approach was to reduce the likelihood of future listing of plants and wildlife as threatened or endangered. The MSHCP is the direct outgrowth of this provision of the DCP.

Relevant terms of the DCP have been incorporated into the terms of the MSHCP, and except as hereinafter provided, the MSHCP is intended to supersede and replace the terms of the DCP. The MSHCP and each of its terms are intended to be, and by this reference are, incorporated herein. In the event of any direct contradiction between the terms of the DCP and the MSHCP, the MSHCP shall control.

At the time the permittees, the I & M Committee, and the USFWS first determined that they would develop the MSHCP, it was necessary to decide whether the DCP and the MSHCP would remain separate conservation plans with separate permits or whether the DCP and the MSHCP would be integrated and, based on the principles of adaptive management, be administered as one plan to benefit all of the ecosystems and species proposed to be conserved and covered by both plans. Because integration of the two plans and the consistent application of the principles of adaptive management would provide greater flexibility with respect to conservation measures and dealing with threats and stressors to species and habitats over time, the parties decided that it would be better to integrate the two plans and rely upon one permit issued by the USFWS. The Parties recognized and acknowledged that implementation of the Adaptive Management provisions of the MSHCP may result, in any given biennium, in more or less money being expended for the conservation of the desert tortoise than that contemplated and mandated by the DCP and its Permit. Because of the importance to the economy of Clark County to insure that the ability to incidentally take desert tortoises will not be jeopardized, at all times during the term of the MSHCP and the Permit issued pursuant thereto, the terms, conditions, provisions, and authorization to incidentally take desert tortoises shall be severable from the balance of the MSHCP and the Permit issued pursuant thereto, and in the event, for any reason, except for failure to comply with biennial budget and implementation plan as it affects desert tortoises, the MSHCP or its Permit is terminated or suspended, the portion of the MSHCP affecting desert tortoises shall not be affected thereby; and further, approval by the USFWS of the biennial budget and implementation plan, as hereinafter set forth, shall, *ipso facto,* constitute a determination by the USFWS that the biennial budget and implementation plan mitigates and minimizes the effects upon the desert tortoise to the maximum extent practicable and that the effects of such incidental take will not appreciably reduce the likelihood of the survival and recovery of that species in the wild. In the event that the USFWS finds that the conservation measures proposed for the desert tortoise during any biennium make it impossible for it to approve the biennial budget and implementation plan, it shall inform the I & M Committee and shall recommend specific modifications to the biennial budget and implementation plan which would allow the USFWS to approve it. Furthermore, in the event that the MSHCP or its Permit is terminated or suspended so that conservation of

and incidental take authorization for the other species covered hereunder ceases, conservation of and authorization for the incidental take of desert tortoises shall not be affected thereby; and the minimization, mitigation, and monitoring measures set forth in the DCP and its Permit shall thereafter be the minimization, mitigation, and monitoring measures required for continuing coverage of the desert tortoise pursuant hereto. Thereafter, failure to comply with the provisions of the DCP and PRT 801045 shall be grounds for suspension or termination of the MSHCP Permit with respect to desert tortoises.

# 2.3 MSHCP Plan Area

## 2.3.1 Introduction

The MSHCP plan area includes all of Clark County. In addition, specifically for the desert tortoise, the MSHCP plan area also includes Nevada Department of Transportation rights-of-way (including material sites) below 5,000 feet in elevation, south of the 38th parallel in Nye, Lincoln, Mineral, and Esmeralda Counties. Sections 2.3–2.9 describe the setting and boundaries of Clark County, land ownership patterns and use, population and growth trends, and its biological resources.

Clark County is located in the southernmost tip of Nevada, as shown in Figure 2-1. It is bordered on the north by Lincoln County, Nevada; on the east by Mojave County, Arizona; on the southwest by San Bernardino and Inyo Counties, California; and on the west by Nye County, Nevada. It covers approximately 7,880 square miles, or about seven percent of the state's total area. It is Nevada's most populated county, with an estimated 1997 population of 1,170,113, or about 67 percent of the state total (Clark County Department of Comprehensive Planning 1997).

The majority of Clark County's population (96 percent) is concentrated in Las Vegas Valley, as is the region's urban development. The Las Vegas Valley is variously defined depending on whether urbanization or natural features are used as boundaries (e.g., the Las Vegas Valley hydrographic unit plus Boulder City covers about 1,571 square miles, or about 20 percent of Clark County). Outside the valley, communities are referred to as "rural."

## 2.3.2 Land Management and Use—in General

Land uses in Clark County have been dictated largely by patterns of land ownership and management (Figure 2-2) and four decades of rapid population growth. Key issues to be addressed in this conservation plan include existing uses and activities on lands managed by public agencies as well as proposed land uses within Clark County. These issues are summarized below and discussed in detail in Chapter 4.

### 2.3.2.1 Land Management

About 89.0 percent of the land in Clark County is overseen by the U.S. and managed by seven Federal agencies, five of which are agencies within the Department of the Interior. The seven agencies include:

- BLM, administers 2,811,500 acres, or 55.6 percent of the land in the county;

- NPS, administers the Lake Mead National Recreation Area (LMNRA), 454,300 acres of which are in Nevada (8.9 percent of the county). Within this area, 50,700 acres (1.0%) are managed by the U.S. Bureau of Reclamation (including Hoover Dam, Lake Mead, and Lake Mojave), whose primary mission is water supply and power generation;

- USFWS, manages 496,700 acres within Clark County (9.8 percent of the county's area), mainly in the Desert National Wildlife Range (DNWR);

- The U.S. Fish and Wildlife Service and the U.S. Air Force co-manage about 355,600 acres of Clark County, or 41.7 percent of the DNWR;

- U.S. Air Force solely manages about 28,300 acres including Nellis Air Force Base (12,600 acres), Nellis Air Force Range (NAFR, 300 acres), Nellis Small Arms Range (NSAR, 7,900 acres), and the Indian Springs Air Force Auxiliary Field (ISAFAF, 7,500 acres);

- U.S. Forest Service, an agency of the Department of Agriculture, manages approximately 276,800 acres (5.4% of Clark County) located in the Spring Mountains National Recreation Area (SMNRA) of the Humboldt-Toiyabe National Forests;

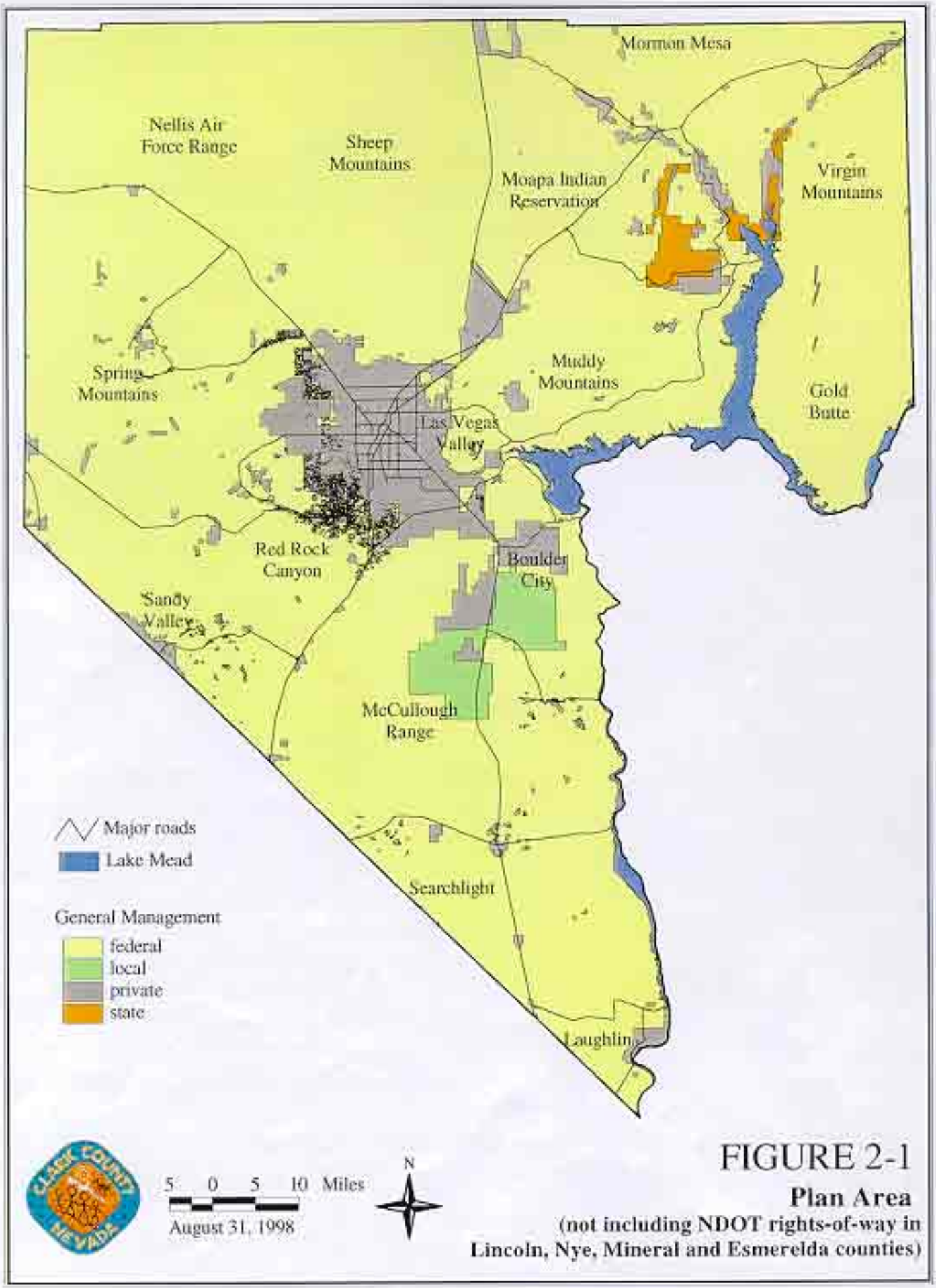
- U.S. Bureau of Indian Affairs, a part of the Department of the Interior, which is authorized to act as trustee for the Moapa Indian Reservation (71,500 acres), Fort Mojave Indian Reservation (3,700 acres), and Paiute Indian Reservation (3,900 acres), comprising less than 2 percent of Clark County;

- Federal Aviation Administration, manages 140 acres in the Las Vegas Valley in connection with its responsibilities for airport development and regulation.

Lands held by the State of Nevada, local government, and private parties comprise 10.9 percent of the county's area, or about 553,600 acres. Major state holdings include Valley of Fire, Floyd Lamb, and Spring Mountain Ranch State Parks. Local government holdings consist primarily of parks, office complexes, and storage and maintenance facilities. Sixty percent of all state, local government, and private holdings are located in Las Vegas Valley.

### 2.3.2.2 Existing and Proposed Land Uses

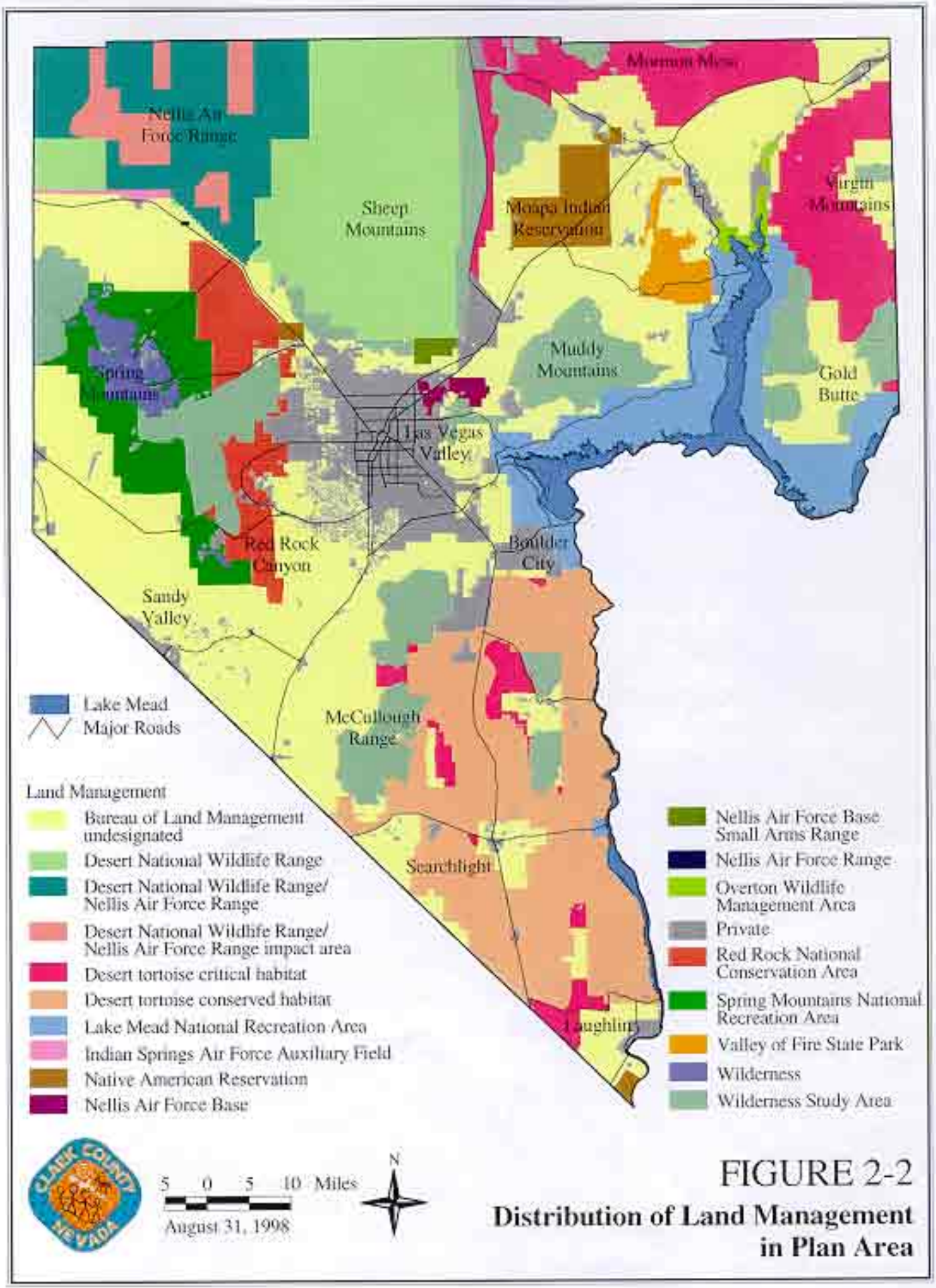
Existing and proposed land uses of primary concern with respect to the species addressed by this MSHCP and their habitats include agriculture, flood control, livestock grazing, mineral extraction, off-highway vehicle activities, parks and recreation, residential and commercial development, solid waste facilities, transportation, utilities, and water and sewage facilities. These activities will be covered by the terms and conditions of the




# FIGURE 2-1

**Plan Area**

**(not including NDOT rights-of-way in Lincoln, Nye, Mineral and Esmerelda counties)**




# FIGURE 2-2

**Distribution of Land Management in Plan Area**

MSHCP on non-Federal lands within Clark County. While changes in these land uses will be the result of the growth of the population in the Las Vegas Valley and rural communities, with the exception of residential, industrial, and commercial land development, these activities will occur on both non-Federal and Federal lands.

The MSHCP will provide coverage under Section 10(a) for Covered Species on non-Federal lands. Although the MSHCP will not provide for incidental take on Federal lands or resulting from Federal actions on non-Federal lands, it does provide the framework for avoidance, minimization, and mitigation of impacts to Covered Species on Federal lands or resulting from Federal actions on non-Federal lands under Section 7 of the ESA.

### a. Agriculture

Both farming and ranching occur within Clark County (see Livestock Grazing below). Irrigated agriculture occurs on a small scale within the Las Vegas Valley and in the Moapa Valley and Mesquite area, primarily on private land.

### b. Flood Control

The Clark County Regional Flood Control District is developing a comprehensive, integrated flood control system for Las Vegas Valley and nearby areas. This system will include 21 detention basins, one debris basin, and over 100 miles of channels, pipelines, dikes, and levees. Many of the planned facilities are located on BLM land and, because of local flooding problems, are deemed essential to the protection of existing as well as new development on private land.

### c. Livestock Grazing

The Las Vegas RMP provides various cattle grazing prescriptions for areas within the county, most of which occur on Federal land. Grazing currently is authorized on approximately 2.2 million acres of Federal lands managed by the BLM and NPS.

Livestock grazing on allotments, which contain desert tortoise habitat, outside Areas of Critical Environmental Concern (ACECs), will be constrained by Section 7 stipulations. Stipulations have been developed as needed for each allotment. Intensive monitoring and frequent evaluations will be conducted to determine the need for change, if any, in management of the allotment.

More than 50 percent of the landscape covered by grazing allotments in Clark County have been purchased or contracted for purchase and grazing terminated pursuant to provisions of the DCP.

### d. Wild Horses and Burros

Grazing by wild horses and burros occurs in many areas within the county, including land managed by the BLM, NPS, and USFS. The Las Vegas RMP provides various wild horse and burro prescriptions. NPS has an approved Burro Management Plan and EIS for the LMNRA. The USFS GMP also includes a section on wild horse and burro management.

### e. Mineral Extraction

Mineral resources in Clark County have been extracted since 1855 on both Federal and non-Federal lands. Subsequently, gold and silver mines were developed; today, however, the extraction of gypsum, limestone, sand, and gravel predominates. Mineral extraction on public lands occurs under patented claims, unpatented leases, permits, and sales.

When individuals holding valid mining claims propose to disturb any land not previously disturbed, the claimant must file a mining notice or a mining plan of operation with the BLM. If the plan of operation is liable to affect a Federally listed species, a Section 7 consultation is also required. Mining notices do not normally require Section 7 consultation outside of ACECs. Within ACECs, all grandfathered mining activities will be required to submit a mining plan of operation prior to surface disturbance activities.

### f. Off-Highway Vehicles

The DCP provides for access for organized OHV use within lands designated as DWMAs only on certain roads designated by BLM and NPS in coordination with the I & M Committee. Within DWMAs, commercial and competitive speed-based events are prohibited except in portions of the Eldorado Valley, where such events may be authorized by BLM on existing courses and under such conditions as it may deem appropriate. Such events are to be evaluated for impacts. Under the terms of the Interlocal Agreement with Clark County (July 1997), BLM may regulate and manage organized recreational activities, in accordance with 43 CFR 8372, on R.S. 2477 roads within the DWMAs as described in the Implementation Agreement for the DCP, in order to protect and conserve the natural resources, habitat, and species located within the DWMAs.

Since the early days of the Clark County Short-term Habitat Conservation Plan, it has been the goal of the Implementation and Monitoring Committee and the conservation program to provide for the necessary protection of tortoises and tortoise habitat and that of other species in ACECs by recommending and funding management actions by the Federal land managers. It has also been a goal to recommend and facilitate the relaxation of restrictions on public land uses outside of the ACECs where such actions will not adversely impact species and habitat of concern. The OHV user community has requested that Clark County facilitate a dialogue with the BLM to eliminate insurance requirements and simplify the permitting process for non-commercial, non-competitive,

non-speed events. These groups pointed out that the six-month permitting process inhibited such spontaneous events as church picnics, wildflower viewing trips, scout outings, and wildlife water development repair trips.

Clark County requested that the BLM address these concerns. In response the BLM has eliminated the insurance requirements for non-commercial, non-competitive, non-speed events with 50 to 150 participants outside of the ACECs.

Clark County has requested that the BLM reserve 10 permits for non-commercial, non-competitive, non-speed events outside the ACECs. The 10 event permits will be issued for open dates from January 1, 2000 to December 31, 2000 on any approved roads outside of ACECs on a first-come, first-served basis. Applicants for permits must apply 14 days in advance to allow the BLM to insure that the proposed event will not conflict with other recreational or management activities.

Clark County will submit the necessary applications and fees and will prepare the environmental documents required by the BLM. Should the above process prove unworkable, Clark County and the BLM will work to develop a process that accomplishes the same objectives. Clark County will reinitiate the application process on a year-by-year basis subject to approval by the I & M Committee.

To address the ongoing dispute between the OHV community, which claims that responsible OHV use on roads and trails have little or no effect on species and habitats, and some members of the biological community who claim that OHV use, even on roads and trails, has a significant impact, the I & M Committee established the Rural Roads Management Subcommittee, made up of representatives of organized OHV users, rural interests, conservation interests, the BLM, the County, and the USFWS. The subcommittee was instructed to consider alternatives to the current regulatory regime and to specifically look at the treatment of organized OHV events and to provide for more effective management,. The subcommittee has focused on the issues of the number of unpaved roads, their relative location in relation to each other, overall unpaved road traffic, and the nature of the habitat through which unpaved roads in the county travel, rather than looking solely at organized OHV events, as the factor causing potential environmental impacts. This broad-based subcommittee adopted the principles of mutual respect and compromise and produced a plan that will allow for *organized* and *unorganized* OHV activities to continue while a science-based public process of study and evaluation, as part of Clark County's AMP process, informs management. The Rural Roads Management Subcommittee suggested the following process be followed pending completion of a science-based Rural Roads Adaptive Management Plan. The process has been approved by the I & M Committee.

The plan outline addresses the potential impacts of roads and road traffic on desert tortoises and other species in the multispecies habitat conservation planning effort and in

southern Nevada habitats. It is designed to be a scientifically based, hypothesis-driven, public process resulting in the development of consensus on management and funding recommendations.

Rural Roads Adaptive Management Plan objectives for species and habitats in Conserved Areas and other areas will be identified through the Adaptive Management Process. The general objectives of the Rural Roads Management Plan are:

1) To reduce the impacts to habitats and species, if any, of OHV traffic on unpaved roads through management actions which have a scientifically demonstrable beneficial effect upon habitats and species.

2) To reduce road density in coordination with rural town advisory boards, abandonment of R.S. 2477 claims by the County, and rehabilitation of roads that result in significant conservation benefits and which do not unreasonably affect the communities and users which have traditionally utilized those unpaved roads.

3) To reduced permitting restrictions on organized OHV activities outside of Conserved Areas, consistent with the conservation goals of the MSHCP and the rules and regulations of the BLM.

4) To establish an independent, public, scientifically credible process for ongoing inventory, assessment, research, and monitoring of road impacts.

5) To establish an ongoing public process for integrating scientific evaluation of impacts, public use, identification of and recommendations for management actions, and resolution of conflicts. Management actions may include continued monitoring; seasonal, time, or regional travel restrictions; closure; abandonment and rehabilitation of roads; or other actions recommended by the Rural Roads Adaptive Management Plan, which may include easing restrictions where appropriate.

### g. Parks and Recreation

The Clark County Comprehensive Plan differentiates between regional and urban parks and recreation facilities.

Regional sites are those composed primarily of Federal and state agency lands and serve the dual function of protecting resources and providing recreation opportunities. Such sites include Lake Mead National Recreation Area, Red Rock Canyon National Conservation Area, Spring Mountains National Recreation Area, Valley of Fire State

Park, Floyd Lamb State Park, Desert National Wildlife Range, Spring Mountain Ranch State Park, and Overton Wildlife Management Area.

Urban sites are those within the jurisdiction of the local governments and allow for playing fields, tennis courts, swimming pools, stables, golf courses, and arenas.

### h. Residential/Commercial/Industrial Development

Historically, the urbanized core of Clark County has centered around the axis formed by Boulder Highway, Interstate 15, and the Union Pacific Railroad. By the 1970s, however, urbanization had spread in a somewhat loosely knit, leapfrog fashion to outlying areas of non-Federal land. This pattern continued through the 1980s and is apparent in the land use analysis prepared for Clark County in 1989 by Planning Information Corporation. The analysis covers 235,400 acres in Las Vegas Valley, including the cities of Las Vegas, Henderson, and North Las Vegas and the communities of East Las Vegas, Paradise, Sunrise Manor, Winchester, Spring Valley, Enterprise, and Lone Mountain. It indicates that more than 26 percent of the urban development within the Las Vegas Valley had occurred within the unincorporated areas.

### i. Solid Waste

As a result of the new Environmental Protection Agency regulations for landfills (Subtitle D, October 9, 1991), Clark County has closed all but two landfill sites under county jurisdiction, Apex and Laughlin. Because compliance with the new ruling will significantly increase costs presently incurred from owning and operating a landfill, existing landfills are being closed and replaced by transfer stations. A majority of the solid waste in the county will be sent to the Apex site. Boulder City owns its own landfill. Landfills are sited on non-Federal land.

### j. Transportation

Major transportation facilities in Clark County include Interstate 15, 215, and 515; Highways 93 and 95; State Routes 160, 163, 164, 168, and 169; McCarran International Airport; and the Union Pacific Railroad. In general, road construction throughout Las Vegas Valley has accelerated over the past 10 years in response to urban growth. Highway 95 and Interstate 15 were expanded over the period, using mostly public lands and, as with other local transportation projects, sand and gravel from local operations. Planned improvements include a beltway around Las Vegas from Interstate 15 to Interstate 515; continued widening of Route 160 between Las Vegas and Pahrump; a 55.5-acre expansion of McCarran Airport; widening of Highway 95 (including the segments between Railroad Pass and Route 163 and adjacent to the LVVWD North Well Field); a Hoover Dam bypass; a Boulder City bypass; a proposed rail system within the Las Vegas Valley; and a proposed high-speed train from California to Nevada.

In addition, NDOT has the responsibility for maintaining approximately 1,000 miles of highway through desert tortoise and other habitats and for necessary improvements to these existing roads to meet the demands of increased traffic volumes in a manner consistent with public safety standards.

The proposed development of a cargo handling airport facility in the Ivanpah Valley is currently under consideration, as is a general aviation airport in Mesquite.

Transportation facilities occur on both non-Federal and Federal lands in Clark County. Most major highways cross Federal lands and involve Federal highway funds.

### k. Utilities

Numerous major utility rights-of-way transect Clark County from north to south. None of these rights-of-way are within a designated corridor. However, the Las Vegas RMP designates several utility corridors for rights-of-way on public lands managed by BLM. BLM encourages future utility rights-of-way on public land to be located within those corridors whenever feasible.

### l. Water and Sewage

Water supplies in Clark County include the Virgin, Muddy, and Colorado Rivers, groundwater, and wastewater reuse. Water from the Colorado River is highly regulated, and the net depletion of the mainstream for all of Nevada is limited to 300,000 acre-feet per year, unless a surplus is declared by the Secretary of the Interior, in which case Nevada would be able to consumptively use more than 300,000 acre-feet per year. The Las Vegas Valley relies on water resources available to the Southern Nevada Water Authority and groundwater from wells. Current forecasts indicate that the Southern Nevada Water Authority can meet projected demands with its existing resources through the year 2030. Sewage and wastewater treatment needs are currently handled at facilities managed by the County and individual cities. Currently, three of the wastewater treatment plants in the Las Vegas Valley are being expanded. Clark County also is planning a central activated sludge treatment plant to process sewage from the unincorporated area.

## 2.3.3 Growth Trends and Forecasts

During the past decade, Clark County's population has increased from 654,765 to 1,170,113 (1987-97 estimates). By 2000, it is expected to grow to 1,361,424; and by 2007 to 1,701,756. The latter projected population growth rate predicts more than a tripling of the population in 40 years (Clark County Department of Comprehensive Planning 1997).

During the 1980s, county-wide employment increased by about 60 percent, rising from a total of 216,700 jobs in 1980 to about 378,000 in 1990 (*Las Vegas Review-Journal* et al.

1992). Employment reached 408,900 by 1992 and 675,625 in 1997. By 2000, the number of jobs is expected to exceed 770,553.

Housing estimates from July 1997 indicate that there are at least 446,864 occupied residential units and a total of 469,748 occupied and unoccupied units. More than 154,519 residential units have been added since 1990, with 74 percent of the growth occurring in the past five years. To accommodate the expected population growth over the next 10 years, another 200,235 units will be required. Based on historical trends, nearly 47 percent of the new units are likely to be single-family homes.

On the subregional level, population forecasts indicate that Las Vegas Valley will continue to contain more than 90 percent of the county population well into the next century. Likewise, the unincorporated area is expected to maintain slightly less than a 50 percent share of the valley's population for the next 40 years.

- During the next 10 years, the county as a whole is expected to gain more than 531,643 residents, at an annual rate of 3.8 percent; of that increase, about 36 percent is expected to occur in unincorporated towns.

- New construction is likely to occur throughout the valley, with major increases expected in the existing master planned communities.

- Between 1979 and 1986, the amount of developed land in the valley increased annually by about seven percent. That trend is expected to continue.

Growth in rural Clark County has kept pace with the Las Vegas Valley's growth, but it has varied across the different rural areas. The northeast portion of unincorporated Clark County and Mesquite have experienced substantial growth which is likely to continue into the future. The South County area has grown in part in response to employment opportunities at Primm. Laughlin's dramatic growth has not continued, but it still continues to grow at an average of two percent per year, which is sustainable in the near future.

## 2.3.4 Ecological Characteristics

The ecological characteristics of southern Nevada vary with the terrain and past development patterns. In general, the area is marked by a highly diverse natural environment and a variety of biotic communities. The topographic, hydrologic, climatic, habitat, and wildlife characteristics of adjacent areas encompassing NDOT rights-of-way within Nye, Lincoln, Mineral, and Esmeralda Counties are similar to those in Clark County, with respect to the desert tortoise.

### 2.3.4.1 Topography

Elevations within Clark County range from 450 feet above mean sea level along the Colorado River to 11,918 feet at Charleston Peak. Much of the county has features that are characteristic of the Great Basin, mountain ranges that extend in a north-south direction and erode laterally to long, narrow desert valleys. The mountain ranges are generally steep and composed primarily of bedrock. Wide alluvial fans or aprons extend from the base of the mountains and level out to basin lowlands. The basin lowlands have been continually filling since the mountains were originally formed and have a surface generally composed of fine sand, silt, and clay.

The Las Vegas Valley extends in a northwest-southeast direction with the Spring Mountains to the west; the Pintwater, Desert, Sheep, and Las Vegas mountains to the north; Frenchman Mountain to the east; and the Bird Spring and McCullough mountain ranges to the south. The valley drains toward the south and then easterly through Las Vegas Wash to Lake Mead and the Colorado River. Valley elevations range from 4,500 feet at the upper boundaries of the alluvial fan to 1,800 feet in the basin lowland.

### 2.3.4.2 Hydrology

Most of Clark County is within the Colorado River Basin but a portion falls within the central hydrographic region. The Las Vegas Valley Basin is the major watershed and encompasses the urbanized portions of the valley.

Subsurface hydrology in the valley is characterized by laterally moving groundwater and artesian aquifers. Recharge in Las Vegas Valley results from precipitation in the Spring Mountains and Sheep Range, urban irrigation, treatment plant effluent, and some upward flow from deep artesian aquifers.

Surface hydrology is marked by complex flow patterns in the alluvial fans of the valley, with areas of concentrated but frequently shifting flows. The dynamic drainage pattern, topography, and soils of the alluvial fan generally are more conducive to sheeting runoff than to channelized flow. Consequently, pronounced gullies and ravines rarely develop, and flash floods are a recurrent problem.

Las Vegas Wash is the only perennial stream in the valley and one of few in the entire county. The other primary surface waters include Lake Las Vegas, Virgin River, Muddy River, Muddy Springs, Colorado River, and Lake Mead.

### 2.3.4.3 Climate

Air masses moving across southern Nevada are usually low in moisture. This arid condition is characterized by low precipitation, low humidity, and cloudless skies.

Summer climate is marked by hot days and mild nights, with an average daily temperature of nearly 90 degrees Fahrenheit. Winter temperatures drop below freezing about 12 days per year, with average daily temperatures of 46 degrees Fahrenheit during the coldest period. Spring and autumn are generally moderate, with average daily temperatures of about 80 degrees Fahrenheit.

The growing season (or frost-free period) varies but averages 304 days. Generally, the first killing frost occurs late in November, and the last occurs early in March. Mean annual precipitation is 5.4 inches, occurring primarily during the summer and winter months. The number of days with measurable precipitation averages 12 per year.

Within Las Vegas Valley, average daily temperatures range from 75 to 104 degrees Fahrenheit in summer and from 33 to 56 degrees Fahrenheit in winter. Due to the rain shadow effect of the Sierra Nevada Range and Spring Mountains to the west, moisture associated with storms originating in the Pacific Ocean rarely reach the valley. Humidity is normally low, averaging 30 percent, but moist tropical air from the southwest invades the area from mid to late summer. Thunderstorms and flash flooding frequently occur during this period. Inversions or periods of stagnant air masses occur during winter months and prevail for several days to a week.

### 2.3.4.4 Habitats

Clark County contains a diversity of habitat types, including Mojave desert scrub, blackbrush, sagebrush, salt desert scrub, mesquite/catclaw, desert riparian, pinyon-juniper, mixed conifer forest, bristlecone pine, alpine, desert spring, as well as smaller areas of dunes, barrens, playas, grassland, and rock outcrops, and urban and agricultural lands. The Virgin River, Muddy River, and lower Las Vegas Wash are considered to be unique wetlands habitat in an otherwise arid environment. These ecosystems are described in greater detail in Section 2.5 and Appendix A of this MSHCP.

### 2.3.4.5 Wildlife

Ecosystems in Clark County support at least 142 species of mammals, 392 species of birds, 54 species of reptiles, 9 species of amphibians, 41 species of fish, and 775 species of plants. Creosote bush and blackbrush scrub communities support about 430 species of wildlife and vegetation, including 30 of the 54 species of reptiles. Mountain communities support the greatest number of plant species (414) and the greatest total number of species (579). In addition to providing habitat for all fish species, water-related communities (desert spring, desert riparian, and lakes) also have the greatest number of bird species (245). Creosote bush scrub, blackbrush scrub, and riparian communities are the most heavily used by the majority of terrestrial bird species. The wildlife and plant species in Clark County addressed in this plan are described in greater detail in Section 2.6 and Appendix B.

# 2.4 Scope of the MSHCP

The following sections detail the scope of the proposed MSHCP for Clark County, including a description of the permit period and area (Section 2.4.1) and the process used to develop the MSHCP (Section 2.4.2). In addition to the MSHCP, the proposed action includes minor changes to the Lake Mead National Recreation Area General Management Plan and the Spring Mountains National Recreation Area General Management Plan. These changes are necessary for consistency between these plans and the MSHCP and are included in this EIS for the purposes of efficiency in the NEPA review process. The supplement to the Final EIS for the LMNRA GMP is described in Section 2.4.3 and the amendment to the SMNRA GMP is described in Section 2.4.4.

## 2.4.1 Permit Period and Area

Clark County and the Cities of Las Vegas, North Las Vegas, Henderson, Mesquite, and Boulder City are seeking a Section 10(a) Permit for the incidental take of Covered Species, as hereinafter defined, in connection with the development of non-Federal lands within Clark County for a 30-year period. The 30-year period was chosen because it is consistent with the normal planning horizon of land use and land management agencies. In addition, NDOT has joined as an Applicant for the permit to allow the incidental take of desert tortoises within desert tortoise habitat, south of the 38$^{th}$ parallel and below 5,000 feet in elevation, and the incidental take of other Covered Species within Clark County in connection with:

- The construction and maintenance of roads, highways, and material sites outside of Intensively Managed Areas (IMAs) and Less Intensively Managed Areas (LIMAs) within Clark County and desert tortoise critical habitat outside of Clark County; and

- The maintenance of roads, highways, and material sites within IMAs and LIMAs within Clark County and desert tortoise critical habitat outside of Clark County.

Because some Federal lands within Clark County will be transferred to non-Federal owners during the permit period, a projected level of such transfers from Federal to non-Federal ownership has been included in the potential estimated loss of habitat in the permit area as well. The permit is intended to apply to such lands as they are transferred out of Federal ownership, with the exception of such lands that are within established IMAs and LIMAs as hereinafter defined (Section 2.4.2.7). Thus, the permit will apply to all non-Federal lands that currently exist, and all non-Federal lands which result from sales or transfers from the Federal government after the issuance of the Section 10(a) Permit if they are located outside of established IMAs and LIMAs as hereinafter defined. In no event, however, shall the total amount of take exceed 145,000 acres.

### 2.4.1.1 Non-Federal Lands

The area covered by the Section 10(a) Permit will include the non-Federal lands in Clark County (553,600 acres) and, additionally for the desert tortoise, those NDOT rights-of-way described above. In general, this area includes non-Federal lands within the cities of Las Vegas, North Las Vegas, Henderson, Mesquite, and Boulder City; the unincorporated towns of Sunrise Manor, Enterprise, Whitney, Winchester, Paradise, Laughlin, Moapa Valley, Moapa, Glendale, Indian Springs, Bunkerville, Mount Charleston, Searchlight, and Spring Valley; and portions of the unincorporated areas of Lone Mountain, Goodsprings, Mountain Springs, Jean, Primm, Cactus Springs, Red Rock, Sandy Valley, Apex, Coyote Springs Investment Corporation, and portions of the Pahrump Valley.

### 2.4.1.2 Federal Disposal Lands

In addition to the non-Federal lands identified above, the alternatives set forth in the Final Las Vegas RMP provide that the BLM may sell or otherwise transfer up to 540,200 acres of lands currently managed by it. For purposes of this plan, we are assuming that approximately 175,000 acres will be sold or otherwise transferred over the next 30 years (Clark County Comprehensive Planning estimate).

The permit sought hereunder is intended to apply to all such Federal lands sold or otherwise transferred during the term of the permit with the exception of lands sold or transferred within established IMAs and LIMAs.

### 2.4.1.3 Lands Subject to Development

Of the approximate 728,600 acres within the permit area potentially subject to future development, approximately 200,000 acres contain existing urban development (Planning Information Corporation 1990, updated to 1997 based on annual land disturbance reports under the DCP). Furthermore, approximately 86,600 acres of the 107,500-acre lands transferred to Boulder City under the terms of the Eldorado Valley Transfer Area are subject to a conservation easement that will restrict activities on the land to those which are not detrimental to the survival and recovery of the desert tortoise and other species sharing that habitat, and 14,100 acres are in the Overton Wildlife Management Area and state parks under conservation management. Thus, the total number of acres of Federal and non-Federal lands within the permit area that potentially are available for future development is approximately 418,200 (Table 2-1).

**TABLE 2-1**
**LAND IN CLARK COUNTY SUBJECT TO FUTURE DEVELOPMENT**

| Land | Federal Disposal (acres) | Non-Federal (acres) | Total (acres) |
|---|---|---|---|
| Subject to development | 175,000 | 553,600 | 728,600 |
| Less existing development | – | (209,600) | (209,600) |
| Less conservation easement, Overton WMA, state parks | – | (100,800) | (100,800) |
| Total Acres | 175,000 | 243,200 | 418,200 |

## 2.4.1.4 NDOT Rights-of-Way

Some of NDOT's routine maintenance activities may impact species addressed in this MSHCP. These routine maintenance activities will not disturb areas outside of NDOT's rights-of-way. Therefore, NDOT's maintenance activities should not significantly impact species covered by this MSHCP unless they are found within NDOT's rights-of-way. On the other hand, loss of habitat and species impacts will occur as a result of road widening activities, new highway construction, and materials extraction. For the purpose of this MSHCP, NDOT rights-of-way are broadly defined to include lands purchased or withdrawn from public lands for the use of highways, transportation facilities, material sites and their access roads. NDOT rights-of-way also include those areas of highway facilities that extend beyond the purchased or withdrawn property. This includes drainage or V-ditches constructed and regularly maintained by NDOT. For the purpose of this MSHCP, all NDOT rights-of-way are considered state lands (non-Federal property).

The area covered by this plan includes approximately 840 miles of roadway rights-of-way of varying width; approximately 14,700 acres of material sites; and other rights-of-way as mentioned above, in Clark County, Nevada. Consistent with the terms of the DCP, the MSHCP also covers desert tortoises and their habitat on approximately 260 miles of NDOT rights-of-way in Nye, Lincoln, Mineral, and Esmeralda Counties. Desert tortoise habitat is defined as areas below 5,000 feet in elevation and south of the 38$^{th}$ parallel. Also covered in the MSHCP are any additional rights-of-way, which may be added in the future, the location of which will consider avoidance of areas being conserved for species. For species other than the desert tortoise, the area covered by the MSHCP for NDOT activities will be limited to Clark County.

Incidental take of Covered Species within Clark County and desert tortoise below 5,000 feet south of the 38$^{th}$ parallel will be allowed in connection with maintenance and construction projects within NDOT rights-of-way. Consistent with the DCP, routine maintenance and construction will be allowed in NDOT rights-of way outside IMAs and LIMAs within Clark County and desert tortoise critical habitat outside of Clark County. Within IMAs and LIMAs within Clark County and desert tortoise critical habitat outside

of Clark County, only routine and emergency maintenance will be allowed. Routine NDOT maintenance activities include:

- Roadway surface repair and maintenance

  Planning and scheduling
  Base and surface repair
  Surface patching - hand
  Surface patching - machine
  Surface patching - spot seal
  Seal coat - sand
  Seal coat - flush
  Crack filling
  Heater planing
  Seal coat - chips
  Cold planing
  Temporary patching of portland cement concrete pavements
  Permanent patching of portland cement concrete pavements
  Paved shoulder repair
  Crack and joint sealing
  Repair of miscellaneous concrete appurtenance
  Maintenance of tunnels

- Chip seals

  Road grade improvements
  Channel excavation and drainage grading
  Installation of drainage structures
  Bituminous surface treatment
  Erection of new traffic signs

- Roadside maintenance

  Culvert cleaning
  Culvert repair and replacement
  Culvert openings and drop inlets cleaning
  Ditch dressing and shaping
  Ditch cleaning
  Fill slope repair
  Unpaved shoulder slope maintenance (blading)
  Vegetation control (mowing, flailing, burning, etc.)
  Vegetation control (chemical weed spray)
  Vegetation control (hand)

Removal of storm-deposited debris
Removal of debris, litter, and trash
Emptying of litter barrels
Sweeping or flushing: traveled way, shoulders, paved
Ditches
Removal of roadway debris
Urban sweeping: pick-up broom only
Maintenance of rest stops
Maintenance of roadside parks
Maintenance of landscape areas with turf
Maintenance of landscape areas without turf
Repair of rights-of-way fences and gates
Maintenance of cattle guards
Inspection of rights-of-way fences and gates

- Traffic safety service program

Repair and replacement of traffic signs
Guardrail repair and replacement
Barrier rail and guardrail painting
Painting gore lines
Surveying
Pavement striping: dashed and solid
Raised pavement markings (buttons)
Pilot lining
Pavement markings
Roadway lighting operations: highway lighting, bridge, and approach lighting
Patrolling for protection of public traffic
Maintenance of guideposts and milepost markers
Miscellaneous sign maintenance
Repair or replacement of impact attenuators
Road closure
Snow removal: plowing, blading, application of abrasives and chemicals
Plowing with rotary snowplow
Patrolling for snow and ice control
Installation or removal of snow markers

- Structure maintenance program

Maintenance and repair of structures
Inspection of structures (bridges and culverts)

- Stockpiles and other activities on previously disturbed areas

  Aggregate production
  Premix production
  Mixing sand-salt
  Hauling materials
  Purchase aggregate
  Purchase premix
  Purchase plant mix
  Site sampling/testing
  Material extraction and storage
  Purchase chips

# 2.4.2 The Process Used to Develop the MSHCP

## 2.4.2.1 The Process - Overview

As described above, the development of the MSHCP has been a cooperative venture undertaken by the Applicants, the Participants, and many members of the private sector through their membership and representation on the I & M Committee. Commencing in August of 1996, the administrators of the DCP began contacting each of the Federal and state land managers, the USFWS, and NDOW as the responsible state and Federal regulators of fish and wildlife matters in Clark County, as well as every other entity which had expressed an interest in or which had data concerning plant and animal species within Clark County.

A report provided by the USFWS, which listed approximately 110 species of concern in Clark County, was circulated among the Participants with a request that each Participant provide such data and information regarding each of those species as they had accumulated over the years. In addition, each Participant was asked to list such additional species which they believed could be listed in the future, no matter how remote the possibility. As a result of this process, the initial list of species to be addressed by the MSHCP totaled approximately 210. The list thus compiled, together with such information that was then available to the consultants preparing the report, was circulated to the Participants and referred to the Biological Advisory Committee (BAC) for review. The BAC reviewed and evaluated each species.

After the compilation of the preliminary species list, it was decided by the BAC and I & M Committee that the entirety of Clark County should be divided into habitat types that would provide the basis for analyzing species conservation and land management using a geographic information system (GIS). Land ownership, land management, and species distribution information was compiled and analyzed for each habitat type using

GIS overlay techniques. Because GIS data for species is incomplete, each HCP list species was associated with habitat type(s) according to the habitat(s) actually or potentially utilized, independently of GIS data analysis. (GIS data sources and analyses are detailed in Appendix C.)

The BAC was then asked to identify threats and stressors affecting each habitat type and each species that utilized each habitat.

The I & M Committee, through its consultants and with the assistance of the Participants, then reviewed the existing management prescriptions applicable to each management polygon as mapped within each habitat type to determine the effectiveness of existing management prescriptions and implementation thereof to meet current threats and stressors to the habitats and species.

Finally, the I & M Committee determined what additional management prescriptions or conservation measures should be recommended to each of the land managers based upon its comparative analysis of alleged threats and stressors and existing management prescriptions and conservation actions to deal with those threats and stressors.

### 2.4.2.2 Conservation Planning Principles

The overall goal of the MSHCP is "to conserve healthy functioning ecosystems and the species that are supported by them" (Murphy 1993:1). Therefore, if the MSHCP is to be successful in reaching its goal, it is essential that the MSHCP planning process incorporates the best of current conservation theory and practice (Thomas et al. 1990; Noss 1991; USFWS 1994). This body of thought includes a number of conservation concepts developed over the past two decades to address regional conservation planning for species such as the California gnatcatcher, spotted owl, desert tortoise, Stephens' kangaroo rat, and least Bell's vireo, as well as ongoing multiple species planning processes. These principles cannot be uniformly applied to the planning process because of the natural variability of biological systems. A number of the principles are to some extent contradictory (e.g., the preference for unfragmented populations versus the conservation of refugia). The art of conservation biology lies in the ability to provide adequate information to allow balancing of apparently contradictory principles in a manner appropriate to address the needs of the focal species and ecosystems and to stay within the constraints of available implementation mechanisms.

The following principles have been incorporated into the planning process for development of the MSHCP. This is not an exhaustive listing of principles, but it does represent the primary tenets of current conservation practice and theory which have been incorporated, to one extent or another, into the MSHCP.

In the context of the pattern of Federal and state ownership in Clark County, the reserve system evaluated in the MSHCP will consist of areas defined by their kinds and levels of management as it affects Covered Species. These conservation management areas are defined in Section 2.4.2.7 as Intensively Managed Areas (IMAs), Less Intensively Managed Areas (LIMAs), Multiple Use Managed Areas (MUMAs), and Unmanaged Areas (UMAs). The IMAs and LIMAs are proposed as representing the "reserve system" in Clark County, with MUMAs providing conservation value as corridors, connections, and buffers for the IMAs and LIMAs where management preserves the quality of habitat sufficient to allow for unimpeded use and migration of the resident species in the IMAs and LIMAs.

- **Distribution.** Reserves that are well distributed across a species' native range will be more successful in preventing extinction than reserves confined to small portions of a species' range.

- **Native biological diversity.** Areas of high biological diversity, as measured by the number of native species or number of native habitat types, should be included in the reserve system.

- **Rarity.** Areas which support native species or habitats of limited distribution or uniqueness should be incorporated into the reserve system.

- **Refugia.** On a regional scale, some small and isolated populations should be conserved to reduce the potential for catastrophic effects or at remote locations if the primary habitat area is in danger of extirpation. For some narrowly distributed endemic species, refugia may be all that remains of the species' range.

- **Management.** Within the constraints of existing land uses and the distribution of remaining habitat, the reserve system should include boundaries intended to maximize the potential for effective management and minimize edge-to-area ratios. Monitoring and management plans should recognize the need to manage edges more intensively.

- **Quality.** The reserve system should include the best (most intact) remaining examples of habitat.

- **Ecosystem.** The reserve system should provide protection for the ecosystems upon which entire high-quality populations of native species depend.

- **Heterogeneity.** The reserve system should include heterogeneous terrain and diverse native vegetation.

- **Fragmentation.** Habitat that occurs in less fragmented, continuous blocks is preferable to habitat that is fragmented.

- **Linkage.** Interconnected blocks of habitat are better than isolated blocks. And corridors or linkages function better when the habitat within them is represented by protected, preferred habitat for the target species.

- **Size.** Large blocks of habitat containing large populations of the target species are superior to small blocks of habitat containing small populations.

- **Proximity.** Blocks of habitat that are close together are better than blocks far apart.

- **Edge.** Habitat patches that minimize edge-to-area ratios are superior to those that do not.

- **Access.** Blocks of habitat that are roadless or otherwise inaccessible to humans are better than roaded and accessible habitat blocks.

- **Non-native Species.** Habitat areas without significant populations of non-native plant or wildlife species are more easily managed for their native species than areas with non-natives.

### 2.4.2.3 Identification of Habitats - Overview

In order to implement an ecosystem-based approach to the conservation of biological resources in Clark County, the plan area is organized by elevation and range into ecological zones and vegetation types:

- **Alpine**

- **Bristlecone Pine**

- **Mixed Conifer** (White Fir, Ponderosa Pine, Ponderosa Pine/Mountain Shrub)

- **Pinyon-Juniper** (Mountain Shrub, Pinyon Pine, Pinyon Juniper, Juniper)

- **Sagebrush** (Sagebrush and Sagebrush/Perennial Grasslands)

- **Blackbrush** (Blackbrush and Hopsage)

- **Salt Desert Scrub**

- **Mojave Desert Scrub** (Creosote-Bursage and Mojave Mixed Scrub)
- **Mesquite/Catclaw**
- **Desert Riparian/Aquatic** (Lowland Riparian, including Muddy and Virgin River systems and Las Vegas Wash)
- **Springs**
- **Other** (sand dune, gypsiferous soil, rock outcrop, dry lake bed and playa, barren, agriculture, non-native grassland, urban)

Ecological zones are used as the primary organization for habitat conservation planning. Within each ecological zone, land management is assessed for each habitat and its associated species.

The native vegetative habitat associations used are based upon Utah State University definitions developed for the statewide gap analysis (Homer 1996). Subassociations provided in this classification scheme that are based upon successional changes in height or percent cover of principal species within a habitat type were not carried forward; for example, bristlecone pine habitat has three subassociations but all three are lumped into one habitat association for this analysis. Distribution of vegetation and land cover for Clark County was provided by USU as an ARC/INFO coverage and was reviewed by the BAC.

## 2.4.2.4 Identification of Species - Overview

### a. Taxonomic Groups

The list of native species initially proposed to be considered by the MSHCP was evaluated by subcommittees of the BAC appointed to deal with distinct taxonomic groups. The subcommittees are panels appointed by the BAC consisting of Federal, state, and local wildlife managers, academics, and other specialists who regularly deal with the species within the taxonomic group to which they are assigned. Seven subcommittees were formed to focus on each of the following taxonomic groups:

- Mammals
- Birds
- Reptiles and Amphibians
- Fish
- Invertebrates

- Vascular Plants
- Non-Vascular Plants

## b. Criteria for Coverage under Phase 1 of the MSHCP

Each subcommittee evaluated each species proposed for consideration by the MSHCP. The taxonomic subcommittees compiled information on each species including status, distribution, habitat requirements, threats, current management, and conservation needs. From these evaluations, species within each taxonomic subgroup were listed in one of three categories defined by the BAC and I & M Committee for the MSHCP:

- Covered Species
- Evaluation Species
- Watch List Species

For the purposes of this MSHCP, Clark County is providing a comprehensive list of "target" species, as discussed in the Region 1 Guidelines for Determining Covered Species Lists (1995). This comprehensive list of target species includes all of the Covered, Evaluation, and Watch List Species as categorized below and identified in Section 2.6. Within this list of target species, the County is asking for coverage under the current application for the Covered Species and providing the framework for future coverage of Evaluation and, if appropriate, Watch List Species. This is consistent with the Guidelines, in which the USFWS

> . . . encourages applicants to include, at a minimum, federally listed and proposed threatened and endangered species, Federal candidate species, and state-listed or sensitive species. A well designed target species list can: 1) provide incentives for permit applicants to conserve as many species, habitat types, and ecosystems, as possible; and 2) increase the likelihood that applicants will receive assurances for as many species as possible. In addition, early agreement on the target species list will aid in data gathering, developing survey requirements, and mapping, and in general will make the HCP process more efficient.

### (1) Covered Species

Covered Species are:

a. Those for which sufficient information is known and for which adequate existing management prescriptions exist or can be easily defined and implemented sufficient to support an application for a Section 10(a) Incidental Take Permit(s).

b. Those species about which a great deal of information may not be available but which are definitively known to share habitat with other Covered Species whose management prescriptions meet the requirements of subparagraph *a.* hereof. For those species, it is believed that the management prescriptions (existing or easily defined) for other Covered Species would benefit sufficiently to support application for a Section 10(a) Permit.

c. Those species whose listing appears imminent, unless conservation measures are instituted which would be likely to assure survival and recovery of such species in the wild.

### (2) Evaluation Species

Evaluation Species are those for which additional information is required or for which sufficient management prescriptions are unlikely to be able to be defined and implemented sufficiently to support an application for a 10(a) Permit to be filed in 1998. The application to the USFWS will not initially request either Section 10(a) Permits for those species. However, as additional information is accumulated and as management prescriptions are developed, the Applicants intend to submit amendments to the MSHCP together with requests that certain of the Evaluation Species be added to the list of Covered Species.

The taxonomic subcommittees prioritized the Evaluation Species, by habitat association or individually, to establish the order in which future efforts will be made to secure coverage into three categories—high, medium, and low—based upon three criteria:

a. Which of the Evaluation Species are in most danger of extinction and are most likely to be listed in the future?

b. Which of the Evaluation Species, if listed, would have the greatest impact upon the economy of Clark County and the lifestyles of its residents?

c. Which Evaluation Species, if listed, would have the greatest impact upon Federal and state land managers and which could most greatly affect the manner in which public lands are utilized?

### (3) Watch List Species

Watch List Species are those for which adequate information is not available to assess population range, current status, or conservation potential or that are not considered to be at risk during the planning horizon of the MSHCP.

### c. Species Distributions by Habitat Associations

Point data for species occurrence was obtained, as available, from BLM, NNHP, BRRC, USFS, and SNWA. The Wildlife Habitat Relationships (WHR) database was used to facilitate the development of spatial distribution models associating habitat requirements of wildlife species (mammals, birds, reptiles, and amphibians) to the digitally mapped habitat types, topography, hydrology, and urban features within the county. The WHR system was developed by the California Department of Fish and Game as a tool for regional conservation planning. The system consists of digital and textual information relating wildlife species to habitat and habitat elements within their range. Many of the species included in the WHR system are Mojave desert species with portions of their range within southern Nevada. From these models a predicted distribution for each wildlife species was developed and compared with the point data available for the species. Predicted distributions for species not covered in the WHR were developed from point data (if available) and other life history information.

After these species distribution models were reviewed by the BAC, it was determined that many of the models did not adequately represent known species distributions since some environmental factors controlling species distributions are unknown or are not part of the current GIS database. Therefore, it was decided that species distribution models should only be used to qualitatively identify potential conservation needs in certain areas and that the expertise of BAC members, together with mapped locations of species in the GIS database, should provide the basis for habitat utilization assessments.

## 2.4.2.5 Identification of Threats and Stressors - Overview

As part of the work program of each of the taxonomic subcommittees, potential threats and stressors were identified for each Covered and High Priority Evaluation Species. The threats and stressors were developed from consideration of existing and future land uses, recreational and economic activities currently permitted or allowed to occur within the habitat, and infrastructure features that could affect the habitats and those species which inhabit those habitats. The I & M Committee, with the assistance of the BAC and the subcommittees, then evaluated existing land management plans and policies to determine effectiveness to meet the threats and stressors which had been identified. The threats and stressors are identified below.

## 2.4.2.6 Conservation Actions Responding to Threats and Stressors

A list of potential conservation actions responding to each of the potential threats and stressors were evaluated and are discussed in more detail below. The conservation actions discussed below are somewhat generic but nonetheless characterize the kinds and range of potential responses available to avoid, minimize, or mitigate the effects of each potential threat and stressor on populations and habitat areas in the plan area. This list is not intended to be exhaustive or exclusive, although it covers what were identified as the

most immediately definable potential conservation actions. Specific management actions currently implemented by land managers for other purposes may provide adequate response to site-specific threats or may be easily modified to provide adequate response. Key populations or habitat areas are those that are unique or of limited distribution or, more broadly, those of long-term conservation significance.

A specific component of the AMP will be to develop a scientific methodology for identifying and monitoring the most significant threats and stressors affecting Covered Species and the ecosystems that support them. These detailed and specific data will provide the I & M Committee and the land managers with information upon which to assign priority and base decisions regarding the implementation of appropriate site-specific or issue-specific conservation actions. Conservation actions will likely include some or many of the actions identified below, but may include other actions that are determined to respond more appropriately to specific threats and stressors.

### (1) Population Dynamics/Life History

**Threat 101:** susceptibility to stochastic events of narrow endemics and limited distribution species (those with limited habitat or low relative densities)

**Conservation Action(s):** monitor key populations or habitat area conditions; provide for adaptive management responses to adverse changes; establish refugia where appropriate; collect seeds for storage in seed banks; conduct germination research for nursery propagation

**Threat 102:** unknown population trends

**Conservation Action(s):** monitor key populations or habitat area conditions; provide for adaptive management responses to adverse changes

### (2) Commercial Collection and Collection by Hobbyists

**Threat 201:** direct loss from collection by commercial collectors or by hobbyists resulting in reduction of populations of flora or fauna

**Conservation Action(s):** control (prohibit or limit) collection, commercial or by hobbyists, through law, regulations, and permit requirements; public education

**Threat 202:** indirect mortality through habitat degradation and loss from destructive collection methods (any collector)

**Conservation Action(s):** limit collection methods used through laws, regulations, and permit requirements; prohibit moving large cobbles and boulders, chipping rock, prying open rock crevices or exfoliations; prohibit peeling bark and removing or disturbing plant litter or dead or apparently dead wood, including yucca and cholla skeletons; prohibit the removal of live plants except in designated areas (relates to direct impact on flora and indirect impact on fauna); increase law enforcement presence; public education

### (3) Fire Management

**Threat 301:** habitat degradation and modification due to fire suppression and fuels management, post fire suppression and fuels management, historical fire management, fire

**Conservation Action(s):** identify key sensitive populations and habitats; develop fire management program that provides protection for sensitive resources; provide for adaptive management responses to adverse changes

**Threat 302:** vegetation community conversion to fire regime due to introduction of exotic annuals

**Conservation Action(s):** identify key habitat areas potentially susceptible to fire and manage to minimize conversion; remove or manage species from key susceptible habitat areas; provide for adaptive management responses to adverse changes

### (4) Recreation

**Threat 401:** direct wildlife mortality and habitat degradation and loss from dispersed recreational activities (legal and illegal) such as by hunters, hikers, equestrians, campers, casual mountain bikers, and casual OHV users; from impacts associated with dispersed recreational activities such as littering, traveling and parking off designated roads and trails, removing and trampling of plants, and disturbing natural surfaces and soil-holding crusts; and travel through key areas to get to areas of concentrated recreational activities

**Conservation Action(s):** identify key areas (sensitive populations or habitats); relocate trails away from key areas; site new trails away from key areas; ensure adequate law enforcement presence; enforce speed limits; eliminate or mitigate causes of impacts in key areas that result from the attraction of the public to concentrated events outside but adjacent to key areas; educate the public (with special attention to the casual OHV rider) regarding the potential and cumulative nature of impacts from casual use, the importance of the resource, and of staying on designated roads and trails; enlist users' cooperation; manage the use of plant litter or dead or apparently dead wood for burning in or the moving of rocks to surround campfires, where they are permitted; manage the collection

of plants and plant parts (dead or alive, attached or detached from the plants) or soil and rock for decorative or other purposes unless authorized; increase the number of tip-proof trash receptacles and establish pick-up schedules adequate to prevent overflow; develop trail maintenance protocols that avoid or minimize impacts to key populations or habitat areas; provide for adaptive management responses to adverse changes

**Threat 402:** direct wildlife mortality, habitat degradation and loss from development or expansion of concentrated recreation facilities, and their maintenance and use (camping, ski areas, parking)

**Conservation Action(s):** identify key areas (sensitive populations and habitats); manage existing facilities to minimize adverse effects on biological resources; site new facilities away from key populations or habitat areas; provide for adaptive management responses to adverse changes

**Threat 403:** habitat modification and degradation and wildlife mortality from concentrated recreation including OHV events by organized groups (speed, non-speed, competitive, non-competitive, commercial, and non-commercial events); competitive OHV races that by number of vehicles or participants, speed of travel, or presence of spectators (authorized or not) constitute concentrated recreation with potential adverse effect; equestrian trail rides; dog field trials; flying machine events (remote control and piloted); skydiving; the parking of vehicles for these events

**Conservation Action(s):** provide opportunities, as appropriate, in less sensitive areas; identify sensitive populations and habitat areas; enlist the support of OHV participants to discourage inappropriate OHV use; inform OHV participants of impacts to wildlife and habitats of unmanaged OHV activities; provide for adaptive management responses to adverse changes; limit number of participants; enforce appropriate seasonal restrictions on events; control and manage spectators to avoid impacts; limit the number of events in any sensitive areas; prohibit, regulate, or manage competitive races in key areas

**Threat 405:** habitat modification and degradation, individual displacement by rock climbing

**Conservation Action(s):** identify key populations and habitat areas, prohibit rock climbing in key areas; provide climbing opportunities in less sensitive areas; inform rock climbers of conservation impacts of rock climbing; consider seasonal restrictions on rock climbing in sensitive areas

**Threat 406:** reduction of fauna populations by indiscriminate recreational shooting

**Conservation Action(s):** increase law enforcement presence; provide opportunities as appropriate for recreational shooting in less sensitive areas; inform recreational shooters of conservation impacts of indiscriminate shooting

**Threat 407:** habitat degradation, population displacement from spelunking

**Conservation Action(s):** identify key cave and mine dependent populations; protect key caves and mines through signage, fencing, or closure; inform spelunkers of conservation impacts of spelunking; allow seasonal closure of caves to avoid disturbance of bat hibernacula and roosts

**Threat 408:** increased long-term recreation demand in natural areas from human population increases

**Conservation Action(s):** protect key populations and habitat areas; provide recreational opportunities in less sensitive areas; inform the public of the impacts to wildlife and habitat of recreational activities on biological resources; provide for adaptive management responses to adverse changes

**Threat 410:** direct wildlife mortality, and habitat degradation and loss from trail construction and maintenance

**Conservation Action(s):** identify key areas (sensitive populations or habitats); where possible, relocate trails away from sensitive populations or habitats; site new trails in less sensitive areas or away from key populations or habitat areas; develop trail maintenance protocols that avoid or minimize impacts to key populations or habitat areas; provide for adaptive management responses to adverse changes; encourage public involvement in trail projects; public education

**Threat 411:** direct and indirect impacts from vehicles traveling in wash beds

**Conservation Action(s):** avoid designating roads and trails in washes in sensitive or key areas; prohibit vehicular traffic along wash beds or on wash banks; confine travel in washes to crossing them in the shortest possible distance, if rerouting them is not feasible

### (5) Highways, Roads, and Trails

**Threat 501:** direct mortality and long-term reduction of wildlife populations from vehicular traffic on highways and unimproved roads

**Conservation Action(s):** monitor the effect on wildlife populations of ongoing fencing and barrier programs for the desert tortoise; implement appropriate measures to minimize

any adverse effects on key populations; provide site-specific fencing and signage; retrofit existing highways and design new highways for safe passage of wildlife

**Threat 502:** reduction of wildlife populations (especially reptiles) through highway mortality on high elevation paved roads

**Conservation Action(s):** avoid construction of new paved roads in high elevation habitat areas; provide site-specific fencing and signage; retrofit existing highways and design new highways for safe passage of wildlife

**Threat 503:** habitat fragmentation and destruction by roads and trails

**Conservation Action(s):** close unnecessary roads and trails in key habitat areas through signage and rehabilitation; eliminate proliferation of roads and trails in key habitat areas; require NEPA analysis of designated trail system; increase ranger patrol and law enforcement in key habitat areas; provide culverts where appropriate to allow passage of wildlife; systematically monitor incidence of new illegal trails and mitigate as appropriate

**Threat 504:** habitat degradation from highway and road construction, improvement, and maintenance (including vegetation control and salting)

**Conservation Action(s):** site new highway construction to avoid key populations and habitat areas; develop appropriate construction and maintenance management programs to avoid, minimize, or mitigate effects to key populations and habitat areas

**Threat 505:** habitat degradation from highway runoff

**Conservation Action(s):** implement appropriate methods and designs to minimize erosion during construction of highways and to avoid the creation of erosive flows from highways; encourage construction of pollution control devices, such as oil sand separators, drop inlets, and stormwater treatment systems

### (6) Pest Control

**Threat 601:** mortality of non-target species through direct or indirect poisoning or trapping for small mammals or pest species

**Conservation Action(s):** inform the public and agency personnel of the potential effects of these activities on wildlife populations; implement integrated pest management programs as warranted

**Threat 602:** increased use of pesticides and herbicides (resulting in mortality in non-targets species, eggshell thinning, and other inadvertent consequences)

**Conservation Action(s):** inform the public and agency personnel of the potential effects of these activities on plant and wildlife populations and habitat areas; implement integrated pest management programs as warranted; avoid, to the maximum extent practicable, use of pesticides and herbicides in key areas of sensitive species habitat when this will have a significant adverse effect on Covered Species

### (7) Grazing

**Threat 701:** habitat degradation by wild horse and burro grazing and trampling

**Conservation Action(s):** protect key populations and habitat areas by fencing or other appropriate measures; implement wild horse and burro management plans; provide selected forage and water locations

**Threat 702:** competition of herbivores with cattle and equids

**Conservation Action(s**): protect key populations and habitat areas by fencing or other appropriate measures; remove, regulate, or manage cattle and equids in key habitat areas; manage herds to minimize competition with key populations; purchase allotments on a willing-seller, willing-buyer basis

**Threat 703:** habitat degradation by livestock grazing and trampling

**Conservation Action(s):** protect key populations and habitat areas by fencing or other appropriate measures; remove cattle and equids from key habitat areas; manage herds to minimize impacts to key habitat areas; purchase allotments on a willing-seller, willing-buyer basis

### (8) USAF Military Activities

**Threat 801:** habitat degradation at target sites, on roads, or other military access locations

**Conservation Action(s):** site activities away from key populations and habitat areas; provide measures to avoid, minimize, or mitigate effects of these activities; provide protection for populations and habitat areas not affected by these activities

**Threat 802:** habitat modification from facilities construction and maintenance activities

**Conservation Action(s):** site new facilities away from key populations and habitat areas; provide measures to avoid, minimize, or mitigate effects of these activities; provide protection for populations and habitat areas not affected by existing facilities

### (9) Mineral Extraction

**Threat 901:** habitat degradation from locatable, leasable, and saleable mineral development

**Conservation Action(s):** site leasable and saleable mineral development away from key populations or habitat areas to the extent feasible; provide measures to avoid, minimize, or mitigate effects of these activities; close IMAs and LIMAs to mineral exploration and mining, subject to prior existing rights

**Threat 902:** habitat degradation and wildlife displacement from extraction of minerals

**Conservation Action(s):** site mining activities away from key populations or habitat areas; provide measures to avoid, minimize, or mitigate effects of these activities

**Threat 903:** toxic waste ponds

**Conservation Action(s):** site toxic ponds associated with mining activities away from key populations or habitat areas; provide measures to discourage wildlife from using ponds (fencing, cover) as required by state law

### (10) Woodcutting and Collection

**Threat 1001:** habitat degradation from wood collection and litter removal for firewood or decorative purposes

**Conservation Action(s):** prohibit or limit by permit requirements the collection of wood in key habitat areas; provide alternative areas for wood collecting; provide firewood for sale at campgrounds and other appropriate locations; prohibit peeling bark, disturbing or collecting plant litter, or dead or apparently dead plant parts, including yucca and cholla skeletons

### (11) Development

**Threat 1101:** direct mortality, habitat degradation and loss resulting from urban and rural development

**Conservation Action(s):** develop a regional biological conservation program (such as the MSHCP) and incorporate it into comprehensive planning of urban and rural development

**Threat 1102:** habitat fragmentation by urban/rural development

**Conservation Action(s):** develop a regional biological conservation program (such as the MSHCP) and incorporate it into comprehensive planning of urban and rural development

**Threat 1103:** landfills: associated non-native species and subsidized species such as ravens and coyotes; increased potential for pollutants to enter the ecosystem

**Conservation Action(s):** site landfills away from populations and habitat areas susceptible to the effects of landfills and associated species; implementation of appropriate landfill management (daily cover of working face, appropriate liners, raven monitoring programs, fencing and road access control); control type of refuse accepted for disposal

### (12) Utility Lines

**Threat 1201:** mortality through collisions and electrocution with power lines

**Conservation Action(s):** site new power lines in consolidated utility corridors adjacent to existing facilities; retrofit existing lines where appropriate

**Threat 1202:** habitat degradation associated with utility facility construction and maintenance

**Conservation Action(s):** minimize new road construction associated with new utility facilities; where possible close and rehabilitate unneeded existing roads or new roads after construction

**Threat 1203:** increased availability of perch sites for ravens (tortoise predators) and raptors

**Conservation Action(s):** incorporate design feature into new towers to inhibit raptor or raven perching and nesting; as appropriate, retrofit existing towers with devices to discourage raptor and raven perching

### (13) Aquatic Resources

**Threat 1301:** lowland riparian habitat degradation and modification associated with channelization

**Conservation Action(s):** where channelization is unavoidable, design channels so as to avoid riparian habitat degradation while providing necessary flood/erosion protection; minimize or mitigate any impacts from habitat modification: establish green belts in riparian areas

**Threat 1302:** changes in habitat quality due to changes in water flows (quantity, quality, seasonality) resulting from water diversion and groundwater pumping

**Conservation Action(s):** monitor surface flows and changes in riparian habitat quality and distribution; develop a water management strategy to balance water needs between users and water dependent biological resources; purchase of water rights from willing sellers: develop alternative water sources for water users; establish in-stream flows to support aquatic species; establish conservation easements

**Threat 1303:** decreased water availability to support riparian habitat

**Conservation Action(s):** monitor surface flows and changes in riparian habitat quality and distribution; develop a water management strategy to balance water needs between users and water dependent biological resources; purchase of water rights or conservation easements from willing sellers

**Threat 1304:** changes in water quality from grazing and agriculture (pesticides, herbicides, and fertilizer)

**Conservation Action(s):** identify affected habitat areas, monitoring of water quality in key habitat areas, fencing or other protection affected of streams and streamside vegetation; purchase of water rights or conservation easements from willing sellers

### (14) Springs

**Threat 1401:** habitat degradation resulting from spring diversion and modification

**Conservation Action(s):** identification of key springs, protection of spring and spring brooks through fencing, signage, conservation agreements; purchase of water rights or conservation easements from willing sellers; removal of diversion and modification structures

**Threat 1402:** habitat degradation resulting from spring outflow diversion

**Conservation Action(s):** identification of key effected springs, provision of alternate water sources where appropriate; purchase of water rights or conservation easements from willing sellers: removal or redesign of diversion structures

**Threat 1403:** decreased spring flows resulting from groundwater pumping

**Conservation Action(s):** monitoring of spring flows in key springs; coordination with water users to manage water use to minimize impacts to key springs; purchase of water rights or conservation easements from willing sellers

**Threat 1404:** changes in water quality from grazing and agriculture (pesticides, herbicides, and fertilizer)

**Conservation Action(s):** monitoring after identification of affected springs, monitoring of water quality in key springs, fencing or other protection of springs and spring brooks; purchase of water rights or conservation easements from willing sellers

**Threat 1405:** reduced flow from overutilization by animals

**Conservation Action(s):** identification of key affected springs, provision of alternate water sources where appropriate; purchase of water rights or conservation easements from willing sellers

### (15) Exotic, Subsidized, and Parasitic Species

**Threat 1501:** habitat degradation and population decreases resulting from introductions, competition, and encroachment of exotic species (such as tamarisk, *Vallsineria*, fan palm invasion [upper Muddy], red shiners, *Tilapia*, and other species)

**Conservation Action(s):** identification of problem areas; monitoring, development and implementation of site-specific/species-specific control or eradication programs

**Threat 1502:** population decreases due to subsidized and parasitic species (e.g., brown-headed cowbirds) and rates of nest parasitism on various host species

**Conservation Action(s):** monitoring of parasite populations; implementation of parasite control program as appropriate

**Threat 1503:** increased risk of fire due to exotic plants (such as red brome)

**Conservation Action(s):** development of appropriate fire response and management program

**Threat 1504:** increased raven predation (resulting from increased availability of perch sites and concentrated food sources, such as uncovered refuse)

**Conservation Action(s):** identification of problem areas; monitoring, development, and implementation of site-specific/species-specific control or eradication programs; retrofit existing man-made structures and design new structures with devices to discourage raven use; cover landfill working faces daily; provide predator-proof/tip-proof trash receptacles with effective emptying schedule

**Threat 1505:** increased coyote predation

**Conservation Action(s):** identification of problem areas; cover working face of landfills; provide predator-proof/tip-proof trash receptacles with effective emptying schedule; monitoring, development, and implementation of site-specific/species-specific control or eradication programs

### (16) Feral Animals

**Threat 1601:** predation by feral animals and uncontrolled pets

**Conservation Action(s):** inform the public of potential impacts of domestic animals on native species; design reserve areas so as to support populations of natural predators (coyote, bobcat, mountain lion); increase law enforcement presence; increase interaction between land managers and animal damage control

### (17) Illegal or Unauthorized Activities

**Threat 1701:** poaching, illegal collection, or killing of flora and fauna

**Conservation Action(s):** increase law enforcement presence; public information program

**Threat 1702:** illegal waste ponds, dumping, and waste disposal

**Conservation Action(s):** increase law enforcement presence; public information program

**Threat 1703:** illegal drug production, transport, and use

**Conservation Action(s):** increase law enforcement presence; public information program

**Threat 1704:** unauthorized release of captive tortoises and possible introduction of upper respiratory tract disease and other undesirable biological consequences

**Conservation Action(s):** increase law enforcement presence; public information program; continue to provide alternatives, such as the Clark County pick-up service for

unwanted pet tortoises, unconfined tortoises in developed areas, and tortoises found on permitted development sites

### 2.4.2.7 Identification of Management, and Existing Responses to Threats and Stressors

Land management information was compiled from various sources, including USU, BLM, NPS, USFS, NDOW, and USAF. GIS coverages provided by these agencies included boundaries delineating management areas (i.e., wilderness, wilderness study areas, desert tortoise conserved habitat) and attribute data describing management within each polygon. ARC/INFO GIS coverages were combined and an overall management designation was assigned for each new polygon based on management attributes in the composite coverage. Rules for assigning management designations where management areas overlapped were developed based on existing land management and policy documents for each agency. Mapped management designations were not available for USFWS, state lands, NPS, or Bureau of Reclamation. However, except for those areas currently developed for human utilization, existing regulations and rules applicable to those lands preclude intensive human uses and conservation measures predominate. For private lands, no specific land use designations (e.g., underlying zoning) were associated with the polygons. As part of the MSHCP analysis, land management planning documents for BLM, USFS, NPS, and state parks were used to evaluate existing management policies and actions that may have a potential effect on species conservation. In the context of the pattern of land management in Clark County, and based upon the analysis of the management designations and the rules applicable to such designations, the landscape has been divided into four basic conservation management categories:

- Intensively Managed Areas IMAs
- Less Intensively Managed Areas LIMAs
- Multiple Use Managed Areas MUMAs
- Unmanaged Areas UMAs

The conservation principles set forth in Section 2.4.2.2 have been applied to each of these types of planning units located within Clark County and evaluated for their effects upon the habitats contained within each unit as well as the effects upon the species which inhabit each such unit.

#### a. Intensively Managed Areas

IMAs consist of lands in which management is oriented toward actions that reduce or eliminate potential threats to biological resources, such as wilderness areas, biodiversity

hotspots, wilderness study areas, or the conserved/critical habitat areas established for the Mojave Desert tortoise. IMAs will provide an adequate amount and quality of habitats to support viable populations of all of the species covered by the MSHCP. This MSHCP designates the following lands as IMAs:

- BLM lands committed to conservation of the desert tortoise pursuant to the terms of the DCP
- All National Park Service lands except those identified as development zone in the GMP and existing minor developments such as parking lots, trailheads, and boat ramps
- Wilderness, Research Natural Areas (RNAs), Wilderness Study Areas (WSAs), and Instant Study Areas (ISAs) managed by the BLM and the USFS
- The Desert National Wildlife Range (including portions of NAFR), and other refuges, managed by the USFWS
- State Wildlife Management Areas located within the plan area
- State parks located within the plan area (Valley of Fire State Park)
- Nellis Small Arms Range

It should be noted that wilderness study areas are not permanent designations. It is up to the U.S. Congress, based upon the recommendations of the Federal land managers and the public, to make a final decision on the ultimate status of these lands. The potential effects that changes in WSA status could have on the conservation of species and habitats covered in this MSHCP are discussed in Chapter 3, Alternatives Considered, of this document.

Furthermore, the Federal and state land managers will agree, through the provisions of the MSHCP and Implementation Agreement, to continue management of these lands in a manner consistent with the conservation of the species covered in this plan for the term of the 10(a) Permit.

### b. Less Intensively Managed Areas

LIMAs are lands on which management generally limits the range of uses allowed to primarily low-impact recreational uses. LIMAs will function to augment the habitat in IMAs for some species, as well as providing buffers from areas of more intensive uses and connectivity between IMAs. This MSHCP designates the following areas as LIMAs:

- BLM lands managed as National Conservation Areas (NCAs)
- USFS lands managed as the Spring Mountains National Recreation Area
- Lands within NAFR and NSAR with limited Air Force use and restricted access
- Target areas on NAFR
- State parks other than Valley of Fire State Park

### c. Multiple Use Managed Areas

MUMAs are lands on which human activities are not precluded and which may, at times, be intense but which nevertheless continue to support significant areas of undisturbed natural vegetation. MUMAs provide connectivity between the populations of species in IMAs and LIMAs, additional habitat for these species, and buffering between the IMAs, LIMAs, and areas of more intensive use. Agricultural lands may, in some situations, provide similar values. This MSHCP designates the following areas as MUMAs:

- Undesignated BLM lands

### d. Unmanaged Areas

UMAs are lands on which human activities predominate and which may incidentally support populations of some species. This MSHCP designates the following areas as UMAs:

- Private lands
- Indian reservations
- Intensive/developed recreation use areas
- Highways and material sites
- Lands disturbed by previous land uses
- Mines
- Landfills
- Intensive agriculture
- Nellis Air Force Base and Indian Springs Air Force Auxiliary Field

Over time, significant areas of habitat currently categorized as MUMA or UMA but which are surrounded by lands categorized as IMA or LIMA may be included and managed as part of the surrounding IMA and LIMA.

### 2.4.2.8 Identification of Gaps and Needs

After threats and stressors related to habitats and species were identified by the taxonomic subcommittees, existing management policies and practices were compiled from management plans from the various Federal, state, and local agencies with jurisdiction over lands within the plan area and evaluated for their effectiveness in dealing with the threats and stressors identified for habitats and species. Gaps in management, changes to management, and additional conservation measures were identified for both habitats and species through this process.

### 2.4.2.9 Identification of Minimization and Mitigation Measures

Existing management policies and actions important to the conservation of species identified in the gaps and needs analysis are identified as necessary existing measures to minimize potential take. The gaps and needs analysis also identified additional necessary or appropriate measures to minimize or mitigate for potential take. These measures must be effective and sufficient to assure the conservation of species addressed in the MSHCP during the 30-year term of the Section 10(a) Permit. They must be practicable and feasible to implement, be agreed to by the agency or persons responsible to implement the measures over the 30-year period of the 10(a) Permit, and include financial assurances that any costs of implementing the measures will be adequately met.

## 2.4.3 Amendment to the General Management Plan, Lake Mead National Recreation Area

The following section describes the scope of proposed changes that would amend the LMNRA GMP and which are being incorporated into the MSHCP. These changes will allow NPS to provide actions consistent with their obligations under the proposed MSHCP. Therefore, NEPA review of these changes is incorporated with the review of the MSHCP.

### 2.4.3.1 Designation of Environmental Protection Subzones

The Desert Wildlife Management Area or Desert Tortoise Recovery Unit would be listed as a Natural Zone, Environmental Protection Subzone, which overlies or replaces a number of subzones listed in Table 7 and mapped on page 21 of Volume 1 of the GMP. The DWMA includes almost all of the acreage on the Nevada side of Lake Mohave between the southern boundary and Burro Wash. Areas subsumed under the environmental protection subzone designation include areas 3, 4, 8, and 10 (natural

environment subzones); 5, 9, 11A, and 12 (environmental protection subzones); 6 (outstanding natural feature subzone); 7 and 11 (resource utilization subzones); and the proposed Fire Mountain developed area.

Land management prescriptions in this area would be directed by the guidance in the MSHCP and recovery plans and would include:

- No livestock grazing
- No burros
- No mining/mineral leasing
- No target shooting
- Driving on designated roads only
- All vehicles must be licensed and street legal (unless by special permit)
- No new roads or rights-of-way
- No collecting or destruction of natural or cultural resources
- No commercial OHV tours in IMAs and LIMAs

Desert tortoise critical habitat would also be included in the Natural Zone, Environmental Protection Subzone, which overlies or replaces a number of areas included on the map on page 21 of Volume 1 of the GMP. These areas include areas 38 (natural environment zone), 38A (environmental protection subzone), and 39 (historic/archeological zone). Management prescriptions in this area would be identical with those in the DWMA.

The changed designation due to the DWMA and critical habitat for desert tortoises would add approximately 180,000 acres to the current 317,930 acres protected as environmental protection subzones within the recreation area.

The Special Use Zone, Reservoir Subzone, would be included in the Environmental Protection Subzone. Razorback sucker critical habitat was designated by the USFWS within the reservoir subzone on Lakes Mead and Mohave. Lake Mead was designated critical habitat because it provides deep water, shallow bays, and cove habitats. These areas have suitable temperatures for all life stages of razorback suckers, and physical habitat for adults. Lake Mohave, which is the Colorado River from Hoover Dam to Davis Dam, has the largest known population of razorback suckers. This population provides almost all hatchery stocks and has been the focus of extensive research on razorback suckers.

The 1998 Recovery Plan for the Razorback Sucker provides guidance for management actions within critical habitat, including actions to prevent extinction in the immediate future, and to prevent species from declining irreversibly in the foreseeable future. Also, actions are recommended to prevent a significant decline in the number of extant populations and habitats of this species that will allow recovery to a less endangered status. Specifically, on Lake Mohave this includes management actions with the goal of

reversing the decline of razorback suckers so the population reaches a sufficient size that genetic diversity is no longer threatened.

### 2.4.3.2 Designation of Historic/Archeological Zone

The Historic/Archeological Zone would be expanded to include all the area in the Spirit Mountain/Avi Kwa Ame Traditional Cultural Property and surrounding areas. These areas include GMP designated areas 3 and 4 (natural environment subzone), 5 (environmental protection subzone), and 6 (outstanding natural feature subzone). This area emphasizes preservation, protection, and interpretation of cultural resources and their settings. Management strategy is for protection, preservation, interpretation, and restoration where deemed appropriate by professional analysis.

Consultation is required with the State Historic Preservation Officer and any Federally recognized tribes culturally associated with the area prior to any management action in these areas.

### 2.4.3.3 Approved Road System Changes

As stated in the GMP, vehicle use in the recreation area is restricted to paved and NPS designated approved roads. All vehicles must be licensed and street legal. There is no off-road travel permitted. Since the final GMP, several updates to the approved roads system at Lake Mead NRA have been implemented to protect resources located in environmental protection subzones or historic/archeological zones, to counter vandalism and resource destruction, to protect visitors from unstable conditions, or to provide visitors with additional access to the lakeshore or hunting areas. The current approved road map shows the following changes:

- Approved Road 130 was closed on that portion within the new Mount Wilson wilderness.

- Approved Road 107 (St. Thomas Area) was closed in 1989 for resource recovery. Access to area provided by Approved Road 109.

- Approved Road 106 Spur (Salt Cove) was closed in 1989 for resource recovery. Road was washed out and unmaintainable due to deep sand In 1995, Road 106 was reopened after being rerouted to terminate at Fire Cove.

- Approved Road 104 (Rogers Bay Road) was closed in 1989 to protect large populations of *Arctomecon californica* impacted by illegal off-road traffic.

- Approved Road 100 (Pinto Valley–Boulder Wash) was closed in 1989 to protect populations of *Arctomecon californica.*

- Approved Road 88 (Lower Government Road) was closed in 1990 with the completion of the Government Wash Launch Ramp Project, which rerouted the road out of the flood-prone wash, and to counter resource destruction and vandalism.

- Approved Road 85 (Lower Gypsum Road) was closed in 1993 as a part of a management initiative to protect the public against flash floods and to counter vandalism and resource destruction.

- Approved Road 84 (Montana Agate Road) was closed in 1990 to protect populations of *Arctomecon californica.*

- Approved Road 52 (power line access) was added to provide additional access for hunters.

- Approved Road 57A was extended to the lakeshore for additional water access for fishermen.

- Approved Road 10 (Parallel Road) was closed in 1989 for resource recovery. Road parallels NV 163 with no backcountry or lakeshore access.

- Approved Road 1B (Tailings Road) was closed in 1996 due to dangerous, unstable geologic conditions.

- The Princess Cover Road and launch ramp was added to provide an additional launching facility and lake access.

Even with these changes, there are currently 162 approved roads within the recreation area, providing approximately 650 miles of dirt roads available for public recreation and access. Included in this category are unimproved roads passable by high-clearance two-wheel-drive vehicles, four-wheel-drive-only roads, and roads that would test the skill of even the experienced four-wheel-drive enthusiast. Many of these roads provide access to the lake.

# 2.5 Ecosystem Analyses

## 2.5.1 Introduction

The following section provides a summary of the analysis of the level of conservation of each ecosystem included in Clark County (Figures 2-3 and 2-4). The ecosystem analyses are based upon the pattern of existing land ownership, management, and actions proposed for implementation as part of the MSHCP. Detailed discussions of each ecosystem are provided in Appendix A, including:

- description of the ecosystem and component vegetation communities,
- distribution in Clark County,
- existing management policies,
- occurrence of MSHCP species,
- potential threats and stressors,
- existing management responses and conservation needs,
- estimates of potential disturbance,
- effectiveness of existing management, and
- summary of conservation contributions from the MSHCP.

Although these discussions are organized by ecosystem, they primarily address potential threats to those species that occur within each ecosystem. The intent of these analyses is to provide a landscape-scale perspective for addressing the conservation needs of plant and wildlife species in Clark County and the habitats upon which they depend.

## 2.5.2 Ecosystem Conservation Analysis Criteria

The adequacy of existing and proposed management of each of the ecosystems is addressed here from a broad perspective. It is important to recognize that the majority of most of the ecosystems in Clark County are in public (mostly Federal) ownership. Therefore, the primary questions that need to be answered to evaluate the effectiveness of conservation management are:

- What ecosystems occur in the plan area?
- What species of concern occur or potentially occur in each ecosystem?
- How much habitat is available for each species?
- What potential threats and stressors exist that may affect species and their ecosystems?
- How much of these habitat areas is managed (or could be managed) for the benefit (or not to the detriment) of each species?
- Are these habitat areas managed adequately for each species and overall ecosystem health?

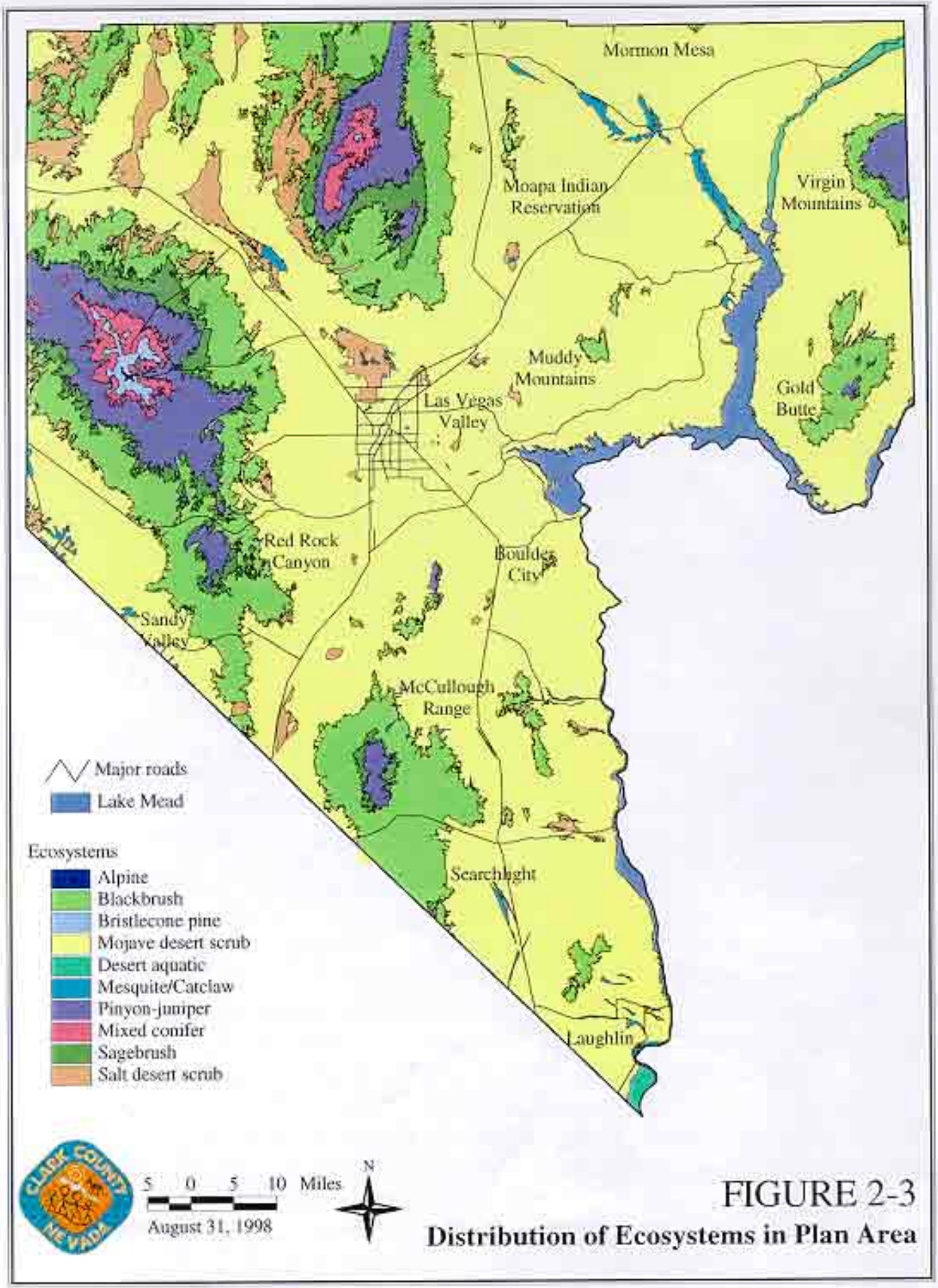
The following discussion of the level of conservation management is organized by the ecosystems identified in the plan area. This plan is able to provide answers to most but not all of these questions. Questions that cannot be answered by existing information in this MSHCP will be addressed through the implementation of the Adaptive Management Process.

In addition, there are several questions that encompass areas larger than individual ecosystems or the configuration of lands on a landscape level. These questions are addressed in the discussion of reserve design considerations and include:

- How is available habitat for each species configured from a reserve design perspective?
- Which areas have the highest value for the conservation of individual species?
- Which areas have the highest value for the conservation of unique species?
- Which areas have the highest value for the conservation of the greatest number of species?

## 2.5.3 Levels of Conservation Management by Ecosystem

In addition to the following sections on the major ecosystems that occur in Clark County (alpine, bristlecone pine, mixed conifer, pinyon-juniper, sagebrush, blackbrush, salt desert scrub, Mojave desert scrub, mesquite/catclaw, desert riparian/aquatic, and springs), several other assemblages of species with shared characteristics or habitat requirements are discussed with respect to special conservation needs not adequately addressed at the




# FIGURE 2-3

**Distribution of Ecosystems in Plan Area**

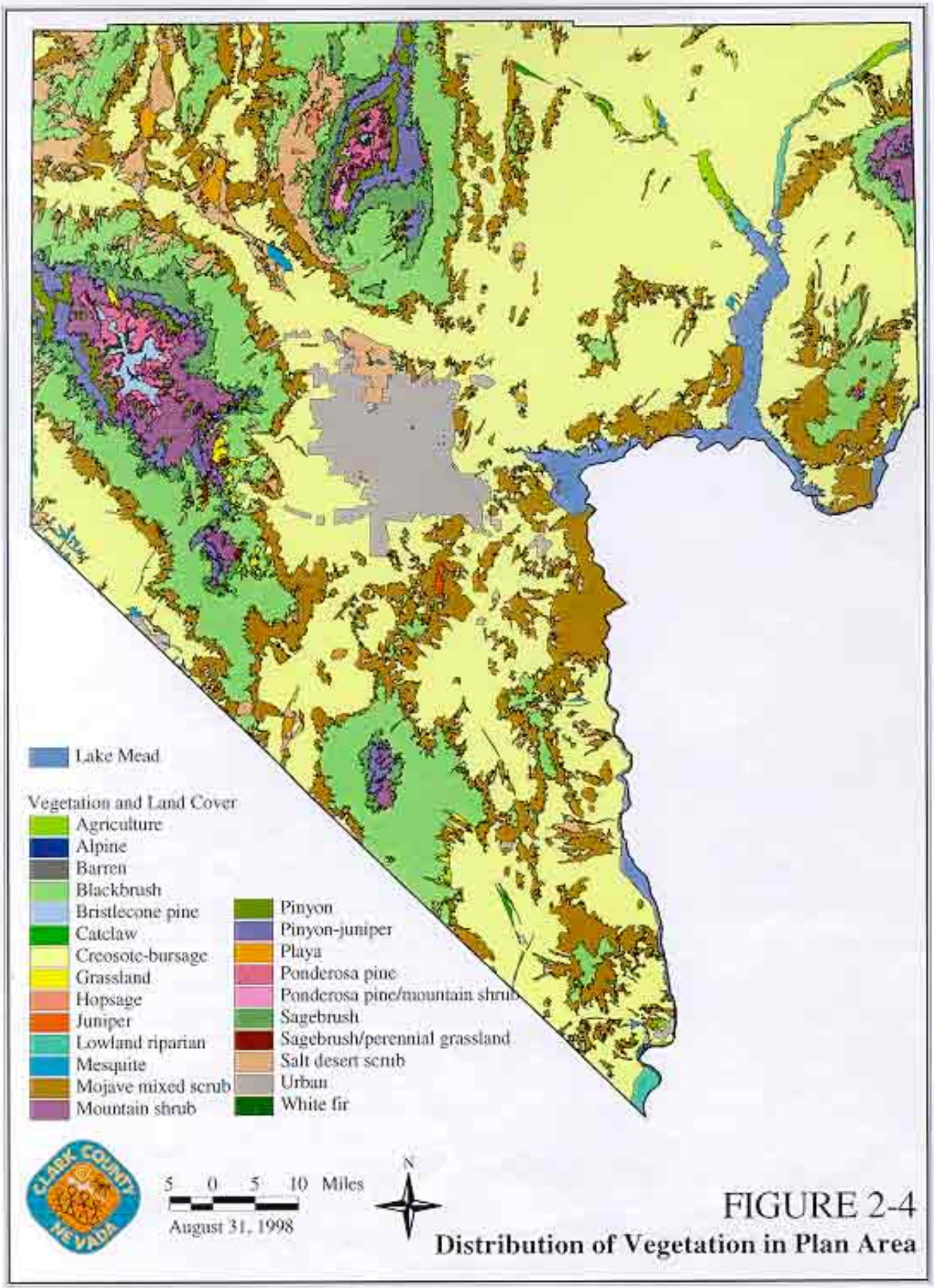



FIGURE 2-4

**Distribution of Vegetation in Plan Area**

ecosystem level (as defined in the MSHCP). These include bats, Mojave desert lizards and snakes, butterflies, and species associated with rock outcrops, boulder fields, lava flows, sand dunes, gypsum soils, dry lake beds and playas, and boreal islands.

## 2.5.3.1 Alpine Ecosystem

### a. Description and Distribution

The alpine ecosystem consists of 500 acres of herbaceous, high-altitude tundra vegetation, generally above timberline and above 11,500 feet on Mt. Charleston in the Spring Mountains area in Clark County (Figure 2-5). Alpine habitat is characteristically sparse with low vegetation adapted to winter snowfalls and generally cold temperatures.

### b. MSHCP Species

The alpine ecosystem provides habitat for 10 Covered Species, all of them plants.

***Covered Species:***

| | |
|---|---|
| Charleston pussytoes | *Antennaria soliceps* |
| Clokey thistle | *Cirsium clokeyi* |
| Jaeger whitlowgrass | *Draba jaegeri* |
| Charleston draba | *Draba paucifructa* |
| Hidden ivesia | *Ivesia cryptocaulis* |
| Hitchcock bladderpod | *Lesquerella hitchcockii* |
| Charleston beardtongue | *Penstemon leiophyllus* var. *keckii* |
| Clokey catchfly | *Silene clokeyi* |
| Charleston tansy | *Sphaeromeria compacta* |
| Charleston kittentails | *Synthyris ranunculina* |

### c. Potential Threats and Stressors

The primary ecosystem level threats and stressors to alpine habitat are:

- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401** and concentrated recreation **Threat 402**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501**)

### d. Existing and Proposed Conservation Actions that Mitigate Threats and Stressors

All of the 500 acres of alpine habitat in Clark County is within the Mt. Charleston Wilderness and Carpenter Canyon RNA of the Spring Mountains NRA of Humboldt-Toiyabe National Forest.

The conservation agreement (CA) for the Spring Mountains NRA identifies general management actions for alpine habitats, including development and implementation of a monitoring program for assessing effects of recreational use on high elevation communities and the species that occur in these communities, implementation of an overnight wilderness permitting process that provides visitor education on sensitive resource issues, prohibition of camping in sensitive areas, as determined through monitoring, removal of selected informal high elevation and alpine campsites, and implementation of a weed management strategy.

### e. Adequacy of Existing Management

Alpine habitat is found exclusively within an IMA, the Mt. Charleston wilderness area of the Spring Mountains NRA. There is no private land within this habitat type and no plans for developed facilities or other infrastructure.

Implementation of existing USFS management actions and the CA for the Spring Mountains NRA will adequately address the ecosystem level threats to Covered Species within the alpine habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The alpine habitat and the 10 Covered Species it supports will benefit from the MSHCP through general public education and information programs and funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers.

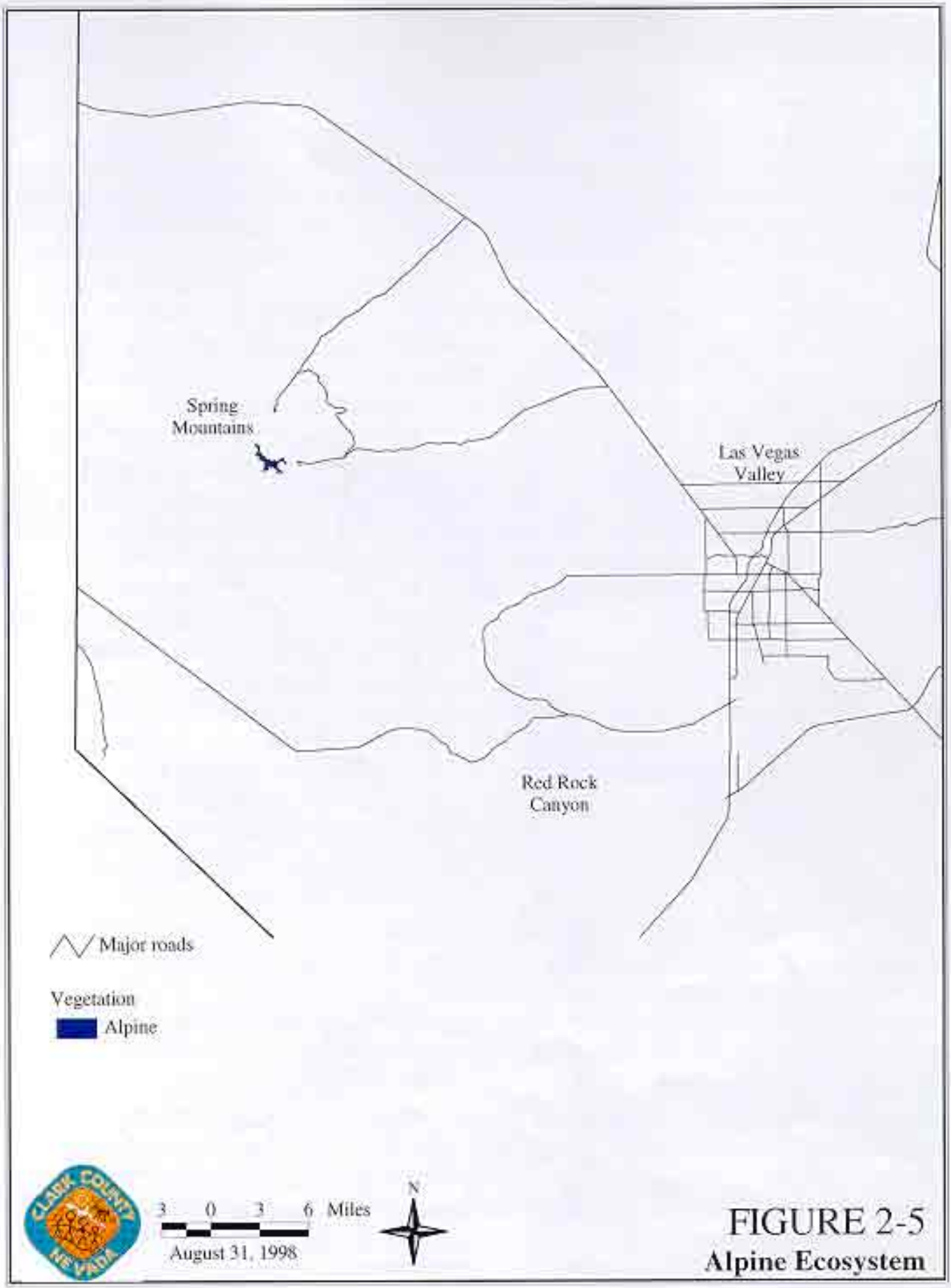
## 2.5.3.2 Bristlecone Pine Ecosystem

### a. Description and Distribution

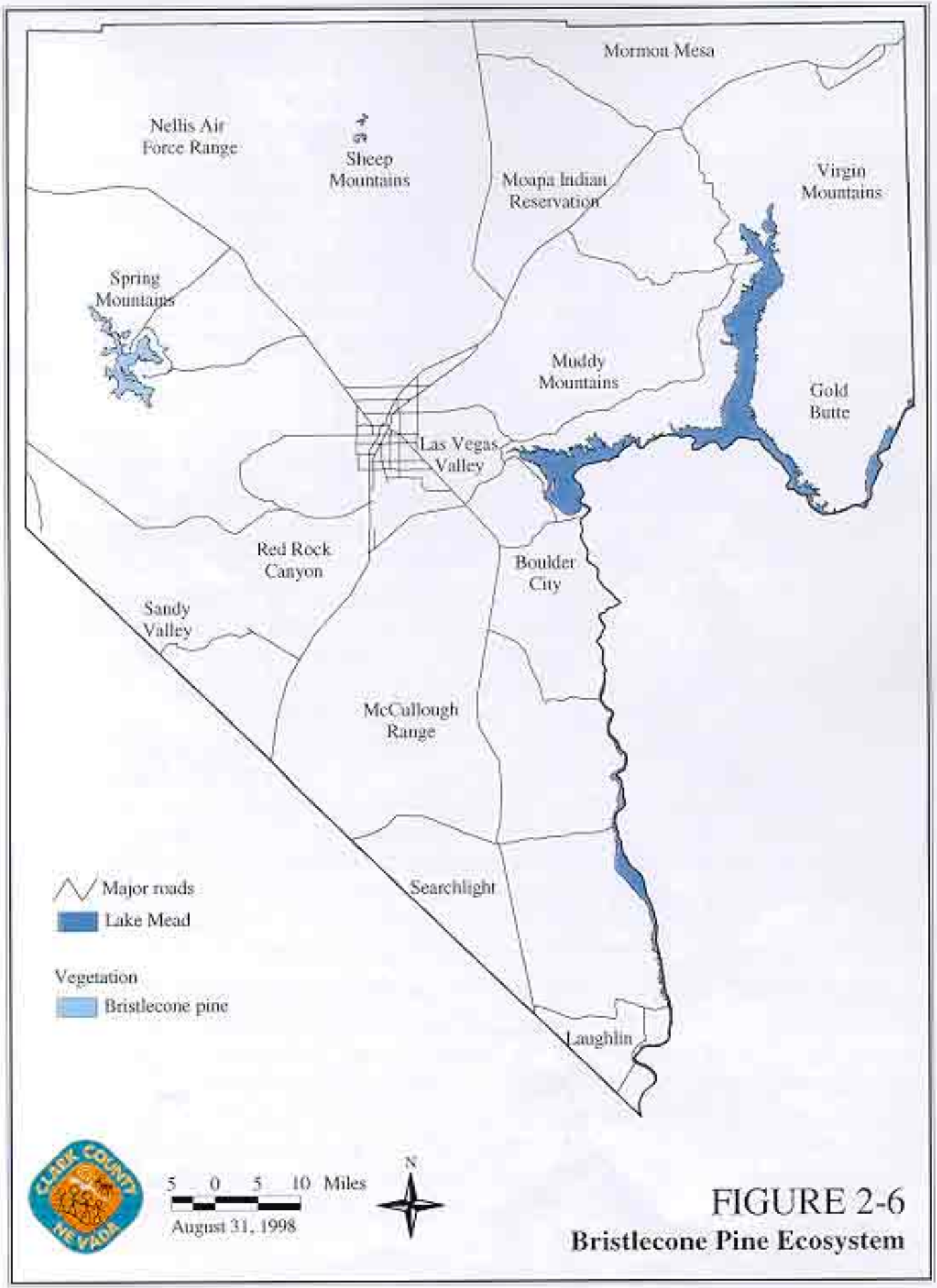
The bristlecone pine ecosystem is found on 15,800 acres in the Spring and Sheep Mountains, ranging in elevation from 9,000 to 11,500 feet on exposed, dry, rocky slopes and ridges in the subalpine zone up to tree line (Figure 2-6). This habitat is comprised of evergreen conifer woodland dominated by bristlecone pine. In Clark County, bristlecone pine habitat is predominantly found in the Spring Mountains but also occurs in the Sheep Mountains.

### b. MSHCP Species

The 24 Covered Species found in this ecosystem include Palmer's chipmunk, 6 butterflies, and 17 species of plants. The plants are endemic to forest and woodland habitats within the Spring and Sheep Mountains. Seven only occur in the high elevation alpine meadow or pine forest.




# FIGURE 2-5
**Alpine Ecosystem**




# FIGURE 2-6
**Bristlecone Pine Ecosystem**

***Covered Species:***

| | |
|---|---|
| Palmer's chipmunk | *Tamias palmeri* |
| Spring Mountains icarioides blue | *Icaricia icarioides austinorum* |
| Spring Mountains/Mt. Charleston blue butterfly | *Icaricia shasta charlestonensis* |
| Morand's checkerspot butterfly | *Euphydryas anicia morandi* |
| Carole's silverspot butterfly | *Speyeria zerene carolae* |
| Nevada admiral | *Limenitus weidemeyerii nevadae* |
| Spring Mountains comma skipper | *Hesperia comma mojavensis* |
| Charleston pussytoes | *Antennaria soliceps* |
| Rosy king sandwort | *Arenaria kingii* ssp. *rosea* |
| Clokey paintbrush | *Castelleja martinii* var. *clokeyi* |
| Clokey thistle | *Cirsium clokeyi* |
| Jaeger whitlowgrass | *Draba jaegeri* |
| Charleston draba | *Draba paucifructa* |
| Inch high fleabane | *Erigeron uncialis* ssp. *conjugans* |
| Jaeger ivesia | *Ivesia jaegeri* |
| Hitchcock bladderpod | *Lesquerella hitchcockii* |
| Charleston pinewood lousewort | *Pedicularis semibarbata* var. *charlestonensis* |
| Charleston beardtongue | *Penstemon leiophyllus* var. *keckii* |
| Clokey mountain sage | *Salvia dorrii* var. *clokeyi* |
| Clokey catchfly | *Silene clokeyi* |
| Charleston tansy | *Sphaeromeria compacta* |
| Charleston kittentails | *Synthyris ranunculina* |
| Charleston grounddaisy | *Townsendia jonesii* var. *tumulosa* |
| Limestone (Charleston) violet | *Viola purpurea* var. *charlestonensis* |

## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in bristlecone pine are:

- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** casual use OHV activities **Threat 404,** rock climbing **Threat 405**)
- Pest control (pesticides and herbicides **Threat 602**)
- Grazing (wild horse and burro grazing and trampling **Threat 701**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501**)

## d. Existing and Proposed Conservation Actions

Of the total 15,800 acres of bristlecone pine habitat, 86.0 percent is located in USFS Wilderness (Mt. Charleston Wilderness and Carpenter Canyon RNA) and an additional 2.5 percent in the Spring Mountains NRA. Within the forest, there are private inholdings

totaling 6.3 percent. Approximately 5.0 percent of the habitat occurs in the Sheep Mountains within the Desert National Wildlife Range.

Management of the Spring Mountains NRA, Mt. Charleston Wilderness, and Carpenter Canyon RNA (14,400 acres, or 91.1 percent of total habitat) is oriented around intensive management: roadless primitive recreational uses and conservation of sensitive wildlife and plants.

The CA for the Spring Mountains NRA identifies general management actions for high elevation habitats, including development and implementation of a monitoring program for assessing effects of recreational use on high elevation communities and the species that occur in these communities, implementation of an overnight wilderness permitting process that provides visitor education on sensitive resource issues, prohibition of camping in sensitive areas, as determined through monitoring, removal of selected informal high elevation and alpine campsites, and implementation of a weed management strategy.

USFWS management of the DNWR includes significant constraints on recreation access and other activities including exclusion of OHV, grazing, mining, and other intensive land uses.

### e. Adequacy of Existing Management

About 93.6 percent of the habitat is within IMAs and LIMAs (USFS wilderness areas, Spring Mountains NRA, and in the DNWR) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Approximately 6.3 percent is in UMAs (privately held) and may be used for more intensive recreation, including snow play, skiing, camping, and private residential and commercial recreational uses.

Implementation of existing USFWS and USFS management actions and the CA for the Spring Mountains NRA will adequately address the ecosystem level threats affecting Covered Species within the bristlecone pine habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The bristlecone pine habitat and the 24 Covered Species it supports will benefit from the MSHCP through general public education and information programs; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations from the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.3 Mixed Conifer Forest Ecosystem

### a. Description and Distribution

The mixed conifer ecosystem in Clark County covers 56,400 acres of Clark County and includes white fir, ponderosa pine, and ponderosa pine/mountain shrub community types (Figure 2-7). Conifer forest is found in the Spring and Sheep Mountains on generally north- and east-facing slopes at elevations between 7,500 and 10,800 feet. White fir inhabits the warmest and driest habitats of all the fir species. Ponderosa pine is the most extensive of the conifer woodland habitats in Clark County ranging from 3,900 to 8,800 feet. Ponderosa pine/mountain shrub is an extension of the conifer forest community characterized by lower canopy coverage of ponderosa pine and codominance of mountain shrubs.

White fir and ponderosa pine communities are found in the Spring and Sheep Mountains and ponderosa pine/mountain shrub communities are found in these ranges and also occur as small patches in the Virgin Mountains.

### b. MSHCP Species

The 33 Covered Species in the mixed conifer ecosystem include 3 species of bats, Palmer's chipmunk, 1 raptor, 1 lizard, 1 snake, 8 butterflies, 17 vascular plants, and 1 non-vascular plant.

***Covered Species:***

| | |
|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* |
| Long-eared myotis | *Myotis evotis* |
| Long-legged myotis | *Myotis volans* |
| Palmer's chipmunk | *Tamias palmeri* |
| American peregrine falcon | *Falco peregrinus anatum* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Sonoran lyre snake | *Trimorphodon biscutatus lambda* |
| Dark blue butterfly | *Euphilotes enoptes purpurea* |
| Spring Mountains icarioides blue | *Icaricia icarioides austinorum* |
| Spring Mountains/Mt. Charleston blue butterfly | *Icaricia shasta charlestonensis* |
| Spring Mountains acastus checkerspot | *Chlosyne acastus robusta* |
| Morand's checkerspot butterfly | *Euphydryas anicia morandi* |
| Carole's silverspot butterfly | *Speyeria zerene carolae* |
| Nevada admiral | *Limenitus weidemeyerii nevadae* |
| Spring Mountains comma skipper | *Hesperia comma mojavensis* |
| Clokey milkvetch | *Astragalus aequalis* |
| Clokey eggvetch | *Astragalus oophorus* var. *clokeyanus* |
| Rough angelica | *Angelica scabrida* |
| Rosy king sandwort | *Arenaria kingii* ssp. *rosea* |
| Clokey paintbrush | *Castelleja martinii* var. *clokeyi* |
| Clokey thistle | *Cirsium clokeyi* |
| Inch high fleabane | *Erigeron uncialis* ssp. *conjugans* |
| Clokey greasebush | *Glossopetalon clokeyi* |

| | |
|---|---|
| Red Rock Canyon aster | *Ionactis caelestis* |
| Jaeger ivesia | *Ivesia jaegeri* |
| Hitchcock bladderpod | *Lesquerella hitchcockii* |
| Charleston pinewood lousewort | *Pedicularis semibarbata* var. *charlestonensis* |
| Jaeger beardtongue | *Penstemon thompsoneae* var. *jaegeri* |
| Clokey mountain sage | *Salvia dorrii* var. *clokeyi* |
| Charleston kittentails | *Synthyris ranunculina* |
| Charleston grounddaisy | *Townsendia jonesii* var. *tumulosa* |
| Limestone (Charleston) violet | *Viola purpurea* var. *charlestonensis* |
| *Dicranoweisia crispula* | *Dicranoweisia crispula* |

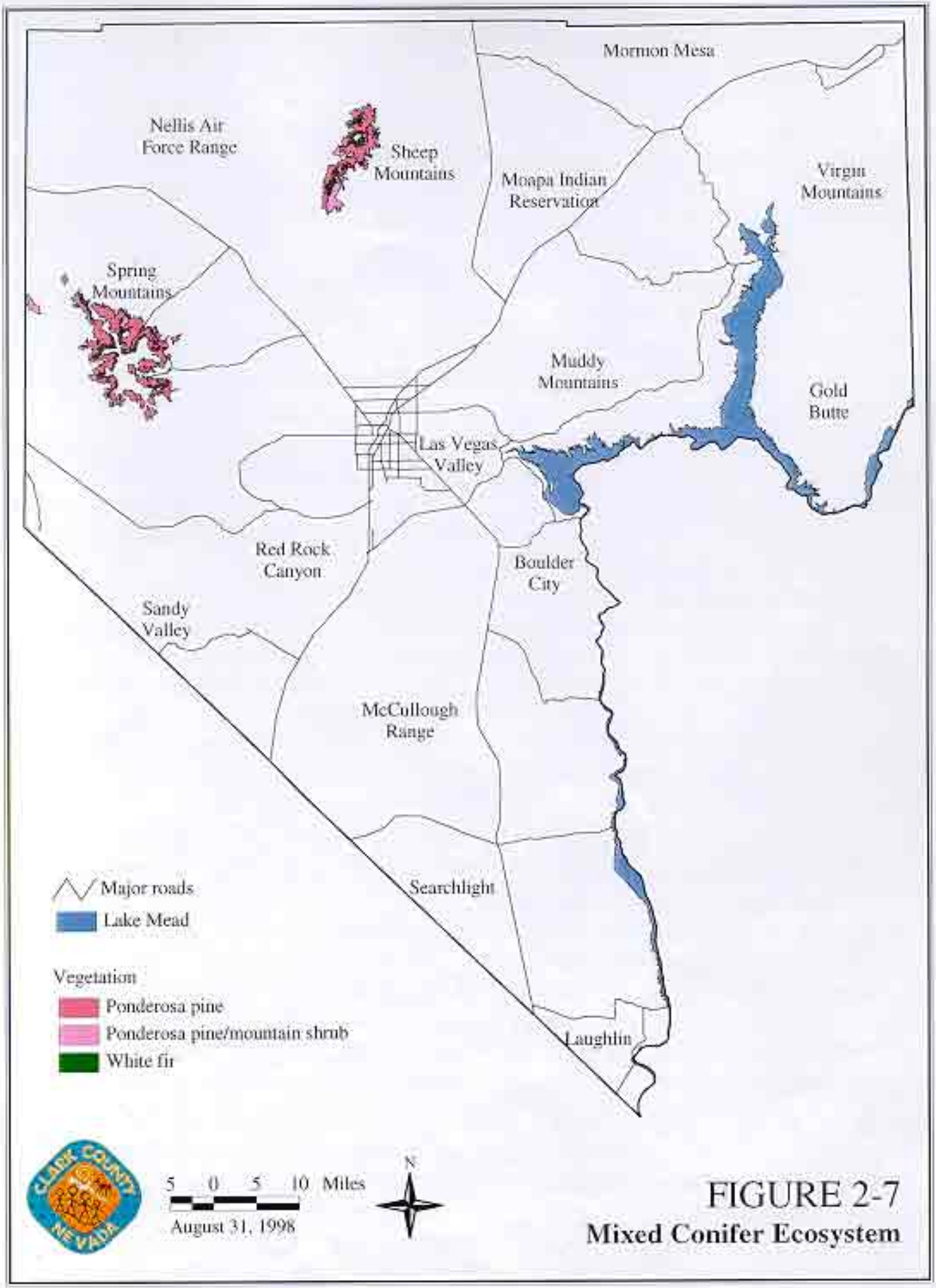
## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in mixed conifer are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301,** vegetation community conversion **Threat 302**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (pesticides and herbicides **Threat 602**)
- Grazing (wild horse and burro grazing and trampling **Threat 701**)
- Mining (**Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102**)
- Utilities (collisions and electrocution with power lines **Threat 1201**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404,** overutilization by animals **Threat 1405**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** increased risk of fire due to exotic plants **Threat 1503**)
- Feral animals (feral animals and uncontrolled pets **Threat 1601**)

## d. Existing and Proposed Conservation Actions

Of the total of 56,400 acres of mixed conifer habitat, 63.1 percent is managed by USFS (Wilderness, WSA, and Spring Mountains NRA) and 34.3 percent by USFWS (DNWR). Within the forest, private inholdings total 2.6 percent.




# FIGURE 2-7
## Mixed Conifer Ecosystem

A total of 97.4 percent of the 56,400 acres of mixed conifer habitat is managed by the USFS within the Spring Mountains NRA or the Desert National Wildlife Range. Nearly 82 percent is managed (wilderness, WSA, or DNWR) for primitive, non-motorized, dispersed recreational use. The habitat located within the Spring Mountains NRA is managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails. Both of these areas are closed to new mining claims (open to existing valid claims), livestock grazing, and off-road motorized recreational vehicle use and are actively managed for habitat conservation.

The CA for the Spring Mountains NRA identifies general management actions for high elevation habitats, including development and implementation of a monitoring program for assessing effects of recreational use on high elevation communities and the species that occur in these communities, implementation of an overnight wilderness permitting process that provides visitor education on sensitive resource issues, prohibition of camping in sensitive areas, as determined through monitoring, removal of selected informal high elevation campsites, wild horse and burro management, and implementation of a weed management strategy.

### e. Adequacy of Existing Management

A total of 97.4 percent of the habitat is within IMAs and LIMAs (USFS wilderness areas or in the Desert National Wildlife Range) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Privately held lands (UMAs) account for 2.6 percent and may be used for more intensive recreation, including snow play, camping, and private residential and commercial recreational uses.

Implementation of existing USFWS management actions and the CA for the Spring Mountains NRA will adequately address the ecosystem level threats affecting Covered Species within the mixed conifer habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The mixed conifer forest habitat and the 33 Covered Species it supports will benefit from the MSHCP through general public education and information programs; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.4 Pinyon-Juniper Ecosystem

### a. Description and Distribution

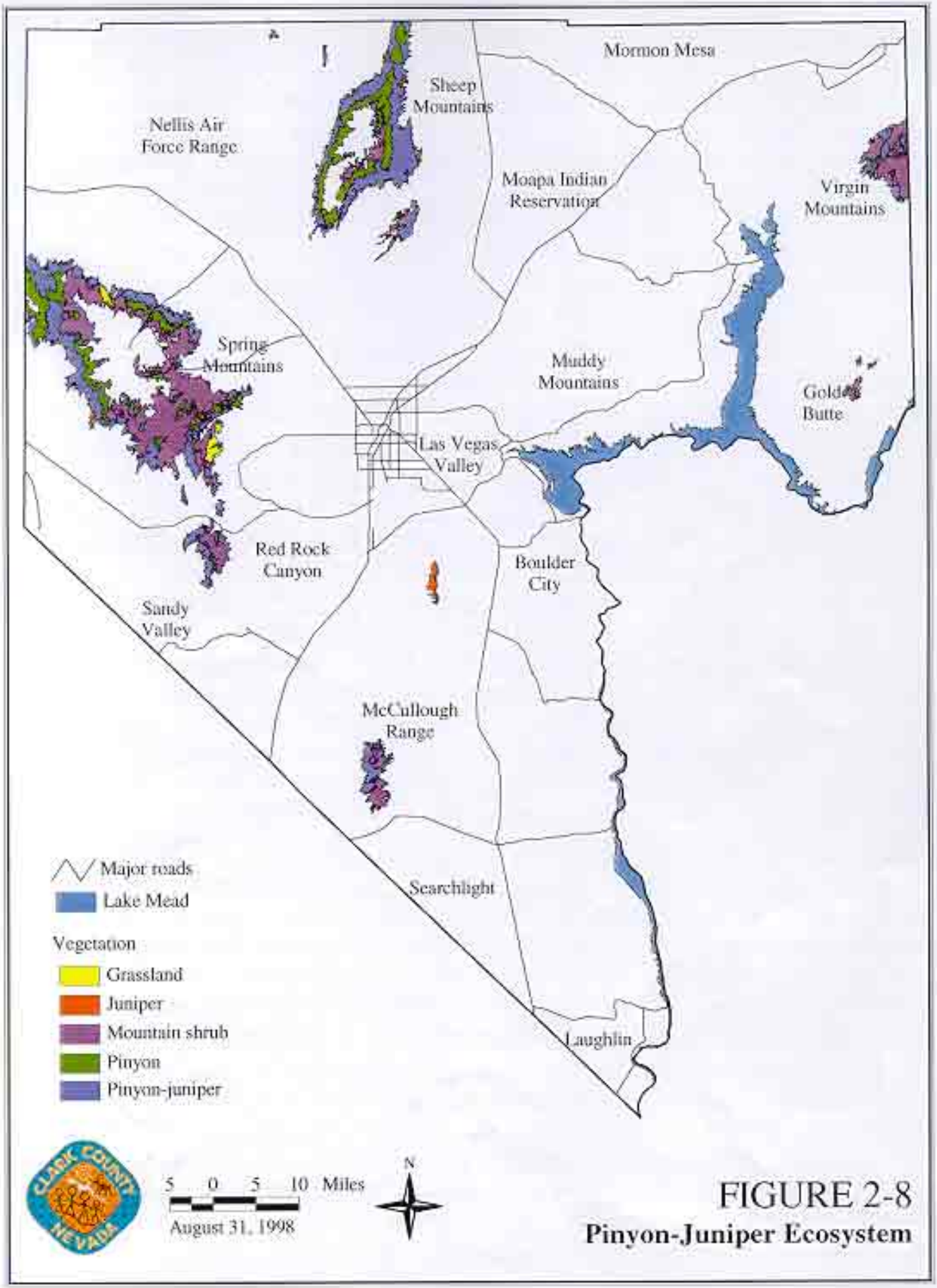
The pinyon-juniper ecosystem in Clark County includes mountain shrub, pinyon, pinyon-juniper, and juniper community types (Figure 2-8). In Clark County, communities which compose the pinyon-juniper ecosystem are distributed as elevational bands around the Spring Mountains, Sheep Mountains, and Virgin Mountains with an island community in the McCullough Mountains at elevations ranging from 4,900 to 8,200 feet.

### b. MSHCP Species

The pinyon-juniper ecosystem provides habitat for 30 Covered Species and 5 High Priority Evaluation Species.

***Covered Species:***

| | |
|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* |
| Long-eared myotis | *Myotis evotis* |
| Long-legged myotis | *Myotis volans* |
| Palmer's chipmunk | *Tamias palmeri* |
| American peregrine falcon | *Falco peregrinus anatum* |
| Banded gecko | *Coleonyx variegatus* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Large-spotted leopard lizard | *Gambelia wislizenii wislizenii* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Speckled rattlesnake | C*rotalus mitchelli* |
| Dark blue butterfly | *Euphilotes enoptes purpurea* |
| Spring Mountains icarioides blue | *Icaricia icarioides austinorum* |
| Spring Mountains acastus checkerspot | *Chlosyne acastus robusta* |
| Morand's checkerspot butterfly | *Euphydryas anicia morandi* |
| Carole's silverspot butterfly | *Speyeria zerene carolae* |
| Nevada admiral | *Limenitus weidemeyerii nevadae* |
| Spring Mountains comma skipper | *Hesperia comma mojavensis* |
| Clokey eggvetch | *Astragalus oophorus* var. *clokeyanus* |
| Clokey milkvetch | *Astragalus aequalis* |
| Spring Mountains milkvetch | *Astragalus remotus* |
| Inch high fleabane | *Erigeron uncialis* ssp. *conjugans* |
| Smooth pungent (dwarf) greasebush | *Glossopetalon pungens* var. *glabra* |
| Pungent dwarf greasebush | *Glossopetalon pungens* var. *pungens* |
| Jaeger beardtongue | *Penstemon thompsoneae* var. *jaegeri* |
| Clokey mountain sage | *Salvia dorrii* var. *clokeyi* |
| Charleston grounddaisy | *Townsendia jonesii* var. *tumulosa* |
| *Anacolia menziesii* | *Anacolia menziesii* |
| *Claopodium whippleanum* | *Claopodium whippleanum* |
| *Dicranoweisia crispula* | *Dicranoweisia crispula* |
| *Syntrichia princeps* | *Syntrichia princeps* |




# FIGURE 2-8

**Pinyon-Juniper Ecosystem**

***High Priority Evaluation Species:***

| | |
|---|---|
| Kit fox | *Vulpes macrotus* |
| Western burrowing owl | *Athene cunicularia hypugea* |
| Banded Gila monster | *Heloderma suspectum cinctum* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |
| Curve-podded Mojave milkvetch | *Astragalus mohavensis* var. *hemigyrus* |

## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in pinyon-juniper are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301,** vegetation community conversion **Threat 302**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)
- Grazing (wild horse and burro grazing and trampling **Threat 701**)
- Military activities (target sites, roads, or other military access locations **Threat 801,** military facilities construction and maintenance **Threat 802**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102**)
- Utilities (collisions and electrocution with power lines **Threat 1201**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404,** overutilization by animals **Threat 1405**)
- Exotic and introduced species (increased risk of fire due to exotic plants **Threat 1503**)
- Feral animals (feral animals and uncontrolled pets **Threat 1601**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701**)

## d. Existing and Proposed Conservation Actions

Of the total of 277,800 acres of pinyon-juniper habitat, 50.0 percent is managed by USFS (Spring Mountains NRA, WSA, and Wilderness), 27.6 percent by USFWS (DNWR), and 20.9 percent by BLM (WSA, undesignated, NCA, and conserved and critical habitat). Private holdings total 1.5 percent.

A total of 62.1 percent of the 277,800 acres of pinyon-juniper habitat is managed for primitive, non-motorized, dispersed recreational use (wilderness, WSA, or DNWR). The 29.3 percent of the habitat located within the Spring Mountains NRA and Red Rock Canyon NCA is managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails. Both of these areas are closed to new mining claims, livestock grazing, and off-road motorized recreational vehicle use and are actively managed for habitat conservation.

The CA for the Spring Mountains NRA identifies general management actions for mid elevation habitats, including recreation site monitoring, campground management, environmental education programs, fire management, focusing of recreation development outside of sensitive areas, habitat restoration and enhancement at recreation sites, wild horse and burro management, and implementation of a weed management strategy.

## e. Adequacy of Existing Management

A total of 91.9 percent of the habitat is within IMAs and LIMAs (Spring Mountains NRA, the Desert National Wildlife Range, BLM WSA and critical habitat, USFS wilderness and WSA, and BLM NCA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Approximately 6.7 percent of the habitat is in MUMA (BLM undesignated lands) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. Approximately 1.5 percent is UMA (privately held) and may be used for more intensive recreation, including snow play, camping, and private residential and commercial recreational uses.

Implementation of existing BLM and USFWS management actions and the CA for the Spring Mountains NRA (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within the pinyon-juniper habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The pinyon-juniper habitat and the 30 Covered Species it supports will benefit from the MSHCP through general public education and information programs; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.5 Sagebrush Ecosystem

### a. Description and Distribution

The sagebrush ecosystem in Clark County includes sagebrush and sagebrush/perennial grass community types (Figure 2-9). Sagebrush communities are found in the Spring, Sheep, and Virgin Mountains, typically ranging in elevation from 4,900 to 9,200 feet.

### b. MSHCP Species

The sagebrush ecosystem provides habitat for 20 Covered and 5 High Priority Evaluation Species.

***Covered Species:***

| | |
|---|---|
| Long-eared myotis | *Myotis evotis* |
| Long-legged myotis | *Myotis volans* |
| American peregrine falcon | *Falco peregrinus anatum* |
| Desert tortoise | *Gopherus agassizii* |
| Banded gecko | *Coleonyx variegatus* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Large-spotted leopard lizard | *Gambelia wislizenii wislizenii* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Speckled rattlesnake | C*rotalus mitchelli* |
| Dark blue butterfly | *Euphilotes enoptes purpurea* |
| Spring Mountains icarioides blue | *Icaricia icarioides austinorum* |
| Spring Mountains acastus checkerspot | *Chlosyne acastus robusta* |
| Carole's silverspot butterfly | *Speyeria zerene carolae* |
| Spring Mountains comma skipper | *Hesperia comma mojavensis* |
| Clokey milkvetch | *Astragalus aequalis* |
| Spring Mountains milkvetch | *Astragalus remotus* |
| Inch high fleabane | *Erigeron uncialis* ssp. *conjugans* |
| Smooth pungent (dwarf) greasebush | *Glossopetalon pungens* var. *glabra* |
| Pungent dwarf greasebush | *Glossopetalon pungens* var. *pungens* |
| *Anacolia menziesii* | *Anacolia menziesii* |

***High Priority Evaluation Species:***

| | |
|---|---|
| Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* |
| Kit fox | *Vulpes macrotus* |
| Western burrowing owl | *Athene cunicularia hypugea* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |
| Curve-podded Mojave milkvetch | *Astragalus mohavensis* var. *hemigyrus* |

## c. Potential Threats and Stressors

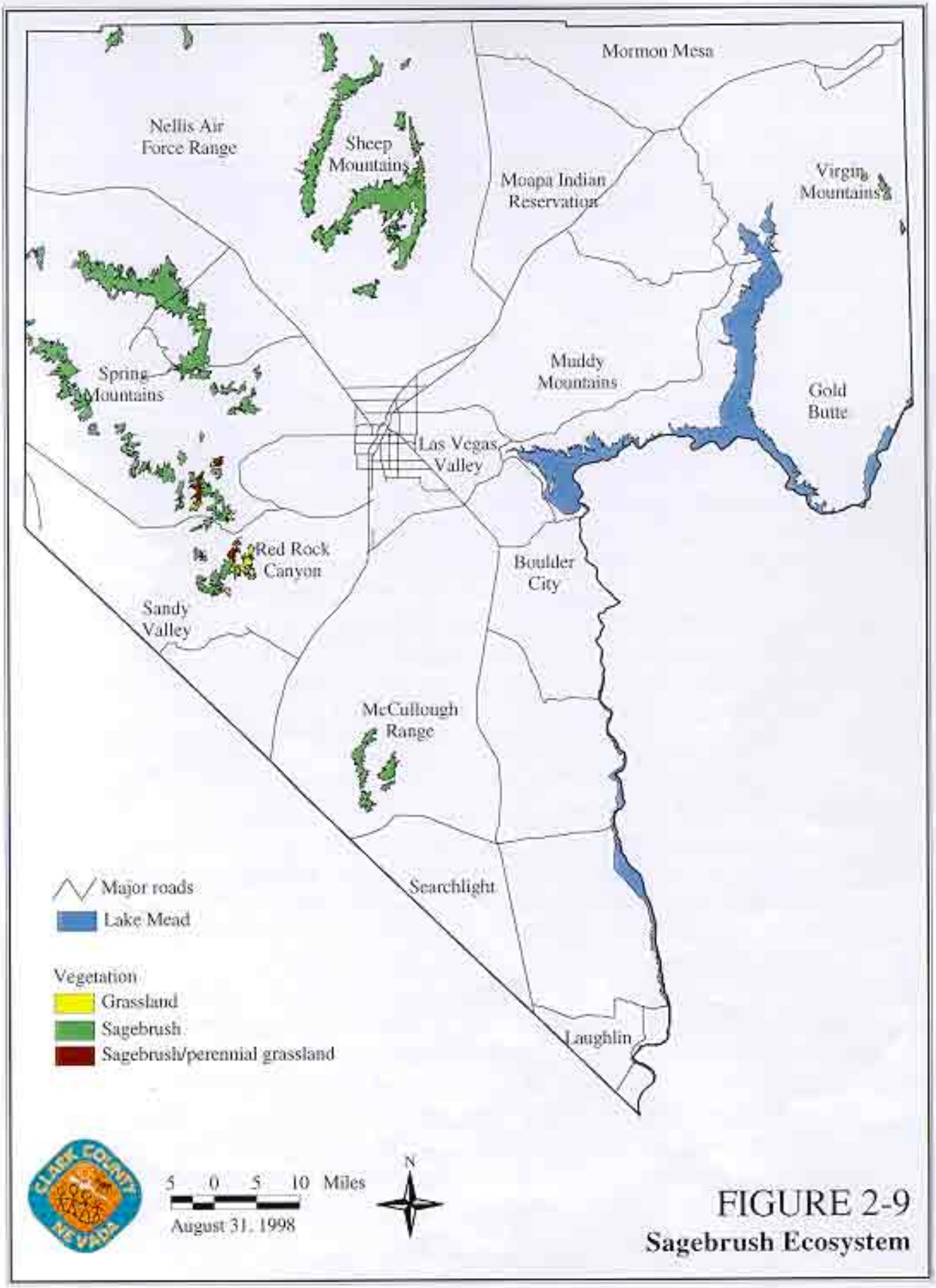
The primary ecosystem level threats and stressors in sagebrush are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301,** vegetation community conversion **Threat 302**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)
- Grazing (wild horse and burro grazing and trampling **Threat 701,** competition with cattle and equids **Threat 702,** livestock grazing and trampling **Threat 703**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102**)
- Utilities (collisions and electrocution with power lines **Threat 1201,** provision of perch sites for ravens **Threat 1203**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404,** overutilization by animals **Threat 1405**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** subsidized and parasitic species **Threat 1502,** increased risk of fire due to exotic plants **Threat 1503**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701**)

## d. Existing and Proposed Conservation Actions

Of the total of 134,600 acres of sagebrush habitat, 41.2 percent is managed by USFWS (DNWR, NAFR), 30.5 percent by USFS (Spring Mountains NRA and WSA), and 27.4 percent by BLM (WSA, undesignated, NCA, and conserved habitat). Private holdings total less than 1 percent.

A total of 57.8 percent of the 134,600 acres of sagebrush habitat is managed for primitive, non-motorized, dispersed recreational use (WSA or DNWR). The 29.1 percent of the habitat located within the Spring Mountains NRA and Red Rock Canyon NCA is managed for both conservation and a broader spectrum of recreational uses, including




# FIGURE 2-9
## Sagebrush Ecosystem

intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails. Both of these areas are closed to new mining, livestock grazing, and off-road motorized recreational vehicle use and are actively managed for habitat conservation. BLM undesignated lands (12.1 percent) are managed to balance multiple uses, including mining, OHV activities, grazing, and other activities with maintenance of habitat and species values.

The CA for the Spring Mountains NRA identifies general management actions for mid elevation habitats, including recreation site monitoring, campground management, environmental education programs, fire management, focusing recreation development outside of sensitive areas, habitat restoration and enhancement at recreation sites, wild horse and burro management, and implementation of a weed management strategy.

### e. Adequacy of Existing Management

A total of 87.2 percent of the habitat is within IMAs and LIMAs (DNWR, Spring Mountains NRA, BLM WSA and critical habitat, and BLM NCA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. MUMAs (BLM undesignated lands) account for 12.1 percent of the habitat and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. Less than 1 percent is UMA (privately held) and may be used for more intensive activities.

Implementation of existing USFWS and BLM management actions, the provisions of the BLM Las Vegas RMP, and the CA for the Spring Mountains NRA (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within the sagebrush habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The sagebrush habitat and the 20 Covered Species it supports will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.6 Blackbrush Ecosystem

### a. Description and Distribution

Although the blackbrush community is typically considered a part of the Mojave desert scrub ecosystem, for management purposes it is considered and will be managed at the ecosystem level. In Clark County the blackbrush ecosystem occurs on upper bajadas, slopes, and valleys below 5,900 feet (Figure 2-10).

### b. MSHCP Species

The blackbrush ecosystem provides habitat for 11 Covered and 7 High Priority Evaluation Species.

***Covered Species:***

| | |
|---|---|
| Desert tortoise | *Gopherus agassizii* |
| Banded gecko | *Coleonyx variegatus* |
| Western chuckwalla | *Sauromalus obesus obesus* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Large-spotted leopard lizard | *Gambelia wislizenii wislizenii* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Speckled rattlesnake | *Crotalus mitchelli* |
| Mojave green rattlesnake | *Crotalus scutulatus scutulatus* |
| White bearpoppy | *Arctomecon merriamii* |
| Spring Mountains milkvetch | *Astragalus remotus* |
| White-margined beardtongue | *Penstemon albomarginatus* |

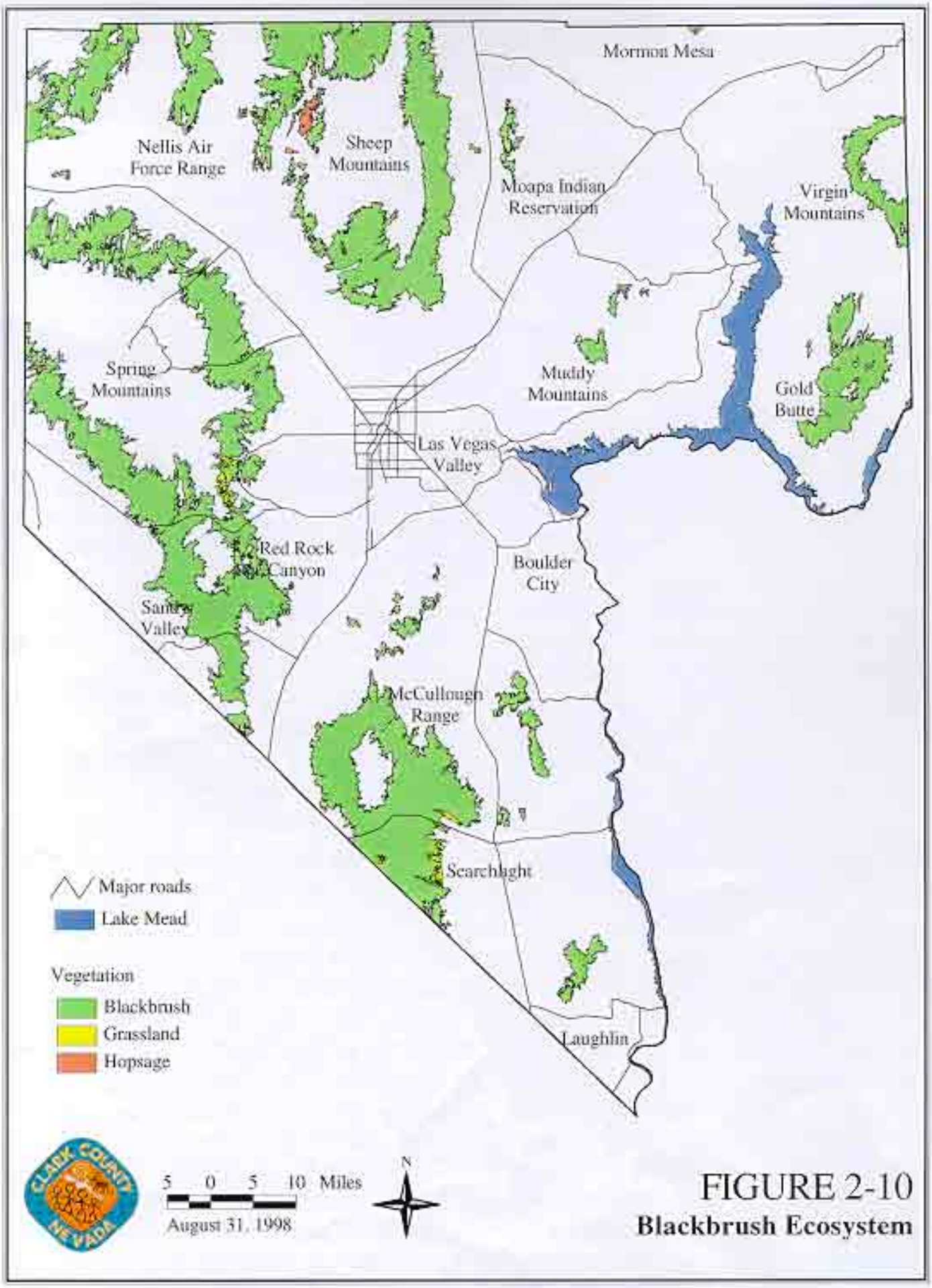
***High Priority Evaluation Species:***

| | |
|---|---|
| Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* |
| Kit fox | *Vulpes macrotus* |
| Desert kangaroo rat | *Dipodomys deserti* |
| Banded Gila monster | *Heloderma suspectum cinctum* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |
| Curve-podded Mojave milkvetch | *Astragalus mohavensis* var. *hemigyrus* |
| Yellow twotone beardtongue | *Penstemon bicolor* ssp. *bicolor* |

### c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in blackbrush are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301,** vegetation community conversion **Threat 302**)




# FIGURE 2-10
**Blackbrush Ecosystem**

- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)
- Grazing (wild horse and burro grazing and trampling **Threat 701,** competition with cattle and equids **Threat 702,** livestock grazing and trampling **Threat 703**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102,** landfills **Threat 1103**)
- Utilities (facility construction and maintenance **Threat 1202,** provision of perch sites for ravens **Threat 1203**)
- Water development and use in riparian areas (channelization **Threat 1301,** water diversion and groundwater pumping **Threat 1302,** decreased water availability **Threat 1303,** grazing and agriculture **Threat 1304**)
- Water development and use at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404,** overutilization by animals **Threat 1405**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** subsidized and parasitic species **Threat 1502,** increased risk of fire due to exotic plants **Threat 1503**)
- Feral animals (feral animals and uncontrolled pets **Threat 1601**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701**)

### d. Existing and Proposed Conservation Actions

Of the total 824,700 acres of blackbrush habitat, 61.5 percent is managed by BLM (undesignated, WSA, NCA, and conserved habitat), 31.7 percent by USFWS (DNWR and NAFR), and 5.2 percent by USFS (Spring Mountains NRA and WSA), and less than 1 percent by NPS (Lake Mead NRA). Private holdings and portions of the USAF ISAFAF total 1.1 percent.

Approximately 43.1 percent of the 824,700 acres of blackbrush habitat is managed for primitive, non-motorized, dispersed recreational use (wilderness, WSA, or DNWR). The 11.7 percent of the habitat located within the Spring Mountains NRA and Red Rock Canyon NCA is managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails. Both of these areas are closed to new mining, livestock grazing, and off-road motorized

recreational vehicle use and are actively managed for habitat conservation. BLM undesignated lands (33.9 percent) are managed to balance multiple uses, including mining, OHV activities, grazing, and other activities with maintenance of habitat and species values.

### e. Adequacy of Existing Management

About 65.0 percent of the habitat is within IMAs and LIMAs (DNWR, BLM WSA, NCA, and critical habitat, Spring Mountains NRA and WSA, and Lake Mead NRA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Approximately 33.9 percent of the habitat is in MUMA (BLM undesignated lands) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. Approximately 1.1 percent of the habitat is UMA (privately held and USAF ISAFAF) and may be used for more intensive uses.

Implementation of existing USFWS and BLM management actions, the provisions of the BLM Las Vegas RMP, and the CA for the Spring Mountains NRA (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within the sagebrush habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

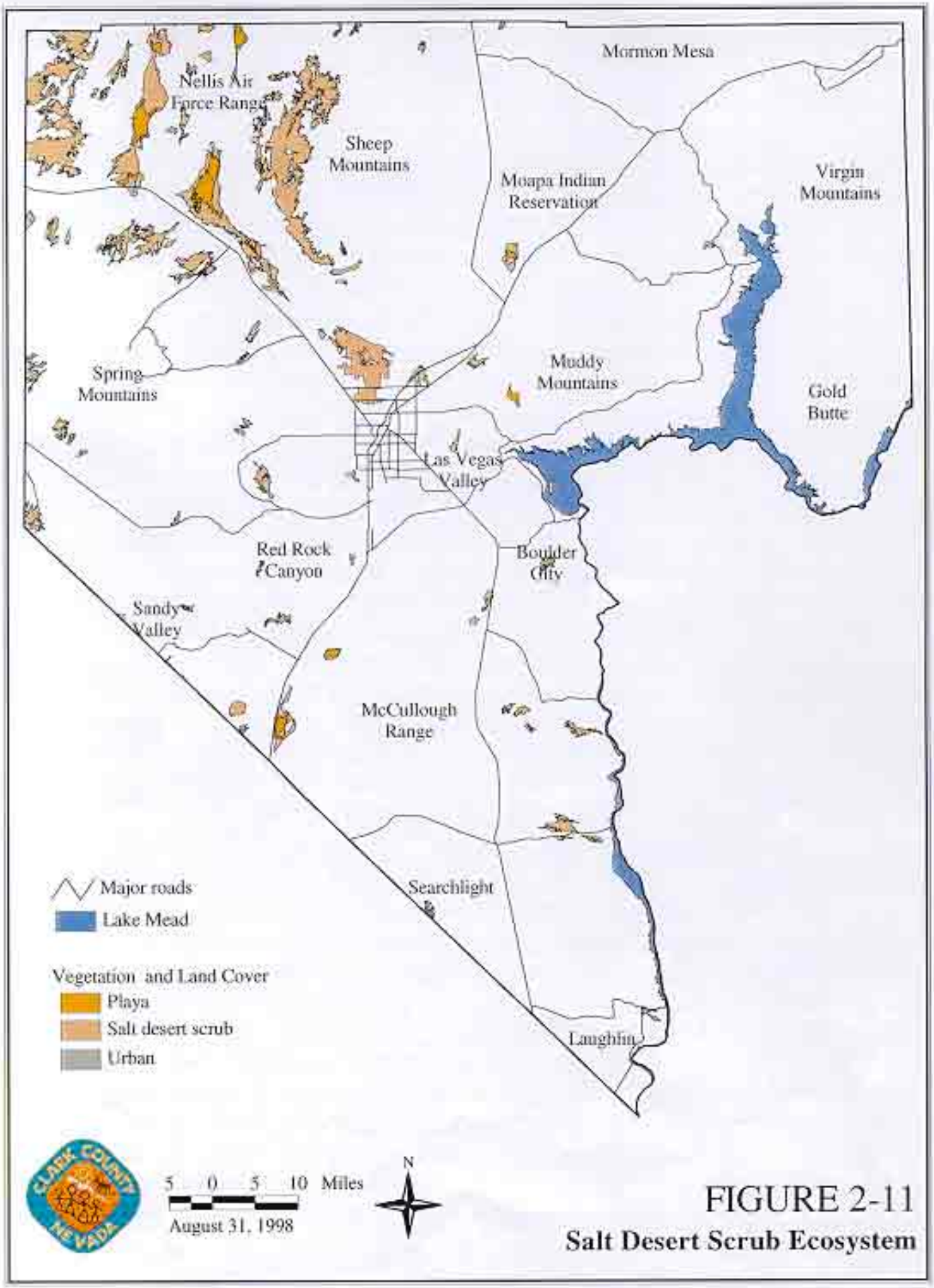
### f. MSHCP Conservation Contributions

The blackbrush habitat and the 11 Covered Species it supports will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.7 Salt Desert Scrub Ecosystem

### a. Description and Distribution

In Clark County the salt desert scrub ecosystem (190,700 acres) occurs between 3,250 feet and 5,800 feet elevation and occurs in a mosaic pattern within stands of creosote-bursage and blackbrush communities (Figure 2-11). Saltbush is commonly found on playas, intermountain basins, and localized depressions where poorly draining, silty loam soils develop into desert pavement. The salt desert scrub ecosystem is composed of playa (barren, undrained desert basins), areas of urban development, and salt desert scrub vegetation.




# FIGURE 2-11

**Salt Desert Scrub Ecosystem**

## b. MSHCP Species

The salt desert scrub ecosystem provides habitat for 16 Covered Species and 4 High Priority Evaluation Species.

***Covered Species:***

| | |
|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* |
| Long-eared myotis | *Myotis evotis* |
| Desert tortoise | *Gopherus agassizii* |
| Desert iguana | *Dipsosaurus dorsalis* |
| Large-spotted leopard lizard | *Gambelia wislizenii wislizenii* |
| Western leaf-nosed snake | *Phyllorhynchus decurtatus* |
| Glossy snake | *Arizona elegans* |
| California (common) kingsnake | *Lampropeltis getulus californiae* |
| Western long-nosed snake | *Rhinocheilus lecontei lecontei* |
| Speckled rattlesnake | *Crotalus mitchelli* |
| Sidewinder | *Crotalus cerastes* |
| Western chuckwalla | *Sauromalus obesus obesus* |
| Sticky ringstem | *Anulocaulis leisolenus* |
| Las Vegas bearpoppy | *Arctomecon californica* |
| White bearpoppy | *Arctomecon merriamii* |
| Forked buckwheat | *Eriogonum bifurcatum* |
| Parish's phacelia | *Phacelia parishii* |

***High Priority Evaluation Species:***

| | |
|---|---|
| Kit fox | *Vulpes macrotus* |
| Desert kangaroo rat | *Dipodomys deserti* |
| Desert pocket mouse | *Chaetodipus penicillatus sobrinus* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |

## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in salt desert scrub are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)

- Grazing (wild horse and burro grazing and trampling **Threat 701,** competition with cattle and equids **Threat 702,** livestock grazing and trampling **Threat 703**)
- Military activities (target sites, roads, or other military access locations **Threat 801,** military facilities construction and maintenance **Threat 802**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902,** toxic waste ponds **Threat 903**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102,** landfills **Threat 1103**)
- Utilities (provision of perch sites for ravens **Threat 1203**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** subsidized and parasitic species **Threat 1502**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701,** illegal waste ponds, dumping, and waste disposal **Threat 1702**)

### d. Existing and Proposed Conservation Actions

Of the total of 190,700 acres of salt desert scrub habitat, 62.3 percent is managed by USFWS (DNWR and NAFR), 25.5 percent by BLM (undesignated, WSA, NCA, and conserved habitat), 1.5 percent by NPS (Lake Mead NRA), and less than 1 percent by USFS (Spring Mountains NRA). Private holdings and portions of the USAF ISAFAF and NAFB total 10.4 percent.

Approximately 56.0 percent of the 190,700 acres of salt desert scrub habitat is managed for primitive, non-motorized, dispersed recreational use (wilderness, WSA, or DNWR). An additional 7.0 percent of the habitat is managed by USFWS in the DNWR and is very restricted in access but is within impact areas used by the USAF. BLM undesignated lands (20.7 percent) are managed to balance multiple uses, including mining, OHV activities, grazing, and other activities with maintenance of habitat and species values. The 2.8 percent of the habitat located within the Spring Mountains NRA and Red Rock Canyon NCA is managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails. Both of these areas are closed to new mining, livestock grazing, and off-road motorized recreational vehicle use and are actively managed for habitat conservation.

### e. Adequacy of Existing Management

A total of 68.8 percent of the habitat is within IMAs and LIMAs (DNWR, NAFR, BLM NCA, WSA, and critical habitat, Spring Mountains NRA, and Lake Mead NRA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Approximately 20.7 percent of the habitat is in MUMA (BLM

undesignated lands) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. A total of 10.4 percent is UMA (privately held and USAF ISAFAF and NAFB) and may be used for more intensive activities.

Implementation of existing USFWS and BLM management actions, the provisions of the BLM Las Vegas RMP, and the CA for the Spring Mountains NRA (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within the salt desert scrub habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The salt desert scrub habitat and the 16 Covered Species it supports will benefit from the MSHCP through general public education and information programs; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.8 Mojave Desert Scrub Ecosystem

### a. Description and Distribution

The Mojave desert is the smallest of the four North American deserts and is intermediate both geographically and floristically between the Great Basin desert to the north and the Sonoran desert to the south (Turner 1982). Although smaller than the other desert biomes, it is the most widespread ecosystem in Clark County. Shrublands in this ecosystem occur below 4,000 feet and include two major plant communities, Mojave mixed scrub and creosote-bursage (Figure 2-12).

### b. MSHCP Species

The Mojave desert scrub ecosystem provides habitat for 24 Covered Species and 8 High Priority Evaluation Species.

***Covered Species:***

| | |
|---|---|
| Desert tortoise | *Gopherus agassizii* |
| Banded gecko | *Coleonyx variegatus* |
| Desert iguana | *Dipsosaurus dorsalis* |
| Western chuckwalla | *Sauromalus obesus obesus* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Large-spotted leopard lizard | *Gambelia wislizenii wislizenii* |
| Western leaf-nosed snake | *Phyllorhynchus decurtatus* |

| | |
|---|---|
| Sonoran lyre snake | *Trimorphodon biscutatus lambda* |
| Glossy snake | *Arizona elegans* |
| California (common) kingsnake | *Lampropeltis getulus californiae* |
| Western long-nosed snake | *Rhinocheilus lecontei lecontei* |
| Speckled rattlesnake | *Crotalus mitchelli* |
| Sidewinder | *Crotalus cerastes* |
| Mojave green rattlesnake | *Crotalus scutulatus scutulatus* |
| Blue Diamond cholla | *Opuntia whipplei* var. *multigeniculata* |
| Sticky ringstem | *Anulocaulis leisolenus* |
| Las Vegas bearpoppy | *Arctomecon californica* |
| White bearpoppy | *Arctomecon merriamii* |
| Threecorner milkvetch | *Astragalus geyeri* var. *triquetrus* |
| Spring Mountains milkvetch | *Astragalus remotus* |
| Alkali mariposa lily | *Calochortus striatus* |
| Sticky buckwheat | *Eriogonum viscidulum* |
| White-margined beardtongue | *Penstemon albomarginatus* |

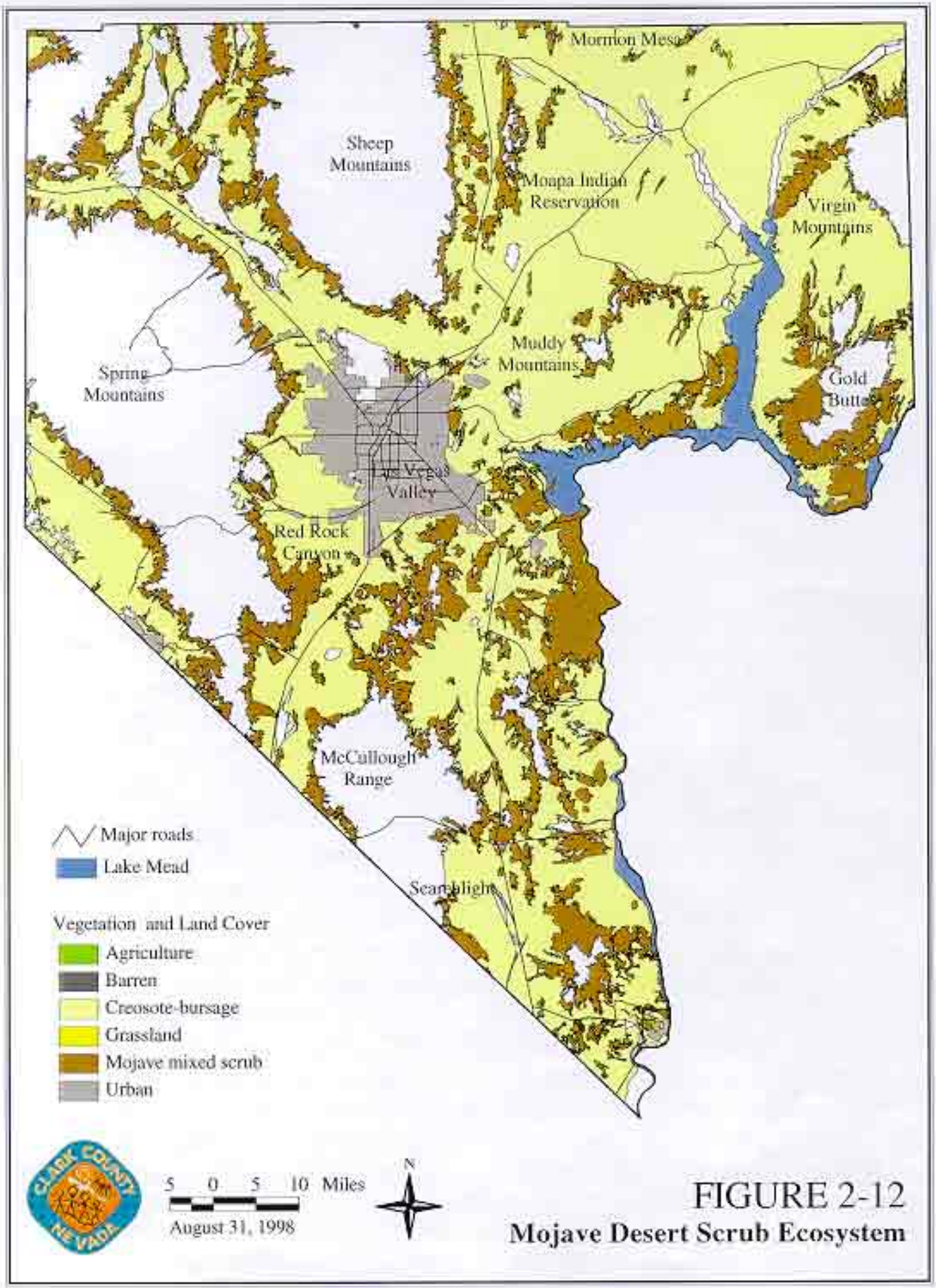
***High Priority Evaluation Species:***

| | |
|---|---|
| Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* |
| Kit fox | *Vulpes macrotus* |
| Desert kangaroo rat | *Dipodomys deserti* |
| Desert pocket mouse | *Chaetodipus penicillatus sobrinus* |
| Western burrowing owl | *Athene cunicularia hypugea* |
| Banded Gila monster | *Heloderma suspectum cinctum* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |
| Yellow twotone beardtongue | *Penstemon bicolor* ssp. *bicolor* |

## c. Potential Threats and Stressors

This lowland ecosystem is the most extensive in Clark County and has a wide range of potential threats and stressors. It is the primary ecosystem type for desert tortoise, comprising over one-half of its range and encompassing the majority of conserved and critical habitat. The primary ecosystem level threats and stressors in Mojave desert scrub are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (vegetation community conversion **Threat 302**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)




# FIGURE 2-12

**Mojave Desert Scrub Ecosystem**

- Grazing (wild horse and burro grazing and trampling **Threat 701,** competition with cattle and equids **Threat 702,** livestock grazing and trampling **Threat 703**)
- Military activities (target sites, roads, or other military access locations **Threat 801,** military facilities construction and maintenance **Threat 802**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102,** landfills **Threat 1103**)
- Utilities (facility construction and maintenance **Threat 1202,** provision of perch sites for ravens **Threat 1203**)
- Water development, use, and flood control in riparian areas (water diversion and groundwater pumping **Threat 1302**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** subsidized and parasitic species **Threat 1502,** increased risk of fire due to exotic plants **Threat 1503**)
- Feral animals (feral animals and uncontrolled pets **Threat 1601**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701**)

### d. Existing and Proposed Conservation Actions

Mojave desert scrub is widespread and under multiple ownerships and management policies. Of the total of 3,273,100 acres of Mojave desert scrub habitat, 64.2 percent is managed by BLM (undesignated, WSA, NCA, and conserved habitat), 13.6 percent by NPS (Lake Mead NRA), 9.2 percent by USFWS (DNWR and NAFR), 2.6 percent by Boulder City (Boulder City easement), 1.0 percent by the State of Nevada (State Parks), and less than 1 percent by NDOW (Overton Wildlife Management Area [WMA]). Private holdings, Native American reservations, and portions of the USAF ISAFAF and NAFB total 8.7 percent.

A total of 18.3 percent of the 3,273,100 acres of Mojave desert scrub habitat is managed for primitive, non-motorized, dispersed recreational use (WSA or DNWR). An additional 1.3 percent of the habitat is managed by USFWS in the DNWR and is very restricted in access but is within impact areas used by the USAF. BLM undesignated lands (33.9 percent) are managed to balance multiple uses, including mining, OHV activities, grazing, and other activities with maintenance of habitat and species values. The 31.7 percent of the habitat located within BLM critical habitat, Boulder City easement, Overton WMA, Lake Mead NRA, State Parks, and Red Rock Canyon NCA is managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails.

### e. Adequacy of Existing Management

About 57.3 percent of the habitat is within IMAs and LIMAs (DNWR, NAFR, BLM NCA, WSA, and critical habitat, Spring Mountains NRA, Boulder City easement, Overton WMA, State Parks, and Lake Mead NRA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Approximately 33.9 percent of the habitat is in MUMA (BLM undesignated lands and the Lake Mead NRA) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. Approximately 8.7 percent is UMA (privately held, Native American reservation, and USAF ISAFAF and NAFB) and may be used for more intensive uses.

Implementation of existing USFWS, BLM, NPS, NDOW, State Parks management actions, and the provisions of the BLM Las Vegas RMP (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within the Mojave desert scrub habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The Mojave desert scrub habitat and the 24 Covered Species it supports will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

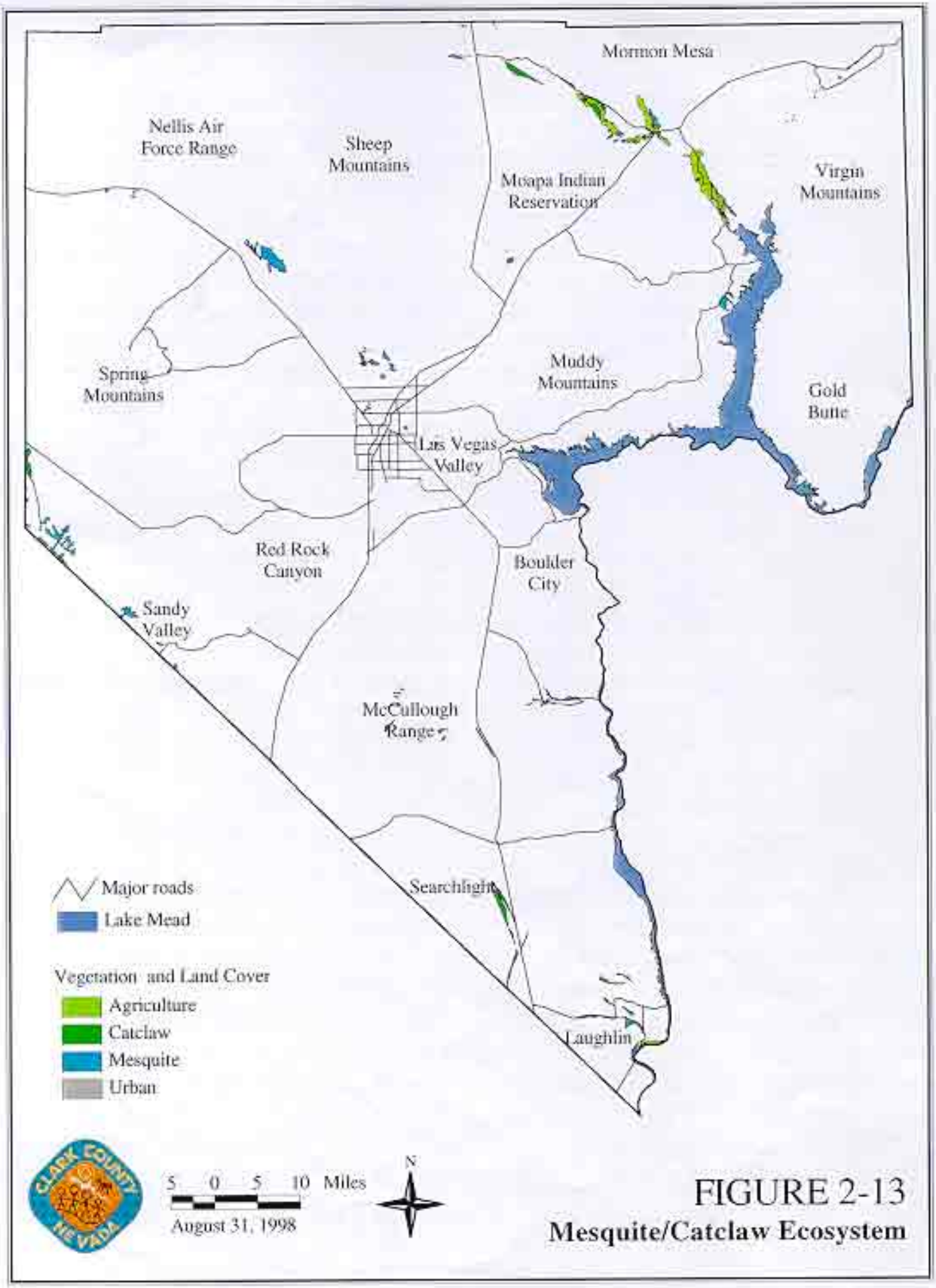
## 2.5.3.9 Mesquite/Catclaw Ecosystem

### a. Description and Distribution

Although the mesquite (*Prosopis glandulosa*) and catclaw (*Acacia greggii*) community is clearly nested within Mojave desert scrub biogeographically, for management purposes it is considered and will be managed at the ecosystem level. Mesquite-dominated communities typically inhabit the edges of large watercourses such as rivers and perennial streams, but they can also be found growing in scattered clumps on sandy hummocks and near desert springs as well (Figure 2-13). Catclaw-dominated communities occur along intermittent streams and sandy washes in both the Mojave and Sonoran deserts.

### b. MSHCP Species

The mesquite/catclaw ecosystem provides habitat for 11 Covered Species and 5 High Priority Evaluation Species.




# FIGURE 2-13
## Mesquite/Catclaw Ecosystem

***Covered Species:***

| | |
|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* |
| Long-eared myotis | *Myotis evotis* |
| Vermilion flycatcher | *Pyrocephalus rubinus* |
| Phainopepla | *Phainopepla nitens* |
| Banded gecko | *Coleonyx variegatus* |
| Desert iguana | *Dipsosaurus dorsalis* |
| Western chuckwalla | *Sauromalus obesus obesus* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Sidewinder | *Crotalus cerastes* |
| Forked buckwheat | *Eriogonum bifurcatum* |

***High Priority Evaluation Species:***

| | |
|---|---|
| Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* |
| Kit fox | *Vulpes macrotus* |
| Desert pocket mouse | *Chaetodipus penicillatus sobrinus* |
| Banded Gila monster | *Heloderma suspectum cinctum* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |

## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in mesquite/catclaw are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406,** spelunking **Threat 407**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102,** landfills **Threat 1103**)
- Water development, use, and flood control in riparian areas (channelization **Threat 1301,** water diversion and groundwater pumping **Threat 1302,** grazing and agriculture **Threat 1304**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404**)

- Illegal or unauthorized activities (illegal waste ponds, dumping, and waste disposal **Threat 1702**)

## d. Existing and Proposed Conservation Actions

Mesquite/catclaw is widely scattered across Clark County, occurring along the Virgin and Muddy Rivers, Las Vegas Valley, Sandy Valley, Piute Valley, Eldorado Canyon, and Laughlin. Of the total of 21,700 acres of mesquite/catclaw habitat, 58 percent is managed by BLM (undesignated, WSA, and conserved habitat), 7.8 percent by NPS (Lake Mead NRA), 10.5 percent by USFWS (DNWR and NAFR), and less than 1 percent by NDOW (Overton WMA). Private holdings and Native American reservations total 23.0 percent.

Approximately 13.8 percent of the 21,700 acres of mesquite/catclaw habitat is managed for primitive, non-motorized, dispersed recreational use (WSA or DNWR). BLM undesignated lands (36.8 percent) are managed to balance multiple uses, including mining, OHV activities, grazing, and other activities with maintenance of habitat and species values. The 26.2 percent of the habitat located within the BLM critical habitat, Overton WMA, and Lake Mead NRA is managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails.

BLM has identified specific monitoring and protective actions in its Draft Mesquite Woodland Habitat Management Plan for mesquite habitat within its management including monitoring, inventory, and management of OHV, mineral extraction, and grazing impacts (see Appendix D).

## e. Adequacy of Existing Management

A total of 39.6 percent of the habitat is within IMAs (BLM WSA, and critical habitat, DNWR, NAFR, Lake Mead NRA, and Overton WMA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. A further 36.8 percent of the habitat is in MUMA (BLM undesignated lands) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. The remaining 23.0 percent is UMA (privately held and Native American reservations) and may be used for more intensive activities.

Implementation of existing BLM, USFWS, NPS, and NDOW management actions, and the provisions of the BLM Las Vegas RMP (see Section 2.8) may adequately address the ecosystem level threats to Covered Species for the short term within the mesquite/catclaw habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The mesquite/catclaw habitat and the 11 Covered Species it supports will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding of local rehabilitation and enhancement projects; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.10 Desert Riparian/Aquatic Ecosystem

### a. Description and Distribution

Desert riparian areas associated with rivers and streams generally lower than 4,000 feet. The localized vegetation is influenced by the abundance of water in contrast to the surrounding landscape. This ecosystem overlaps in vegetation and structure with both the mesquite/catclaw and spring ecosystems. In Clark County this primarily includes the Virgin and Muddy Rivers and Las Vegas Valley wash and the Colorado River (Figure 2-14).

### b. MSHCP Species

The desert riparian/aquatic ecosystem provides habitat for 14 Covered Species and 12 High Priority Evaluation Species. Seven of the Covered Species and 9 of the High Priority Evaluation Species are water dependent and exclusively or primarily associated with the lowland riparian or aquatic ecosystem.

***Covered Species:***

| | |
|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* |
| Long-eared myotis | *Myotis evotis* |
| American peregrine falcon | *Falco peregrinus anatum* |
| Yellow-billed cuckoo | *Coccyzus americanus* |
| Vermilion flycatcher | *Pyrocephalus rubinus* |
| Southwestern willow flycatcher | *Empidonax traillii extimus* |
| Phainopepla | *Phainopepla nitens* |
| Summer tanager | *Piranga rubra* |
| Blue grosbeak | *Guiraca caerulea* |
| Arizona Bell's vireo | *Vireo bellii arizonae* |
| Banded gecko | *Coleonyx variegatus* |
| Western red-tailed skink | *Eumeces gilberti rubricaudatus* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Relict leopard frog | *Rana onca* |

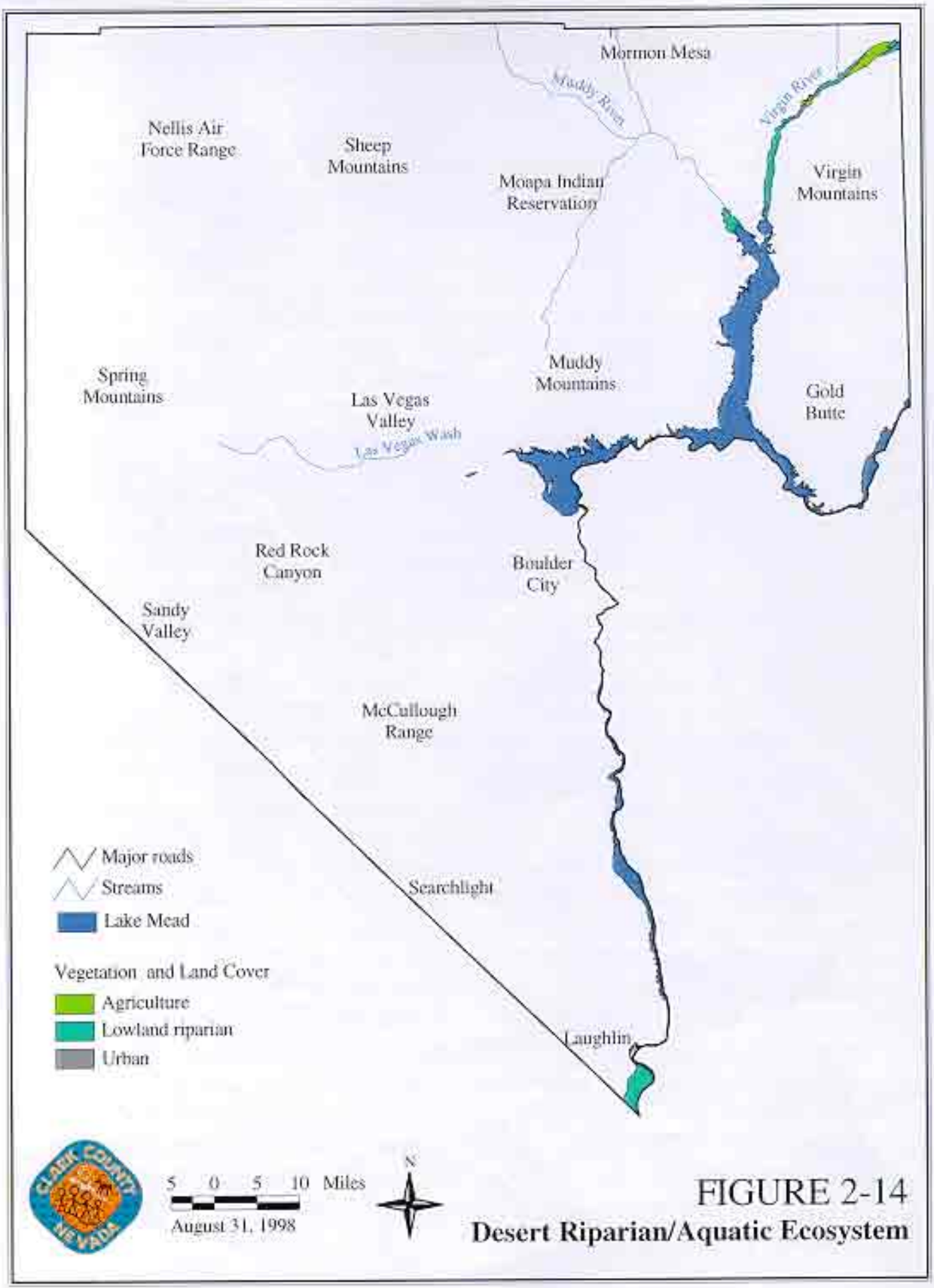
***High Priority Evaluation Species:***

| | |
|---|---|
| Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* |
| Kit fox | *Vulpes macrotus* |
| Banded Gila monster | *Heloderma suspectum cinctum* |
| Arizona (southwestern) toad | *Bufo microscaphus microscaphus* |
| Moapa dace | *Moapa coriacea* |
| Woundfin | *Plagopterus argentissimus* |
| Virgin River chub | *Gila seminuda* |
| Virgin River chub (Muddy River population) | *Gila seminuda* |
| Desert sucker | *Catostomus clarki* |
| Flannelmouth sucker | *Catostomus latipinnis* |
| Moapa White River springfish | *Crenichthys baileyi moapae* |
| MacNeil sooty wing skipper | *Hesperopsis gracielae* |

## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors in the desert riparian/aquatic ecosystem are:

- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** indiscriminate recreational shooting **Threat 406**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504,** habitat degradation from highway runoff **Threat 505,**)
- Pest control (direct or indirect poisoning or trapping **Threat 601,** pesticides and herbicides **Threat 602**)
- Grazing (livestock grazing and trampling **Threat 703**)
- Military activities (target sites, roads, or other military access locations **Threat 801,** military facilities construction and maintenance **Threat 802**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Woodcutting, (wood removal, snag collection **Threat 1001**)
- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102**)
- Utilities (collisions and electrocution with power lines **Threat 1201**)
- Water development, use, and flood control in riparian areas (channelization **Threat 1301,** water diversion and groundwater pumping **Threat 1302,** decreased water availability **Threat 1303,** grazing and agriculture **Threat 1304**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404,** overutilization by animals **Threat 1405**)




# FIGURE 2-14

**Desert Riparian/Aquatic Ecosystem**

- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** subsidized and parasitic species **Threat 1502**)
- Feral animals (feral animals and uncontrolled pets **Threat 1601**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701,** illegal waste ponds, dumping, and waste disposal **Threat 1702**)

## d. Existing and Proposed Conservation Actions

Of the total 16,900 acres of desert riparian/aquatic habitat, 33.7 percent is managed by BLM (undesignated) and 30.7 percent by NDOW (Overton WMA). Private holdings and Native American reservations total 35.5 percent. BLM undesignated lands (33.7 percent) are managed to balance multiple uses, including mining, OHV activities, grazing, and other activities with maintenance of habitat and species values. The 30.7 percent of the ecosystem located within the Overton WMA is managed for both conservation and a broader spectrum of recreational uses, including hunting.

BLM has specific management policies for riparian habitat within its management including restoration and enhancement, monitoring, inventory, and management of OHV, mineral extraction, and grazing impacts.

In addition, the majority of the desert riparian/aquatic habitat in Clark County is subject to the Federal Clean Water Act and the "no net loss' policies established for wetlands habitats. These apply to wetlands on both Federal and non-Federal lands, including Native American reservation and private lands, and generally require avoidance, minimization, or mitigation of any impacts to this habitat.

## e. Adequacy of Existing Management

A total of 30.7 percent of this habitat is within IMAs (Overton WMA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Another 33.7 percent of the habitat is in MUMA (BLM undesignated lands) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities in riparian habitats. The remaining 35.5 percent is UMA (privately held lands and Native American reservations).

Implementation of existing BLM and NDOW management actions, the provisions of the BLM Las Vegas RMP, and the provisions of the Clean Water Act (Section 404) (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within the desert riparian/aquatic habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The desert riparian/aquatic habitat and the 13 Covered Species they support will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding of local rehabilitation and enhancement projects; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

In addition, the resolution of the conservation needs of this habitat through the development of watershed-based management plans for the Muddy and Virgin Rivers, as well as integration of the Las Vegas Wash habitat restoration activities, are among the highest priorities for Phase 2 of the MSHCP.

## 2.5.3.11 Spring Ecosystem

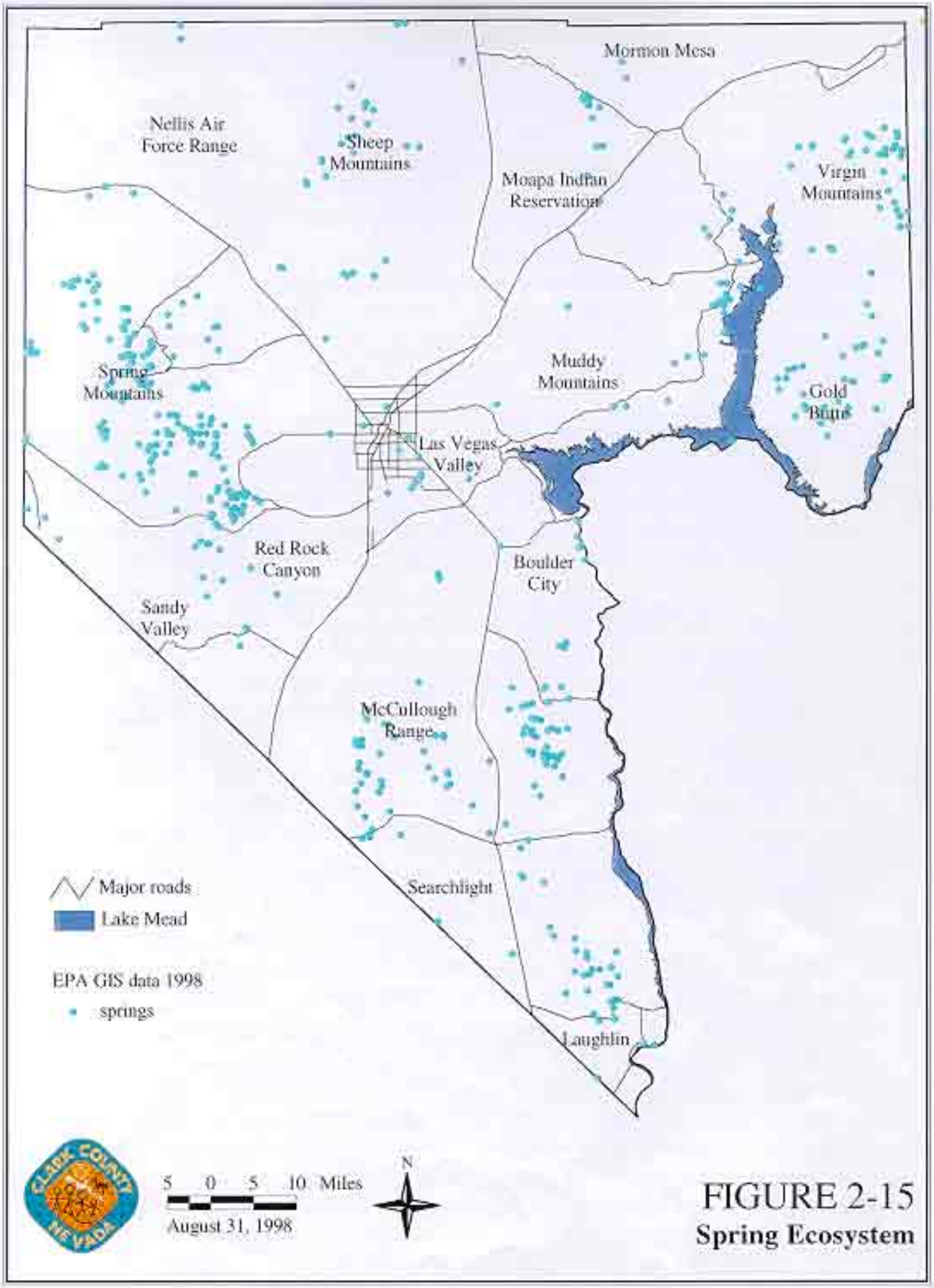
### a. Description and Distribution

In southern Nevada, perennial springs are widely distributed from the high mountains to the low deserts. The greatest density of springs occurs in the Spring, Virgin, Newberry, and McCullough Mountains and Lake Mead National Recreation Area, Gold Butte, and Moapa Valley (Figure 2-15). Most of the springs in Clark County are cold-water springs and vary greatly in size. They range from small, isolated pools with short spring-brooks to larger spring-fed rivers such as the Muddy River. Riparian vegetation along spring-brooks and river banks range from sedges and grasses to well-developed woodland communities (Sada et al. 1996). A smaller number of desert springs are classified as thermal springs, where the water is derived from deep sources and charged with salts and various gasses.

A total of 506 springs are included in databases covering Clark County. These identified springs are distributed throughout the ecosystems: 14 in bristlecone pine, 34 in mixed conifer forest, 96 in pinyon-juniper forest, 27 in sagebrush, 142 in blackbrush, 4 in salt desert scrub, 157 in Mojave desert scrub, 30 in mesquite/catclaw, and 2 in desert riparian.

### b. MSHCP Species

There are 14 Covered Species and 5 High Priority Evaluation Species associated with springs within the various ecosystems in Clark County, which are listed below. An asterisk indicates spring-dependent species or endemics to spring systems.




# FIGURE 2-15
**Spring Ecosystem**

***Covered Species:***

| | |
|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* |
| Long-eared myotis | *Myotis evotis* |
| Long-legged myotis | *Myotis volans* |
| Relict leopard frog | *Rana onca* |
| Dark blue butterfly | *Euphilotes enoptes purpurea* |
| Spring Mountains icarioides blue | *Icaricia icarioides austinorum* |
| Nevada admiral | *Limenitus weidemeyerii nevadae* |
| Spring Mountains comma skipper | *Hesperia comma mojavensis* |
| Spring Mountains springsnail | *Pyrgulopsis deaconi* |
| Southeast Nevada springsnail | *Pyrgulopsis turbatrix* |
| Rough angelica | *Angelica scabrida* |
| Alkali mariposa lily | *Calochortus striatus* |
| Clokey thistle | *Cirsium clokeyi* |
| Charleston kittentails | *Synthyris ranunculina* |

***High Priority Evaluation Species:***

| | |
|---|---|
| Arizona (southwestern) toad | *Bufo microscaphus microscaphus* |
| Moapa dace | *Moapa coriacea* |
| Moapa White River springfish | *Crenichthys baileyi moapae* |
| Triangle lobe moonwort | *Botrychium ascendens* |
| Dainty moonwort | *Botrychium crenulatum* |

## c. Potential Threats and Stressors

The primary ecosystem level threats and stressors to spring ecosystems are:

- Commercial collection (reduction of populations **Threat 201**)
- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404**)
- Highways, roads, and trails (habitat fragmentation **Threat 503**, road construction and maintenance **Threat 504,** habitat degradation from highway runoff **Threat 505**)
- Pest control (pesticides and herbicides **Threat 602**)
- Grazing (wild horse and burro grazing and trampling **Threat 701,** livestock grazing and trampling **Threat 703**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Urban and agricultural development (urban and rural development **Threat 1101**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403,** grazing and agriculture **Threat 1404,** overutilization by animals **Threat 1405**)
- Exotic and introduced species (introductions, competition, and encroachment of exotic species **Threat 1501,** subsidized and parasitic species **Threat 1502**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing of flora and fauna **Threat 1701**)

### d. Existing and Proposed Conservation Actions

Of the total of 506 identified springs in Clark County, 243 are managed by BLM (undesignated, WSA, conserved habitat), 115 by USFS (Spring Mountains NRA, WSA, wilderness), 36 by NPS (Lake Mead NRA), 28 by USFWS (DNWR, NAFR), 3 by Boulder City (Boulder City easement), 2 by NDOW (Overton WMA), and 1 by State Parks. At least 74 springs occur on private holdings and 4 on Native American reservations.

Approximately 166 of the springs are in areas managed for primitive, non-motorized, dispersed recreational use (wilderness 37, WSA 103, or DNWR 28). The 115 springs located within the Spring Mountains NRA (54), Red Rock Canyon NCA (22), Overton WMA (2), Lake Mead NRA (36), and State Parks (1) are on land managed for both conservation and a broader spectrum of recreational uses, including intensive recreational use areas, developed camping areas, hiking and biking trails, rock climbing areas, and designated motorized vehicle use roads and trails. These areas are actively managed for habitat conservation. BLM undesignated lands (104 springs) are managed to balance multiple uses, including mining, OHV activities, grazing by wild horses and burros, and other activities with maintenance of habitat and species values.

The CA for the Spring Mountains NRA identifies general and specific management actions for springs and associated species including the development of a plan to monitor spring and riparian function and habitat condition, restoration actions where habitat damage is occurring, environmental education programs, road closures, fencing, and other protective measures.

### e. Adequacy of Existing Management

A total of 248 springs are within IMAs and 76 within LIMAs, primarily managed by BLM (137), USFS (115), USFWS (69), and NPS (41). Another 104 springs are within MUMAs, all managed by BLM. At least 78 springs are identified in UMAs on private lands and Native American lands.

Implementation of existing BLM, USFWS, NPS, NDOW, State Parks, and Boulder City easement management actions and the CA for the Spring Mountains NRA (see Section 2.8) will adequately address the ecosystem level threats to Covered Species within spring habitat, when combined with implementation of the MSHCP, as described in detail in Appendix A. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

### f. MSHCP Conservation Contributions

The spring habitats and the 13 Covered Species they support will benefit from the MSHCP through general public education and information programs; the purchase,

maintenance, and management of grazing allotments and water rights; funding of local rehabilitation and enhancement projects; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## 2.5.3.12 Other Communities

Several ecological features resulting from geologic or geomorphologic site characteristics occur within Clark County. These features provide habitat for distinctive communities of plants and animals, related to the surrounding ecosystem type, but often with unique or endemic taxa. These features occur interspersed within the primary ecosystems mapped within the county but have not been comprehensively mapped because of their scale (small size of habitat patches) and lack of comparable mapped digital information (for example, soils mapping covering the entire county).

### a. Bats

#### (1) Description and Distribution

Bats are wide-ranging and make use of all ecosystems throughout Clark County. Landscape features that are particularly important include cliffs, caves, streams, springs, forested areas, mines, and buildings and other structures in urban areas. The three Covered bat species are primarily high elevation species.

#### (2) MSHCP Species

There are 3 Covered bat species and 1 High Priority Evaluation bat. In addition, the MSHCP lists 9 other bats as Evaluation or Watch List Species.

| Common Name | Scientific Name | Status |
|---|---|---|
| Silver-haired bat | *Lasionycteris noctivagans* | Covered |
| Long-eared myotis | *Myotis evotis* | Covered |
| Long-legged myotis | *Myotis volans* | Covered |
| Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* | Evaluation High |
| Small-footed myotis | *Myotis ciliolabrum* | Evaluation Medium |
| Fringed myotis | *Myotis thysanodes* | Evaluation Medium |
| California leaf-nosed bat | *Macrotus californicus* | Watch List |
| Spotted bat | *Euderma maculatum* | Watch List |
| Allen's big-eared (lappet-browed) bat | *Idionycteris phyllotis* | Watch List |
| Southwestern cave myotis | *Myotis velifer brevis* | Watch List |
| Yuma myotis | *Myotis yumanensis* | Watch List |
| Greater western mastiff-bat | *Eumops perotis californicus* | Watch List |
| Big free-tailed bat | *Nyctinomops macrotis* | Watch List |

### (3) Potential Threats and Stressors

The primary ecosystem level threats and stressors on bats are:

- Fires and fire management (habitat degradation **Threat 301**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** rock climbing **Threat 405,** spelunking **Threat 407**)
- Highways, roads, and trails (road construction and maintenance **Threat 504**)
- Pest control (pesticides and herbicides **Threat 602**)
- Mining (mineral exploration **Threat 901,** extraction of minerals **Threat 902**)
- Wood collection and removal **Threat 1001**
- Urban and agricultural development (urban and rural development **Threat 1101**)
- Water development, use and flood control at springs (spring diversion and modification **Threat 1401,** spring outflow diversion **Threat 1402,** groundwater pumping **Threat 1403**)

### (4) Existing and Proposed Conservation Actions

Of the total of 5,056,100 acres of native vegetation in Clark County, 55.6 percent is managed by BLM (undesignated, WSA, NCA, and conserved habitat), 16.8 percent by USFWS (DNWR and NAFR), 8.9 percent by NPS (Lake Mead NRA), 5.4 percent by USFS (Spring Mountains NRA, wilderness, and WSA), 1.7 percent by Boulder City (Boulder City easement), less than 1 percent by State Parks, and less than 1 percent by NDOW (Overton WMA) and USAF (NAFB, ISAFAF). Private holdings total 8.3 percent and Native American reservations 1.5 percent.

Implementation of existing USFWS and BLM management actions, the provisions of the BLM Las Vegas RMP, and the CA for the Spring Mountains NRA (see Section 2.8) will adequately address the ecosystem level threats to Covered bat, when combined with implementation of the MSHCP. Species-specific threats to Covered Species are addressed by the measures detailed for each species in Appendix B.

The CA for the Spring Mountains NRA identifies general and specific management actions for bats and associated habitat features (springs, cliff faces, caves) including the development of a plan to monitor spring and riparian function and habitat condition, seasonal cave closures, rock climbing restrictions, restoration actions where habitat damage is occurring, environmental education programs, management of rock climbing and other recreation activities, and other protective measures.

### (5) Adequacy of Existing Management

A total of 59.9 percent of Clark County is within IMAs and LIMAs (DNWR, BLM WSA, NCA, and critical habitat, Spring Mountains NRA, USFS wilderness and WSA, Boulder city easement, Overton WMA, State Parks, and Lake Mead NRA) and is not anticipated to be affected by future development of facilities for recreation or other infrastructure. Some 29.7 percent of the County is in MUMA (BLM undesignated lands) and may be used for multiple use activities, within the constraints of existing BLM policies for management of these activities. Finally, 10.2 percent is UMA (privately held, Native American reservations, and USAF ISAFAF and NAFB) and may be used for more intensive uses.

The bat community in Clark County will benefit from specific management actions undertaken by BLM, USFWS, NPS, and USFS, as well as implementation of the MSHCP through general public education and information programs; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

### (6) MSHCP Conservation Contributions

The bat community will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding of local rehabilitation and enhancement projects; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

## b. Mojave Desert Lizards and Snakes

The Mojave desert is the smallest of the four North American deserts and is intermediate both geographically and floristically between the Great Basin desert to the north and the Sonoran desert to the south (Turner 1982). Although smaller than the other desert biomes, it is the most widespread ecosystem in Clark County. Shrublands in this ecosystem occur below 4,000 feet and include two major plant communities, Mojave mixed scrub and creosote-bursage, and several minor systems including salt desert scrub, playas, dunes, boulders and rock outcrops, mesquite/catclaw, and the transition into blackbrush.

The Mojave desert ecosystems provide habitat for a diverse suite of lizards and snakes. The MSHCP includes 20 species: 14 Covered Species, 3 High Priority Evaluation Species, 2 Medium Priority Evaluation Species, and 1 Watch List Species.

***Covered Species:***

| | |
|---|---|
| Banded gecko | *Coleonyx variegatus* |
| Desert iguana | *Dipsosaurus dorsalis* |
| Large-spotted leopard lizard | *Gambelia wislizenii wislizenii* |
| Great Basin collared lizard | *Crotaphytus insularis bicinctores* |
| Western chuckwalla | *Sauromalus obesus obesus* |
| California (common) kingsnake | *Lampropeltis getulus californiae* |
| Glossy snake | *Arizona elegans* |
| Western long-nosed snake | *Rhinocheilus lecontei lecontei* |
| Western leaf-nosed snake | *Phyllorhynchus decurtatus* |
| Sonoran lyre snake | *Trimorphodon biscutatus lambda* |
| Sidewinder | *Crotalus cerastes* |
| Speckled rattlesnake | *Crotalus mitchelli* |
| Mojave green rattlesnake | *Crotalus scutulatus scutulatus* |

***High Priority Evaluation Species:***

| | |
|---|---|
| Banded Gila monster | *Heloderma suspectum cinctum* |
| Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |
| Desert night lizard | *Xantusia vigilis* |

***Medium Priority Evaluation Species:***

| | |
|---|---|
| Regal ringneck snake | *Diadophus punctatus regalis* |
| Western diamondback | *Crotalus atrox* |

***Watch List Species:***

| | |
|---|---|
| Common zebra-tailed lizard | *Callisaurus draconoides draconoides* |

In addition to the ecosystem level threats and stressors identified for the Mojave desert ecosystems, the primary threats and stressors to these species are:

- Factors related to population dynamics and life history (susceptibility to stochastic events of narrow endemics and limited distribution species **Threat 101,** unknown population trends **Threat 102**)
- Commercial collection (reduction of populations **Threat 201,** habitat degradation **Threat 202**)
- Recreation activities and development (dispersed recreational activities **Threat 401,** concentrated recreation **Threat 402,** competitive OHV races **Threat 403,** casual use OHV activities **Threat 404,** rock climbing **Threat 405,** indiscriminate recreational shooting **Threat 406**)
- Highways, roads, and trails (highway mortality **Threat 501,** habitat fragmentation **Threat 503,** road construction and maintenance **Threat 504**)

- Urban and agricultural development (urban and rural development **Threat 1101,** fragmentation by urban/rural development **Threat 1102,** landfills **Threat 1103**)
- Utilities (facility construction and maintenance **Threat 1202,** provision of perch sites for ravens **Threat 1203**)
- Illegal or unauthorized activities (poaching, illegal collection, or killing **Threat 1701**)

Mojave desert lizards and snakes will benefit from the MSHCP through general public education and information programs; the purchase, maintenance, and management of grazing allotments and water rights; funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process. The prohibition of commercial collection of these species and the implementation of conservation actions in concordance with the AMP would provide adequate conservation coverage for most, if not all of these species.

## c. Butterflies and Moths

The 8 Covered butterfly species occur primarily within the Spring Mountains NRA, while 2 High Priority Evaluation Species occur in desert riparian habitats.

***Covered Species:***

| | |
|---|---|
| Dark blue butterfly | *Euphilotes enoptes purpurea* |
| Spring Mountains icarioides blue | *Icaricia icarioides austinorum* |
| Mt. Charleston blue butterfly | *Icaricia shasta charlestonensis* |
| Spring Mountains acastus checkerspot | *Chlosyne acastus robusta* |
| Morand's checkerspot butterfly | *Euphydryas anicia morandi* |
| Carole's silverspot butterfly | *Speyeria zerene carolae* |
| Nevada admiral | *Limenitus weidemeyerii nevadae* |
| Spring Mountains comma skipper | *Hesperia comma mojavensis*. |

***High Priority Evaluation Species:***

| | |
|---|---|
| Bret's blue butterfly | *Euphilotes battoides sp.* |
| MacNeil sooty wing skipper | *Hesperopsis gracielae* |

The CA for the Spring Mountains NRA identifies general management actions for high elevation species, including development and implementation of a monitoring program for assessing effects of recreational use on high elevation communities and the species that occur in these communities, implementation of an overnight wilderness permitting process that provides visitor education on sensitive resource issues, prohibition of camping in sensitive areas, as determined through monitoring, removal of selected informal high elevation and alpine campsites, and implementation of a weed management strategy. In addition, the CA provides specific conservation actions for butterfly species and their habitat and host species.

The development of watershed based conservation actions for desert riparian/aquatic resources on the Muddy River could provide coverage for 1 High Priority Evaluation Species (MacNeil sooty wing skipper).

### d. Rock Outcrops, Cliffs, Boulder Fields, and Lava Flows

Rock outcrops occur in all of the communities discussed previously. Plant species include representatives of each community as well as a distinct flora dependent on elevation. Covered Species that are dependent on these features are all high elevation cliff-dwelling plants and are included in the CA for the Spring Mountains NRA. A number of reptiles, including the chuckwalla, Great Basin collared lizard, large-spotted leopard lizard, and several snakes, make extensive use of boulders and rock outcrops in desert ecosystems in Clark County.

Rock outcrops, cliffs, boulder fields, and lava flows in Clark County and the species they support will benefit from the MSHCP through general public education and information programs and funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

### e. Sand Dunes

Sand dunes in the desert are associated with playas, remnant lakes of arid lowland basins, and intermittent watercourses. Compared to other habitats, taxon density in sand dunes is low, but desert dunes have a high rate of endemism. Thus, as the MSHCP continues to develop, sand dunes will be evaluated to determine if endemic plants or insects are present and need management attention.

Although there are no covered species, the dune systems in Clark County and the species they support will benefit from the MSHCP through general public education and information programs and funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

### f. Gypsum Soils

Gypsum soils consist of a weathered layer of parent material, containing sponge gypsum, over massive rock gypsum or gypsum thin-bedded with limestone, mudstones, and shales. The surface is typically hard or has a cryptogamic crust. Saline gypsum sites are similar but are exposed to salt-charged groundwater at the surface near the site.

Gypsum sites have less dense vegetation with fewer annuals than alluvial sites. Saline gypsum soils have almost no annuals and few short-lived species. However, gypsum soils in the eastern Mojave desert are characterized by a suite of endemic species restricted to gypsum soils, such as Las Vegas bearpoppy. Thus, as the MSHCP continues to develop, areas with gypsum soils will be evaluated to determine if there are endemics in need of management attention.

Areas of gypsum soils in Clark County and the species they support will benefit from conservation agreements for the Las Vegas bearpoppy and the MSHCP through general public education and information programs and funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

### g. Dry Lake Beds and Playas

A distinguishing feature of much of the Great Basin–Mojave Desert region is that its waters drain into terminal basins rather than into the ocean. This results in isolated terminal lakes, marshes, and playas, many of which support unique species. Most are small and only occasionally filled with water; these habitat areas are critically important to the biological diversity and ecology of the region.

During most years, these playas and dry lake beds support a limited diversity of species adapted to high salt levels in the soil. When playas fill from rare rains or snow melt, a rich invertebrate fauna consisting of various crustaceans and insects develops in them that, in turn, supports large populations of migratory waterbirds. This fauna has been little studied and may include a number of undescribed species. The only covered flora species found in dry lake beds and playas is Parish's phacelia (*Phacelia parishii*). The impacts of recreational activities on these systems are unknown.

The dry lake beds and playas and the species they support will benefit from the MSHCP through general public education and information programs and funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process.

### h. Boreal Island Species

The Spring Mountains, and to a lesser extent the Sheep Range, McCullough Range, and the Virgin Mountains are boreal islands of Great Basin and high elevation habitats surrounded by lower elevation Mojave desert. Populations of high elevation plants and animals on these areas are isolated from similar populations, primarily to the North, by the hot, dry desert. These habitats and populations were previously coextensive, but have become isolated during the interglacial period. As a result of this isolation, relict or

derived populations occur, particularly in the Spring Mountains, exemplified by the Palmer's chipmunk, and the unique butterfly fauna and plant flora of this area. In addition, a number of populations of species that are common elsewhere occur in isolated populations in the Spring Mountains, including several small mammal species.

Because this area encompasses several ecosystems as delineated in the MSHCP, and because of its uniqueness, it will be important to adequately address species issues that transcend ecosystem boundaries and management boundaries to maintain the overall diversity of species.

The MSHCP, through funding or assistance in inventory, monitoring, and management activities resulting from the recommendations of the AMP and land managers; and increased interagency coordination of conservation activities resulting from the I & M Committee review process, provides a mechanism for the consideration of conservation of the boreal island communities within the context of the implementation of conservation actions in the CA for the Spring Mountains NRA and BLM management of the Red Rock Canyon NCA, the primary land managers of the habitats that constitute the boreal island centered on the Spring Mountains.

# 2.5.4 Reserve Design Considerations and Conclusions

The distribution of species of special concern, areas of high biological diversity, and the unique species of Clark County are the result of the unique biogeographical position of the County. The County's biodiversity is shaped by its location at the interface between the Mojave and Great Basin ecoregions, desert and montane climates, and the internal desert basins and the Colorado River watershed, as well as, its location in the center of the basin and range geologic region. This distribution is generally illustrated by the elevation distribution of Covered, Evaluation, and Watch List Species by ecosystem, elevation range of ecosystem, and area of distribution of ecosystem (Table 2-2).

**TABLE 2-2**
**DISTRIBUTION OF MSHCP SPECIES BY ECOSYSTEM**

| | | | MSHCP Species* | | |
|---|---|---|---|---|---|
| | | | | High Priority | |
| Ecosystem | Elevation (ft) | Area (ac) | Covered | Evaluation | Total |
| Alpine | 11,500 – | 500 | 11 | 0 | 11 |
| Bristlecone pine | 9,000 – 11,500 | 15,800 | 23 | 0 | 23 |
| Mixed conifer | 3,900 – 8,850 | 56,400 | 32 | 0 | 32 |
| Pinyon-juniper | 4,900 – 8,200 | 277,800 | 26 | 7 | 33 |
| Sagebrush | 4,900 – 9,200 | 134,600 | 17 | 7 | 24 |
| Blackbrush | 3,280 – 5,900 | 824,700 | 7 | 9 | 16 |
| Salt desert scrub | 3,250 – 5,800 | 190,700 | 10 | 6 | 16 |
| Mojave desert scrub | – 4,000 | 3,273,100 | 13 | 10 | 23 |
| Mesquite/catclaw | – 4,000 | 21,700 | 9 | 6 | 15 |
| Desert riparian | – 4,000 | 16,900 | 13 | 13 | 26 |
| Springs | – 11,500 | 506† | 13 | 5 | 18 |

*Totals include overlapping species distributions. †Number of springs in databases.

In terms of the number of Covered Species, the high elevation conifer ecosystems (bristlecone pine, and mixed conifer) and the two aquatic ecosystems (lowland riparian and springs) have the greatest diversity. These habitat types along with the alpine also support the majority of endemic species in the plan area.

Mojave desert scrub, pinyon-juniper, and desert riparian ecosystems provide habitat for the greatest overall number of MSHCP species (80+), albeit on dramatically different proportions of the landscape (3,273,100 ac **:** 277,800 ac **:** 16,900 ac). When area is taken into consideration, the alpine ecosystem has by far the greatest density of MSHCP species, followed by desert riparian, mesquite/catclaw, and bristlecone pine (Table 2-3). The relationship between area of habitat and number of MSHCP species is as would be expected: the smaller the area of available habitat, the greater the proportion of species of concern.

**TABLE 2-3**
**DENSITY OF MSHCP SPECIES IN EACH HABITAT TYPE**

| | | | MSHCP Species per 1,000 Acres | | |
|---|---|---|---|---|---|
| Ecosystem | Elevation (ft) | Area (ac) | Covered | High Priority Evaluation | Total |
| Alpine | 11,500 | 500 | 22.000 | 0 | 22.000 |
| Bristlecone pine | 10,250 | 15,800 | 1.455 | 0 | 1.455 |
| Mixed conifer | 9,000 | 56,400 | 0.567 | 0 | 0.567 |
| Pinyon-juniper | 6,550 | 277,800 | 0.093 | 0.025 | 0.118 |
| Sagebrush | 7,050 | 134,600 | 0.126 | 0.052 | 0.178 |
| Blackbrush | 4,600 | 824,700 | 0.008 | 0.010 | 0.018 |
| Salt desert scrub | 4,550 | 190,700 | 0.052 | 0.031 | 0.083 |
| Mojave desert scrub | 2,000 | 3,273,100 | 0.003 | 0.003 | 0.006 |
| Mesquite/catclaw | 2,000 | 21,700 | 0.414 | 0.276 | 0.690 |
| Desert riparian | 2,000 | 16,900 | 0.769 | 0.769 | 1.538 |

Higher elevation habitats (alpine, bristlecone pine, mixed conifer, pinyon-juniper, and sagebrush) provide living space for a majority of the MSHCP species, Covered Species, and endemic species occurring in Clark County. These habitats occur primarily in the Spring and Sheep Mountains, with additional areas of pinyon-juniper and sagebrush in the McCullough Range and the Virgin Mountains. The configuration of these habitats is, for the most part in relatively unfragmented blocks, with limited roads, and small areas of recreational development and private inholdings. Overall, these areas are currently managed as IMAs or LIMAs (Table 2-4 and Figure 2-16).

**TABLE 2-4**
**LEVEL OF CONSERVATION MANAGEMENT IN EACH HABITAT**
**(acres or number* of springs)**

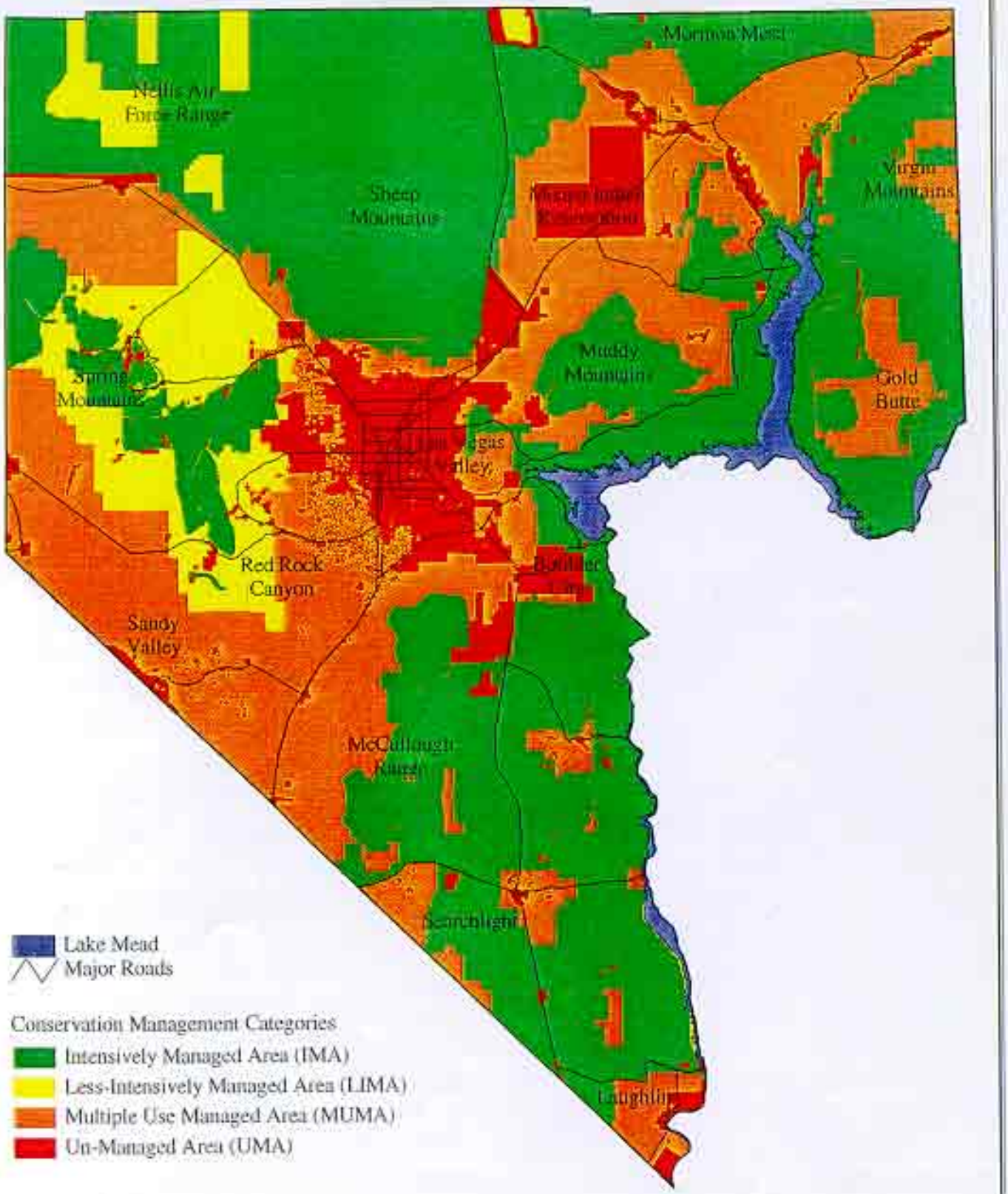
| Ecosystem | Total | IMA | LIMA | MUMA | UMA |
|---|---|---|---|---|---|
| Alpine | 500 | 500 | 0 | 0 | 0 |
| Bristlecone pine | 15,800 | 14,400 | 400 | 0 | 1,000 |
| Mixed conifer | 56,400 | 46,100 | 8,800 | 0 | 1,500 |
| Pinyon-juniper | 278,200 | 173,800 | 81,500 | 18,700 | 4,200 |
| Sagebrush | 134,600 | 78,200 | 39,200 | 16,300 | 900 |
| Blackbrush | 824,800 | 425,000 | 111,500 | 279,600 | 8,700 |
| Salt desert scrub | 190,700 | 112,300 | 19,000 | 39,600 | 19,800 |
| Mojave desert scrub | 3,273,000 | 1,770,600 | 105,600 | 1,111,800 | 285,000 |
| Mesquite/catclaw | 21,700 | 8,700 | 0 | 8,000 | 5,000 |
| Desert riparian | 16,900 | 5,200 | 0 | 5,700 | 6,000 |
| Springs* | 506 | 248 | 76 | 104 | 78 |
| Total Acres | 4,812,600 | 2,634,800 | 366,000 | 1,479,700 | 332,100 |

From the landscape perspective, there are three primary interconnected blocks of IMA/LIMA managed lands within the plan area: the Spring Mountains, Sheep Mountains/Nellis/DNWR, and Virgin Mountains/Colorado River/McCullough Range.

The smallest block is centered on the Spring Mountains and Red Rock Canyon areas. This block is bounded on the north, west, and south by MUMA lands (BLM undesignated lands) and on the east by the urbanized Las Vegas Valley. The Spring Mountains areas have the greatest number of species, the highest biodiversity, highest density of species, and the highest level of current conservation management. This area has most of the properties of a good reserve: relatively rounded, high habitat diversity, best example of remaining habitat, habitat for unique species and assemblages, existing management for biological resources, and relatively unfragmented.

The Sheep Mountains/Nellis/DNWR block is the largest and least fragmented portion of the plan area and is virtually all within IMA management as the DNWR and U.S. Air Force lands managed by the USFWS. This block is connected to Department of Defense and Department of Energy lands in adjacent Nye and Lincoln Counties, on the north and west, and by the Las Vegas Valley on the south and MUMA lands (BLM undesignated lands) on the east. This area also has most of the properties of a good reserve.

The Virgin Mountains/Colorado River/McCullough Range is linearly distributed approximately along the Colorado River. The area includes the mid to high elevation ecosystems in the Virgin Mountains to the north, Mojave desert and associated aquatic habitats along the Colorado River watershed, and McCullough Range and associated Mojave desert habitats to the southwest, and the Las Vegas Valley to the west. While the area has many of the properties of a good reserve, it is relatively linear and is somewhat fragmented by urban development and Lake Mead and Lake Mohave. The area provides an interconnected reserve area with geographic and ecosystem diversity.




# FIGURE 2-16

## Conservation Management Categories

These three blocks (Spring Mountains/Red Rock; Sheep Mountains/Nellis/DNWR; Virgin Mountains/McCullough Range) are within a matrix of BLM undesignated lands (MUMA). These provide substantial areas of habitat under less intensive management for biological resources. However, these MUMA lands function as additional habitat and as connections between the blocks of UMA/LIMA managed land.

The majority of Federal lands that will be subject to disposal are within the Las Vegas Valley, primarily on the western edge of the urbanized portion of the city.

# 2.6 Covered Species, Evaluation Species, and Watch List Species

Phase 1 of the Clark County MSHCP covers those species that meet the criteria in Section 2.4.2.4.b (Criteria for Coverage Under Phase 1 of the MSHCP).

a. Those species for which sufficient information is known and for which adequate existing management prescriptions exist or can be easily defined and implemented sufficient to support an application for a Section 10(a) Incidental Take Permit(s).

b. Those species about which a great deal of information may not be available but which are definitively known to share habitat with other Covered Species whose management prescriptions meet the requirements of subparagraph *a.* hereof. For those species, it is believed that the management prescriptions (existing or easily defined) for other Covered Species would benefit sufficiently to support application for a Section 10(a) Permit.

c. Those species whose listing appears imminent, unless conservation measures are instituted which would be likely to assure survival and recovery of such species in the wild.

Based on these criteria and the analyses summarized in Table 2-5 and the detailed analyses in Appendixes A and B, the following species are included as Covered Species. Evaluation Species and Watch List Species are listed in Tables 2-6 and 2-7.

In addition to listing the Covered Species, Table 2-5 also summarizes the potential impacts, management, rationale for coverage, and measurable biological goals for each of the species proposed for coverage in the MSHCP. Potential impacts are evaluated for each species on the basis of its distribution within IMAs, LIMAs, MUMAs, and UMAs. IMAs and LIMAs are considered to be conserved (see Section 2.4.2.7 for discussion). The potential for incidental take of each species is estimated as the proportion of the known populations or potential habitat for the species in UMAs, although it is not expected that all of these will be affected. Populations within MUMAs may be affected by permitted activities. Where substantial portions of Covered Species populations occur within MUMAs, management actions are proposed and measurable biological goals apply to the MUMAs as well as IMAs and LIMAs.

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

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Silver-haired bat<br>*Lasionycteris noctivagans* | 93% of potential habitat | 6% of potential habitat | 2% of potential habitat | USFS SMNRA<br>USFWS (DNWR)<br>BLM Red Rock Cyn NCA | North American species, occurring in Clark Co primarily at high elevations. 93% of primary habitat in IMAs and LIMAs; management actions in SMNRA through the CA and on DNWR. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Long-eared myotis<br>*Myotis evotis* | 97% of potential habitat | 7% of potential habitat | 1% of potential habitat | USFS SMNRA<br>USFWS (DNWR)<br>BLM Red Rock Cyn NCA<br>BLM RMP | Western North American species, occurring in Clark Co primarily at high elevations. 97% of primary habitat in IMAs and LIMAs; management actions in SMNRA through the CA and on DNWR. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Long-legged myotis<br>*Myotis volans* | 93% of potential habitat | 6% of potential habitat | 2% of potential habitat | USFS SMNRA<br>USFWS (DNWR)<br>BLM Red Rock Cyn NCA | Western North American species, occurring in Clark Co primarily at high elevations. 93% of primary habitat in IMAs and LIMAs; management actions in SMNRA through the CA and on DNWR. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Palmer's chipmunk<br>*Tamias palmeri* | 97% of potential habitat | none | 3% of potential habitat | USFS SMNRA | Spring Mtns endemic. 97% of habitat in IMAs and LIMAs; management actions in SMNRA through the CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| American peregrine falcon<br>*Falco peregrinus anatum*<br>**Endangered**<br>**(delisted 8/99)** | 60% of potential habitat | 30% of potential habitat | <5% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA)<br>USFWS (DNWR) | Southern North American species. 90% of habitat in IMA, LIMA, and MUMAs. Management and monitoring of eyries by USFWS and NDOW; with specific monitoring by NPS & USFS. | • Monitor and protect existing eyrie sites on private, state, and Federal lands<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Yellow-billed cuckoo<br>*Coccyzus americanus* | 24% of potential habitat | 30% of potential habitat | 46% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA) | Riparian dependent species of North America. Actions proposed for southwestern willow flycatcher will provide adequate management. Protection of additional suitable habitat on Virgin & Muddy Rivers and Las Vegas Wash. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Vermilion flycatcher<br>*Pyrocephalus rubinus* | 25% of potential habitat | 29% of potential habitat | 46% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA) | Riparian dependent species of southwestern US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management. Protection of additional suitable habitat on Virgin & Muddy Rivers and Las Vegas Wash. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Phainopepla<br>*Phainopepla nitens* | 28% of potential habitat | 48% of potential habitat | 26% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA)<br>USFWS (DNWR) | Northernmost edge of species range in southwestern US and Mexico. 10,200 ac (74%) of potential habitat in Clark Co and all known key populations in IMAs or MUMAs (Newberry Mtns, Moapa, Corn Creek, Sandy Valley); BLM specific management plan for mesquite in MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs & MUMAs<br>• Maintain stable or increasing population numbers in key areas |
| Southwestern willow flycatcher<br>*Empidonax traillii extimus*<br>**Federal Endangered** | 24% of potential habitat | 30% of potential habitat | 46% of potential habitat | USFWS<br>BLM RMP<br>NPS GMP<br>NDOW (Overton WMA) | Riparian dependent species of southwestern US and northwestern Mexico. MSHCP provides mechanisms to protect and manage additional suitable habitat on the Virgin & Muddy Rivers and Las Vegas Wash as defined by the AMP. | • No net unmitigated loss or fragmentation of occupied habitat<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Summer tanager<br>*Piranga rubra* | 24% of potential habitat | 30% of potential habitat | 46% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA) | Riparian dependent species of southern US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management. Protection of additional suitable habitat on Virgin & Muddy Rivers and Las Vegas Wash. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Blue grosbeak<br>*Guiraca caerulea* | 24% of potential habitat | 30% of potential habitat | 46% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA) | Riparian dependent species of southern US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers<br>• Protection of additional suitable habitat on Virgin & Muddy Rivers & Las Vegas Wash |
| Arizona bell's vireo<br>*Vireo bellii arizonae* | 24% of potential habitat | 30% of potential habitat | 46% of potential habitat | BLM RMP<br>NPS GMP<br>NDOW (Overton WMA) | Riparian dependent species of south central US and Mexico. Actions proposed for southwestern willow flycatcher will provide adequate management. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers<br>• Protection of additional suitable habitat on Virgin & Muddy Rivers & Las Vegas Wash |
| Desert tortoise<br>*Gopherus agassizii*<br>**Federal Threatened** | 56% of potential habitat | 33% of potential habitat | 11% of potential habitat | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Mojave desert endemic. 90% of potential habitat in Clark Co in IMAs, LIMAs (>2 million ac), or MUMAs (>1.4 million ac). | • Implementation of the DCP goals in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Banded gecko<br>*Coleonyx variegatus* | 56% of potential habitat; 37% of cited locations | 33% of potential habitat; 53% of cited locations | 11% of potential habitat; 11% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 90% of potential habitat in Clark Co (>3.6 million ac) and cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Desert iguana<br>*Dipsosaurus dorsalis* | 55% of potential habitat; 28% of cited locations | 32% of potential habitat; 44% of cited locations | 13% of potential habitat; 28% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 87% of potential habitat in Clark Co (>3 million ac) in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Western chuckwalla<br>*Sauromalus obesus* | 57% of potential habitat; 23% of cited locations | 33% of potential habitat; 69% of cited locations | 11% of potential habitat; 9% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 89% of potential habitat in Clark Co (>2 million acres) and 91% of cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Western red-tailed skink<br>*Eumeces gilberti rubricaudatus* | 92% of potential habitat | 7% of potential habitat | 1% of potential habitat | USFS SMNRA<br>USFWS (DNWR)<br>BLM Red Rock Cyn NCA<br>BLM RMP | Eastern Mojave desert endemic. 92% of potential habitat in Clark Co (>250,000 ac) in IMAs & LIMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Large-spotted leopard lizard<br>*Gambelia wislizenii wislizenii* | 55% of potential habitat; 34% of cited locations | 32% of potential habitat; 58% of cited locations | 13% of potential habitat; 8% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Great Basin, southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) and 92% of cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Great Basin collared lizard<br>*Crotaphytus insularis bicinctores* | 60% of potential habitat; 30% of cited locations | 30% of potential habitat; 59% of cited locations | 10% of potential habitat; 11% of cited locations | BLM RMP<br>NPS GMP<br>USFS SMNRA<br>BLM Red Rock Cyn NCA<br>USFWS (DNWR) | Great Basin, southwestern desert endemic. 90% of potential habitat in Clark Co (>2.9 million acres) and cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| California (common) kingsnake<br>*Lampropeltis getulus californiae* | 55% of potential habitat; 38% of cited locations | 32% of potential habitat; 57% of cited locations | 13% of potential habitat; 5% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert and Pacific coast species. 87% of potential habitat in Clark Co (>2.9 million acres) and 95% of cited locations in IMAs, LIMAs, MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Glossy snake<br>*Arizona elegans* | 55% of potential habitat; 57% of cited locations | 32% of potential habitat; 23% of cited locations | 13% of potential habitat; 20% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) and cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Western long-nosed snake *Rhinocheilus lecontei lecontei* | 55% of potential habitat; 20% of cited locations | 32% of potential habitat; 68% of cited locations | 13% of potential habitat; 11% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) and 89% of cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Western leaf-nosed snake *Phyllorhynchus decurtatus* | 55% of potential habitat | 32% of potential habitat | 13% of potential habitat | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Sonoran lyre snake *Trimorphodon biscutatus lambda* | 60% of potential habitat | 30% of potential habitat | 10% of potential habitat | BLM RMP<br>NPS GMP<br>USFS SMNRA<br>BLM Red Rock Cyn NCA<br>USFWS (DNWR) | Sonora and east Mojave desert species. 90% of potential habitat in Clark Co (>4.2 million acres) in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Sidewinder *Crotalus cerastes* | 55% of potential habitat; 34% of cited locations | 32% of potential habitat; 46% of cited locations | 13% of potential habitat; 20% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Mojave desert endemic. 87% of potential habitat in Clark Co (>2.9 million acres) in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Speckled rattlesnake *Crotalus mitchelli* | 59% of potential habitat; 25% of cited locations | 31% of potential habitat; 75% of cited locations | 10% of potential habitat | BLM RMP<br>NPS GMP<br>USFWS (DNWR)<br>USFS SMNRA<br>BLM Red Rock Cyn NCA | Southwestern desert endemic. 90% of potential habitat in Clark Co (>4.2 million acres) and all cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Mojave green rattlesnake *Crotalus scutulatus scutulatus* | 56% of potential habitat; 64% of cited locations | 33% of potential habitat; 21% of cited locations | 11% of potential habitat; 14% of cited locations | BLM RMP<br>NPS GMP<br>USFWS (DNWR) | Southwestern desert endemic. 89% of potential habitat in Clark Co (>4.2 million acres) and 86% of cited locations in IMAs, LIMAs, or MUMAs. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Relict leopard frog<br>*Rana onca* | Both extant populations; 76% of cited locations | 19% of cited locations | 5% of cited locations | NPS GMP | Clark County/northwestern Arizona endemic. Both extant populations in Clark County managed by NPS. | • Increase the number of springs with populations through reintroduction in appropriate locations<br>• Maintain stable or increasing populations at extant springs<br>• Develop and implement relict leopard frog management plan |
| Dark blue butterfly<br>*Euphilotes enoptes* ssp. | All known population and cited locations | none | none | USFS SMNRA | Spring Mtns endemic. Monitored and managed as part of the Spring Mtns CA. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Spring Mountains icarioides blue<br>*Icaricia icarioides* ssp. | All known populations | none | none | USFS SMNRA | Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Mt. Charleston blue butterfly<br>*Icaricia shasta charlestonensis* | All known population and cited locations | none | none | USFS SMNRA | Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Spring Mountains acastus checkerspot<br>*Chlosyne acastus* | All known population and cited locations | none | none | USFS SMNRA | Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Morand's checkerspot butterfly<br>*Euphydryas anicia morandi* | All known population and cited locations | none | none | USFS SMNRA | Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Carole's silverspot butterfly<br>*Speyeria zerene carolae* | All known population and cited locations | none | none | USFS SMNRA | Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Nevada admiral<br>*Limenitus weidemeyerii nevadae* | All known population and cited locations | none | none | USFS SMNRA<br>BLM Red Rock Cyn NCA<br>USFWS (DNWR) | Southern Nevada endemic (Spring Mtns, Sheep Range). All known habitat monitored and managed as part of the Spring Mtns CA, BLM management actions for Red Rock Cyn, or USFWS management of the DNWR. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA or Sheep Range<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Spring Mountains comma skipper<br>*Hesperia comma* ssp. | All known populations | none | none | USFS SMNRA<br>BLM Red Rock Cyn NCA | Spring Mtns endemic. All known habitat monitored and managed as part of the Spring Mtns CA or BLM management actions for Red Rock Cyn. | • No net unmitigated loss of larval host plant or nectar plant species habitat in SMNRA<br>• Maintain stable or increasing population numbers and host and larval plant species |
| Spring Mountains springsnail<br>*Pyrgulopsis deaconi* | 2 extant and 1 extirpated population | none | none | USFS SMNRA<br>BLM Red Rock Cyn NCA | Southern Nevada endemic with 2 of 3 extant populations in Clark Co within IMAs with specific management actions; only other population in Nye County. | • Increase number of springs with populations through reintroduction in Red Rock<br>• Maintain stable or increasing populations at extant springs |
| Southeast Nevada springsnail<br>*Pyrgulopsis turbatrix* | 5 extant and 1 extirpated population | none | none | USFS SMNRA<br>BLM Red Rock Cyn NCA | Red Rock endemic with 5 extant populations in IMA or LIMA lands managed by USFS and BLM. | • Increase number of springs with populations through reintroduction in Willow Springs<br>• Maintain stable or increasing populations at extant springs |
| Clokey eggvetch<br>*Astragalus oophorus* var. *clokeyanus* | 93% of potential habitat; 13 of 14 cited locations | 6% of potential habitat | 1% of potential habitat | USFS SMNRA | Southern Nevada endemic with more than 99% of populations in SMNRA with specific management actions. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Blue Diamond cholla<br>*Opuntia whipplei* var. *multigeniculata*<br>**State of Nevada Critically Endangered, Federal Candidate** | 95% of known habitat | none | 5% of known habitat | BLM Red Rock Cyn NCA | Blue Diamond Hills endemic. Approximately 95% of the habitat for this species will be on Federal land managed under the terms of a conservation agreement. | • No loss of Blue Diamond cholla in the management area<br>• Maintain stable or increasing population numbers<br>• Harvest and stockpile mature seeds to conserve a seed bank for propagation studies |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Rough angelica<br>*Angelica scabrida* | 91% of cited locations | none | 9% of cited locations | USFS SMNRA | Spring Mtns endemic with more than 90% of populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Sticky ringstem<br>*Anulocaulis leisolenus* | 22% of potential habitat | 60% of potential habitat | 17% of potential habitat | BLM RMP<br>NPS GMP | Southwestern US. More than 80% of widespread habitat in IMA, LIMA, and MUMAs. Protection for the coextensive Las Vegas bearpoppy provides protection for this species. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Charleston pussytoes<br>*Antennaria soliceps* | 96% of cited locations | | 4% of cited locations | USFS SMNRA | Spring Mtns endemic with more than 96% of populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Las Vegas bearpoppy<br>*Arctomecon californica*<br>**State of Nevada Critically Endangered** | 22% of cited locations | 60% of cited locations | 17% of cited locations | BLM RMP<br>NPS GMP | Southern Nevada and northeastern Arizona endemic. The majority (82%) of potential habitat, including 3 populations in Las Vegas Valley, will be managed under the terms of the Las Vegas Bearpoppy Memorandum of Agreement. In addition to designation of ACECs for the species, BLM will develop and implement a habitat management plan for the species on BLM land, including MUMAs. | • Conserve populations on the North Las Vegas Airport, NAFB Area 3, and SNWA North Well Field<br>• No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain and/or improve bearpoppy habitat in 4 BLM management areas: Sunrise, Lovell Wash, Bitter Spring, Gold Butte |
| White bearpoppy<br>*Arctomecon merriamii* | 84% of cited locations | 3% of cited locations | 13% of cited locations | USFS SMNRA<br>USFWS (DNWR) | Mojave desert endemic. 83% of cited locations in IMAs and LIMAs; 60% of potential habitat on DNWR. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Rosy king sandwort<br>*Arenaria kingii* ssp. *rosea* | 88% of known locations | none | 12% of known locations | USFS SMNRA | Spring Mtns endemic. 15 of 17 sites in IMA managed under terms of Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Clokey milkvetch<br>*Astragalus aequalis* | 96% of cited locations | none | 4% of cited locations | USFS SMNRA | Spring Mtns endemic with more than 96% of populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Threecorner milkvetch<br>*Astragalus geyeri* var. *triquetrus*<br>**State of Nevada Critically Endangered** | 18% of cited locations | 82% of cited locations | <1% of cited locations | BLM RMP<br>NPS GMP<br>NDF NRS 527.270 | Southeastern Mojave desert endemic with 99% of potential habitat in Clark Co and all but 6 of 825 cited locations in IMAs, LIMAs, or MUMAs protected by NRS. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs & MUMAs<br>• Maintain stable or increasing population numbers |
| Spring Mountain milkvetch<br>*Astragalus remotus* | 98% of cited locations | none | 2% of cited locations | USFS SMNRA | Spring Mtns endemic with more than 98% of populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Alkali mariposa lily<br>*Calochortus striatus* | 88% of cited locations | none | 12% of cited locations | BLM Red Rock Cyn NCA | Eastern Mojave desert endemic. Almost 90% of cited locations in IMAs & LIMAs, primarily in Red Rock Cyn NCA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers<br>• Develop an activities plan for the NCA including management for this species |
| Clokey paintbrush<br>*Castelleja martinii* var. *clokeyi* | 88% of cited locations | none | 13% of cited locations | USFS SMNRA<br>USFWS (DNWR) | Eastern Mojave desert mountains endemic with almost 90% of populations in SMNRA and DNWR with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Clokey thistle<br>*Cirsium clokeyi* | 88% of cited locations | none | 13% of cited locations | USFS SMNRA | Spring Mtns endemic with almost 90% of populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Jaeger whitlowgrass<br>*Draba jaegeri* | All cited locations | none | none | USFS SMNRA | Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Charleston draba<br>*Draba paucifructa* | All cited locations | none | none | USFS SMNRA | Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Inch high fleabane<br>*Erigeron uncialis* ssp. *Conjugans* | All cited locations | none | none | USFS SMNRA | Southern Nevada endemic with all known populations in SMNRA and DNWR with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Forked buckwheat<br>*Eriogonum bifurcatum* | none | Unknown proportion of habitat | Unknown proportion of habitat | BLM RMP | Pahrump Valley (eastern Mojave desert) endemic. Most of the habitat for this ephemeral species appears to be on BLM land. BLM management should preclude further loss of habitat. | • No net unmitigated loss or fragmentation of habitat on public lands<br>• Maintain stable or increasing population numbers on public lands<br>• Develop inventory of extant populations in Pahrump and Sandy Valley |
| Sticky buckwheat<br>*Eriogonum viscidulum*<br>**State of Nevada Critically Endangered** | 30% of cited locations | 67% of cited locations | 4% of cited locations | BLM RMP<br>NPS GMP<br>NDF NRS 527.270 | Eastern Mojave desert endemic with 97% of potential habitat in Clark Co and all but 3 of 84 cited locations in IMAs, LIMAs, or MUMAs protected by NRS. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers |
| Clokey greasebush<br>*Glossopetalon clokeyi* | All cited locations | none | none | USFS SMNRA | Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Smooth pungent greasebush<br>*Glossopetalon pungens* var. *glabra* | All cited locations | none | none | USFS SMNRA<br>BLM Red Rock Cyn NCA<br>USFWS (DNWR) | Eastern Mojave desert mountains endemic. All habitat for this species in IMAs and LIMAs managed by USFS (Spring Mtns CA), USFWS, and BLM (Bridge Mtn Monitoring Plan). | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Pungent dwarf greasebush *Glossopetalon pungens* var. *pungens* | All cited locations | none | none | USFS SMNRA<br>BLM Red Rock Cyn NCA<br>USFWS (DNWR) | Southern Nevada endemic. All habitat for this species in IMAs and LIMAs managed by USFS (Spring Mtns CA), USFWS, and BLM (Bridge Mtn Monitoring Plan). | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Red Rock Canyon aster *Ionactis caelestis* | All cited locations | none | none | BLM Red Rock Cyn NCA | Red Rock Cyn endemic. Single, remote population managed under the Red Rock Cyn NCA GMP. | • No loss or disturbance of habitat in Red Rock Cyn NCA<br>• Maintain stable or increasing population numbers |
| Hidden ivesia *Ivesia cryptocaulis* | All cited locations | none | none | USFS SMNRA | Spring Mtns endemic with all known populations in SMNRA with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Jaeger ivesia *Ivesia jaegeri* | 95% of cited locations | none | 5% of cited locations | USFS SMNRA<br>BLM Red Rock Cyn NCA | Spring Mtns (NV) and Clark Mtns (CA) endemic. 95% of cited populations in SMNRA and BLM Red Rock Cyn NCA, with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Hitchcock bladderpod *Lesquerella hitchcockii* | 93% of cited locations | none | 7% of cited locations | USFS SMNRA<br>USFWS (DNWR) | Nevada endemic with 95% of Clark Co populations in SMNRA and DNWR, with specific manage-ment actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Charleston pinewood lousewort *Pedicularis semibarbata* var. *charlestonensis* | 97% of potential habitat | | 3% of potential habitat | USFS SMNRA<br>USFWS (DNWR) | Southern Nevada endemic with 97% of Clark Co populations in SMNRA and DNWR, with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| White-margined beardtongue *Penstemon albomarginatus* | 30% of cited locations | 70% of cited locations | <1% of cited locations | BLM RMP | Eastern Mojave desert endemic. Less than 1% of populations on private lands. BLM is conducting experimental grazing exclosure study to evaluate grazing impacts to this species. | • No net unmitigated loss or fragmentation of habitat in IMAs, LIMAs, & MUMAs<br>• Maintain stable or increasing population numbers<br>• Implement modifications to grazing practices as indicated by exclosure study on Jean Lake and Hidden Valley |
| Charleston beardtongue *Penstemon leiophyllus* var. *keckii* | >90% of cited locations | none | <10% of cited locations | USFS SMNRA | Spring Mtns endemic with >90% of known populations in SMNRA with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Jaeger beardtongue *Penstemon thompsoneae* var. *jaegeri* | All cited locations | none | none | USFS SMNRA | Southern Nevada endemic with all known populations in SMNRA with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Parish's phacelia *Phacelia parishii* | >90% of cited locations | none | <10% of cited locations | USFWS (DNWR) | Mojave desert endemic with >90% of Clark Co populations in IMAs and LIMAs on DNWR. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Clokey mountain sage *Salvia dorrii* var. *clokeyi* | All cited locations | none | none | USFS SMNRA<br>BLM GMP<br>USFWS (DNWR) | Southern Nevada endemic with all known populations in SMNRA with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Clokey catchfly *Silene clokeyi* | 96% of cited locations | none | 4% of cited locations | USFS SMNRA | Spring Mtns endemic with >96% of known populations in SMNRA with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Charleston tansy *Sphaeromeria compacta* | >90% of cited locations | none | <10% of cited locations | USFS SMNRA | Spring Mtns endemic with >90% of known populations in SMNRA with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |

**TABLE 2-5**
**COVERED SPECIES CONSERVATION EVALUATIONS**
**(continued)**

| Species | Conserved (IMAs, LIMAs) | Potential Indirect Impacts (MUMAs) | Potential Direct Impacts (UMAs)[1] | Management | Rationale for Coverage | Measurable Biological Goals |
|---|---|---|---|---|---|---|
| Charleston kittentails *Synthyris ranunculina* | All cited locations | none | none | USFS SMNRA | Spring Mtns endemic with all known populations in SMNRA with specific management actions in Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Charleston grounddaisy *Townsendia jonesii* var. *tumulosa* | >90% of cited locations | none | <10% of cited locations | USFS SMNRA<br>BLM Red Rock Cyn NCA<br>USFWS (DNWR) | Southern Nevada endemic. >90% of habitat for this species in IMAs and LIMAs managed by USFS (Spring Mtns CA), USFWS, and BLM (Bridge Mtn Monitoring Plan). | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| Limestone violet *Viola purpurea* var. *charlestonensis* | All known locations | none | none | USFS SMNRA<br>BLM GMP<br>USFWS (DNWR) | Southwestern desert endemic with all known populations in IMAs and LIMAs with specific management actions in the Spring Mtns CA. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| *Anacolia menziesii* | Only cited locations | none | none | BLM Red Rock Cyn NCA | West Coast species with single location in Nevada at Red Rock Cyn. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| *Claopodium whippleanum* | Only cited locations | none | none | BLM Red Rock Cyn NCA | West Coast species with single location in Nevada at Red Rock Cyn. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| *Dicranoweisia crispula* | Only cited locations | none | none | USFS SMNRA | Western North American species with single population in Lee Cyn. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |
| *Syntrichia princeps* | Both cited locations | none | none | USFS SMNRA<br>BLM GMP | West Coast species with two Nevada locations in Spring Mtns and Virgin Mtns. | • No net unmitigated loss or fragmentation of habitat in IMAs & LIMAs<br>• Maintain stable or increasing population numbers |

[1]In all cases, projected potential impacts represent the “worst case” analysis.

**TABLE 2-6**
**EVALUATION SPECIES**

| | | |
|---|---|---|
| | **MAMMALS** | |
| | HIGH PRIORITY | |
| 1.2.1-1 | Pale Townsend's big-eared bat | *Corynorhinus townsendii pallescens* |
| 1.2.2-2 | Kit fox | *Vulpes macrotus* |
| 1.2.3-3 | Desert kangaroo rat | *Dipodomys deserti* |
| 1.2.4-4 | Desert pocket mouse | *Chaetodipus penicillatus sobrinus* |
| | MEDIUM PRIORITY | |
| 1.2.5-5 | Inyo shrew | *Sorex tenellus* |
| 1.2.6-6 | Small-footed myotis | *Myotis ciliolabrum* |
| 1.2.7-7 | Fringed myotis | *Myotis thysanodes* |
| 1.2.8-8 | Golden-mantled ground squirrel | *Spermophilus lateralis certus* |
| 1.2.9-9 | Hidden Forest Uinta chipmunk | *Tamias umbrinus nevadensis* |
| 1.2.10-10 | Panamint kangaroo rat | *Dipodomys panamintinus caudatus* |
| 1.2.11-11 | Bushy tailed woodrat | *Neotoma cinerea lucida* |
| 1.2.12-12 | Long-tailed weasel | *Mustela erminea* |
| 1.2.13-13 | Short-tailed weasel | *Mustela frenata* |
| | LOW PRIORITY | |
| 1.2.14-14 | Nuttall's cottontail | *Sylvilagus nuttallii* |
| 1.2.15-15 | Chisel-toothed kangaroo rat | *Dipodomys microps occidentalis* |
| | **BIRDS** | |
| | HIGH PRIORITY | |
| 2.2.1-16 | Western burrowing owl | *Speotyto cunicularia hypugea* |
| | MEDIUM PRIORITY | |
| 2.2.2-17 | Bendire's thrasher | *Toxostoma bendirei* |
| 2.2.3-18 | LeConte's thrasher | *Toxostoma lecontei* |
| 2.2.4-19 | Gray vireo | *Vireo vicinior* |
| | LOW PRIORITY | |
| 2.2.5-20 | Loggerhead shrike | *Lanius ludovicianus* |
| 2.2.6-21 | Crissal thrasher | *Toxostoma dorsale* |
| 2.2.7-22 | Western bluebird | *Sialia mexicana* |
| | **REPTILES AND AMPHIBIANS** | |
| | HIGH PRIORITY | |
| 3.2.1-23 | Banded Gila monster | *Heloderma suspectum cinctum* |
| 3.2.2-24 | Southern desert horned lizard | *Phrynosoma platyrhinos calidiarum* |
| 3.2.3-25 | Arizona (southwestern) toad | *Bufo microscaphus microscaphus* |
| 3.2.4-26 | Desert night lizard | *Xantusia vigilis* |

**TABLE 2-6**
**EVALUATION SPECIES**
**(continued)**

| | | |
|---|---|---|
| | **REPTILES AND AMPHIBIANS (cont.)** | |
| | MEDIUM PRIORITY | |
| 3.2.5-27 | Sonoran Mountain kingsnake | *Lampropeltis pyromelana* |
| 3.2.6-28 | Regal ringneck snake | *Diadophus punctatus regalis* |
| 3.2.7-29 | Western diamondback | *Crotalus atrox* |
| 3.2.8-30 | Red-spotted toad | *Bufo punctatus* |
| | LOW PRIORITY | |
| 3.2.9-31 | Southern plateau lizard | *Sceloporus undulatus tristichus* |
| | **FISH** | |
| | HIGH PRIORITY | |
| 4.2.1-32 | Moapa dace | *Moapa coriacea* |
| 4.2.2-33 | Woundfin | *Plagopterus argentissimus* |
| 4.2.3-34 | Virgin River chub | *Gila seminuda* |
| 4.2.4-35 | Virgin River chub (Muddy River population) | *Gila seminuda* |
| 4.2.5-36 | Desert sucker | *Catostomus clarki* |
| 4.2.6-37 | Flannelmouth sucker | *Catostomus latipinnis* |
| 4.2.7-38 | Moapa White River springfish | *Crenichthys baileyi moapae* |
| | MEDIUM PRIORITY | |
| 4.2.8-39 | Moapa speckled dace | *Rhinichthys osculus moapae* |
| | **INVERTEBRATES** | |
| | HIGH PRIORITY | |
| 5.2.1-40 | Bret's blue butterfly | *Euphilotes battoides sp.* |
| 5.2.2-41 | MacNeil sooty wing skipper | *Hesperopsis gracielae* |
| 5.2.3-42 | Mojave gypsum bee | *Andrena balsamorhizae* |
| 5.2.4-43 | Mojave poppy bee | *Perdita meconis* |
| 5.2.5-44 | Spring Mountains ant | *Lasius nevadensis* |
| 5.2.6-45 | Moapa riffle beetle | *Microcylloepus moapus moapus* |
| 5.2.7-46 | Moapa skater/waterstrider | *Rhagovellia becki* |
| 5.2.8-47 | Naucorid bug | *Usingerina moapensis* |
| 5.2.9-48 | Moapa pebblesnail | *Pyrgulopsis avernalis* |
| 5.2.10-49 | Moapa turban snail | *Pyrgulopsis carinefera* |
| 5.2.11-50 | Grated tryonia | *Tryonia clathrata* |
| 5.2.12-51 | Undescribed tryonia | *Tryonia sp.* |
| 5.2.13-52 | Dry lake bed species | |

**TABLE 2-6**
**EVALUATION SPECIES**
**(continued)**

| | | |
|---|---|---|
| | **INVERTEBRATES (cont.)** | |
| | MEDIUM PRIORITY | |
| 5.2.14-53 | Dalea blister bee | *Ancylandrena koebelei* |
| 5.2.15-54 | Red-legged beardtongue bee | *Atoposmia rufifemur* sp. nov. |
| 5.2.16-55 | Virgin River globemallow bee | *Diadasia proridens* |
| 5.2.17-56 | Red-tailed blazing star bee | *Megandrena mentzeliae* |
| 5.2.18-57 | Two-tone perdita | *Perdita bipicta* sp. nov. |
| 5.2.19-58 | Mojave twilight bee | *Perdita celadona* sp. nov. |
| 5.2.20-59 | Big-headed perdita | *Perdita cephalotes* |
| 5.2.21-60 | Las Vegas perdita | *Perdita cracens* |
| 5.2.22-61 | Virgin River perdita | *Perdita crotonis caerulea* |
| 5.2.23-62 | Spurge-loving perdita | *Perdita euphorbiana* sp. nov. |
| 5.2.24-63 | Tiquilia perdita | *Perdita exusta* sp. nov. |
| 5.2.25-64 | Apache plume perdita | *Perdita fallugiae* |
| 5.2.26-65 | Yellow-headed perdita | *Perdita flaviceps* |
| 5.2.27-66 | Moapa perdita | *Perdita fulvescens* |
| 5.2.28-67 | Unadorned perdita | *Perdita inornata* |
| 5.2.29-68 | Valley of Fire perdita | *Perdita nevadiana* |
| 5.2.30-69 | Virgin River twilight bee | *Perdita vespertina* sp. nov. |
| 5.2.31-70 | Mojave Mountain perdita | *Perdita vicina* |
| 5.2.32-71 | Desert-loving perdita | *Perdita xerophila discrepans* |
| 5.2.33-72 | Moapa riffle beetle | *Microcylloepus moapus moapus* |
| 5.2.34-73 | Amargosa (Pahranagat) naucorid | *Pelocoris shoshone shoshone* |
| | **VASCULAR PLANTS** | |
| | HIGH PRIORITY | |
| 6.2.1-74 | Black wooly-pod | *Astragalus funereus* |
| 6.2.2-75 | Triangle lobe moonwort | *Botrychium ascendens* |
| 6.2.3-76 | Dainty moonwort | *Botrychium crenulatum* |
| 6.2.4-77 | Silverleaf sunray | *Enceliopsis argophylla* |
| 6.2.5-78 | Nevada willowherb | *Epilobium nevadense* |
| 6.2.6-79 | Las Vegas Valley buckwheat | *Eriogonum corymbosum* var. *aureum* |
| 6.2.7-80 | Yellow twotone beardtongue | *Penstemon bicolor* ssp. *bicolor* |
| 6.2.8-81 | Curve-podded Mojave milkvetch | *Astragalus mohavensis* var. *hemigyrus* |
| | MEDIUM PRIORITY | |
| 6.2.9-82 | Meadow Valley sandwort | *Arenaria stenomeres* |
| 6.2.10-83 | Ackerman milkvetch | *Astragalus ackermanii* |
| 6.2.11-84 | Sheep Mountain milkvetch | *Astragalus amphioxys* var. *musimonum* |
| 6.2.12-85 | Mokiak milkvetch | *Astragalus mokiacensis* |
| 6.2.13-86 | Remote rabbitbrush | *Chrysothamnus eremobius* |
| 6.2.14-87 | Unusual catseye | *Cryptantha insolita* |
| 6.2.15-88 | Ripley's biscuitroot | *Cymopterus ripleyi* var. *saniculoides* |

**TABLE 2-6**
**EVALUATION SPECIES**
**(continued)**

| | | |
|---|---|---|
| | **VASCULAR PLANTS (cont.)** | |
| | MEDIUM PRIORITY | |
| 6.2.16-89 | Sheep fleabane | *Erigeron ovinus* |
| 6.2.17-90 | Desert (Clark) parsley | *Lomatium graveolens* var. *clarkii* |
| 6.2.18-91 | Pygmy poreleaf | *Porophyllum pygmaeum* |
| | LOW PRIORITY | |
| 6.2.19-92 | Virgin River thistle | *Cirsium virginense* |
| 6.2.20-93 | Clokey buckwheat | *Eriogonum heermannii* var. *clokeyi* |
| 6.2.21-94 | Amargosa beardtongue | *Penstemon fruticiformis* ssp. *amargosae* |
| | **NON-VASCULAR PLANTS** | |
| | MEDIUM PRIORITY | |
| 7.2.1-95 | Crossidium moss | *Crossidium seriatum* |
| 7.2.2-96 | Gold Butte moss | *Didymodon nevadensis* |
| 7.2.3-97 | American grimmia | *Grimmia seriatum* |
| 7.2.4-98 | Pseudocrossidium moss | *Pseudocrossidium crinitum* |
| 7.2.5-99 | Undescribed targionia liverwort | *Targionia* sp. nov. |
| 7.2.6-100 | Trichostomum moss | *Trichostomum sweetii* |
| | LOW PRIORITY | |
| 7.2.7-101 | *Distichium inclinatum* | *Distichium inclinatum* |
| 7.2.8-102 | Undescribed syntrichia moss | *Syntrichia* spp. |

**TABLE 2-7**
**WATCH LIST SPECIES**

| | | |
|---|---|---|
| | **MAMMALS** | |
| 1.3.1-1 | California leaf-nosed bat | *Macrotus californicus* |
| 1.3.2-2 | Spotted bat | *Euderma maculatum* |
| 1.3.3-3 | Allen's big-eared bat | *Idionycteris phyllotis* |
| 1.3.4-4 | Southwestern cave myotis | *Myotis velifer brevis* |
| 1.3.5-5 | Yuma myotis | *Myotis yumanensis* |
| 1.3.6-6 | Greater western mastiff bat | *Eumops perotis californicus* |
| 1.3.7-7 | Big free-tailed bat | *Nyctinomops macrotis* |
| 1.3.8-8 | Spiny pocket mouse | *Chaetodipus spinatus spinatus* |
| | **BIRDS** | |
| 2.3.1-9 | Green-backed heron | *Butorides striatus* |
| 2.3.2-10 | Western least bittern | *Ixobrychus exilis hesperis* |
| 2.3.3-11 | White-faced ibis | *Plegadis chihi* |
| 2.3.4-12 | Yuma clapper rail | *Rallus longirostrus yumanensis* |
| 2.3.5-13 | Northern goshawk | *Accipiter gentilis* |
| 2.3.6-14 | Ferruginous hawk | *Buteo regalis* |
| 2.3.7-15 | Golden eagle | *Aquila chrysaetos* |
| 2.3.8-16 | Bald eagle | *Haliaeetus leucocephalus* |
| 2.3.9-17 | Flammulated owl | *Otus flammeolus* |
| 2.3.10-18 | Northern saw-whet owl | *Aegolius acadius* |
| 2.3.11-19 | Northern pygmy owl | *Glaucidium gnoma* |
| 2.3.12-20 | Western screech owl | *Otus kennicotti* |
| 2.3.13-21 | Cactus wren | *Campylorhynchus brunneicapillus* |
| 2.3.14-22 | Canyon wren | *Catharpes mexicanus* |
| 2.3.15-23 | Scott's oriole | *Icterus parisorum* |
| | **REPTILES AND AMPHIBIANS** | |
| 3.3.1-24 | Common zebra-tailed lizard | *Callisaurus draconoides draconoides* |
| 3.3.2-25 | Pacific tree frog | *Hyla regilla* |
| 3.3.3-26 | Plains toad | *Bufo cognatus* |
| 3.3.4-27 | Woodhouse toad | *Bufo woodhousii* |
| | **FISH** | |
| 4.3.1-28 | Virgin spinedace | *Lepidomeda mollispinis mollispinis* |
| | **INVERTEBRATES** | |
| 5.3.1-29 | Red-legged lava bee | *Ashmeadiella picticrus* sp. nov. |
| 5.3.2-30 | Flat-faced cactus bee | *Lithurge listrota* |
| 5.3.3-31 | Beck's perdita | *Perdita becki* |
| 5.3.4-32 | Rock nettle perdita | *Perdita eucnides eucnides* |
| 5.3.5-33 | Banded perdita | *Perdita vittata conformis* |
| 5.3.6.34 | Koso phacelia bee | *Protodufourea koso* sp. nov. |
| 5.3.7-35 | Michener's phacelia bee | *Xeroheriades michener* |
| 5.3.8-36 | Corn Creek springsnail | *Pyrgulopsis* spp. |

**TABLE 2-7**
**WATCH LIST SPECIES**
**(continued)**

| | | |
|---|---|---|
| | **INVERTEBRATES (cont.)** | |
| 5.3.9-37 | Blue Point springsnail | *Pyrgulopsis* spp. |
| 5.3.10-38 | Undescribed Blue Point tryonia | *Tryonia sp.* |
| | **VASCULAR PLANTS** | |
| 6.3.1-39 | One-leaflet Torrey milkvetch | *Astragalus calycosus* var. *monophyllidius* |
| 6.3.2-40 | Clokey pincushion | *Coryphantha vivipara* ssp. *rosea* |
| 6.3.3-41 | Hoffman's cryptantha | *Cryptantha hoffmannii (=C. virginensis)* |
| 6.3.4-42 | New York Mountains catseye | *Cryptantha tumulosa* |
| 6.3.5-43 | Chalk liveforever | *Dudleya pulverulenta* |
| 6.3.6-44 | Clokey fleabane | *Erigeron clokeyi* |
| 6.3.7-45 | Barrel cactus | *Ferocactus acanthoides* var. *lecontei* |
| 6.3.8-46 | Nevada greasebush | *Glossopetalon nevadensis* |
| 6.3.9-47 | Beaver dam scurfpea (breadroot) | *Pediomelum castoreum* |
| 6.3.10-48 | Rosy twotone beardtongue | *Penstemon bicolor* var. *roseus* |
| 6.3.11-49 | Utah spikemoss | *Selaginella utahensis* |
| | **NON-VASCULAR PLANTS** | |
| 7.3.1-50 | *Fissidens sublimbatus* | *Fissidens sublimbatus* |
| 7.3.2-51 | *Splachnobryum obtusum* | *Splachnobryum obtusum* |

- Allow no net unmitigated loss or fragmentation of habitat in IMAs and LIMAs (or MUMAs where they represent the majority of habitat for the species);

- Maintain stable or increasing population numbers; and

- Develop, through the AMP, appropriate detailed and quantifiable population or habitat goals for each Covered Species or, if possible, associated with the quantifiable goals for an appropriate indicator (ecosystem measure or key, umbrella, flagship species).

The detailed discussions of each Covered and High Priority Evaluation Species that are provided in Appendix B include:

- Species or subspecific common name
- Listing status
- Clark County MSHCP status
- Range in North America
- Clark County distribution
- Habitat
- Population trends
- Ecosystem level threats
- Species-specific threats
- Existing and proposed conservation actions
- Adequacy of existing management (Covered Species)
- Additional conservation needs (Evaluation Species)
- References

The species are discussed individually in order to evaluate the coverage provided to each species by existing conservation protection provided by existing management and the measures proposed by each Participant in Section 2.8.

The species identified as Covered Species in Phase 1 of the MSHCP process correspond to "target" species for which the Applicants are providing adequate coverage and for which they are seeking a Section 10(a) Permit (USFWS 1995, Region 1 Guidelines for Determining Covered Species Lists and Assurances Relative to Habitat Conservation Planning). The species on the Evaluation Species list and the Watch List Species are identified as the potential "target" species for Phase 2 of the MSHCP process.

Multiple species planning efforts may be based on ecosystem health and therefore will be evaluated as to the extent to which the plan provides for the quality of natural habitat and the species that depend upon that habitat in the planning area. Not all species will receive equal benefits from the measures in the plan, but overall a plan that deals successfully with natural ecosystems will provide for the species that inhabit those ecosystems.

As a general principle, mitigation for each species is related to the level of threats and stressors affecting the species. If species-specific threats and stressors have been identified, species-specific mitigation measures are listed. If only low or generalized ecosystem levels of threats or stressors have been identified, mitigation is accomplished through ecosystem level management.

Based on the detailed analyses in Appendixes A and B, the species listed in Table 2-5 are included as Covered Species. The general criteria for inclusion of these species as covered are as follows:

- For species with most or all of their range within Clark County, a significant and necessary amount of habitat important for the species survival is within IMAs or LIMAs and managed in a manner consistent with the needs of the species.

- For species with most of their range outside Clark County, a significant and necessary amount of habitat that could support the species within Clark County is in IMAs, LIMAs, or MUMAs (of which a substantial portion is in IMAs or LIMAs) and managed in a manner consistent with the needs of the species.

- Identified potential species-specific and ecosystem threats and stressors are addressed by existing or proposed management actions to be implemented through the AMP.

The development of the AMP will result in a more specific matching of management actions with threats and stressors; however, during the initial implementation of the MSHCP and before delineation of these more specific actions), the MSHCP will, through the biennial budget process, provide funding for any actions that are deemed necessary for the maintenance of the status of populations of Covered Species.

# 2.7 Estimated Loss of Habitat

## 2.7.1 Estimated Loss of Tortoise Habitat

Although the entire 10(a) Permit area includes an estimated 418,200 acres with potential for development, not all of the land will be developed during the 30-year permit period. The DCP assumed that the amount of land likely to be developed in the permit area between 1994 and 2023 would be 111,000 acres. This number was based on the historic relationship between land disturbance and population, as applied to population projections in the DCP. Revised population projections described in this MSHCP (Sections 2.3.3 and 2.11) project an increase in the rate of land disturbance to approximately 121,000 acres at the end of the term of the DCP in the year 2023 and 130,000 acres at the end of the proposed term of the MSHCP in the year 2028. Although this projection represents an estimate of the expected total number of acres of disturbance in Clark County given current projections of population growth, an additional 15,000 acres of land disturbance within the plan area would not be subject to fees, as described in Section 2.7.2.

Within the region, population forecasts continue to indicate that more than 90 percent of the county population growth will occur within the Las Vegas Valley.

It should be noted that it is estimated that more than 3.5 million acres of tortoise habitat occur within Clark County. Thus, even if all 130,000 acres were actually tortoise habitat, its development would result in less than a four percent loss.

## 2.7.2 Estimated Loss of Other Habitats

The actual amount of land disturbance affecting the species and the ecosystems covered in this plan during the proposed 30-year term of the MSHCP for each ecosystem cannot be determined precisely. However, the maximum proportion that could be disturbed can be estimated based on the total number of acres of each ecosystem in the plan area and on the existing management status of these acres.

Some direct loss of habitat will occur on Federal lands during the permit period. However, all of the projected 145,000 acres of land disturbance covered by this MSHCP will occur on non-Federal lands or property disposed of by Federal agencies. Although the incidental take provisions of this MSHCP apply only to non-Federal actions (i.e., land disturbance on private lands), to provide a comprehensive analysis this plan anticipates some level of impacts on Federal lands. Federal actions that may affect listed species will require consultation under the provisions of Section 7 of the ESA; Federal actions that result in impacts to other resources will require review under the provisions of NEPA.

The MSHCP proposes to cover incidental take on 145,000 acres of habitat in Clark County, including 130,000 acres subject to fee collection and approximately 15,000 acres of land disturbance not subject to fee collection. The projected level of land disturbance subject to the collection of fees is based on population growth and needs of supporting infrastructural development over the term of the permit.

It is anticipated that approximately 15,000 acres of land disturbance exempt from fee collection will occur during the term of the permit. This includes (1) areas to be developed by the County and Cities as parks (5,700, to 7,000 acres; Southern Nevada Strategic Planning Authority Needs Assessment, 1998 Report) and roads (approximately 5,700 acres through the year 2030; Regional Transportation Commission 1998); and (2) areas disturbed by mining and agriculture on private lands. Local government projects were exempted because these agencies prefunded the development and implementation of the DCP. No new agricultural development is expected to occur during the period; however, additional agricultural development will not be precluded by this plan. There is little or no mining for precious metals on private lands in Clark County and no projected new gypsum or limestone mining. Previous resource development in Clark County has nearly exhausted the supply of aggregate materials, including sand and gravel, and these materials are now being imported from outside the County (Nevada Division of Minerals, pers. com.). The County shall provide an estimate of the number of acres of land disturbance per biennium resulting from activities not requiring payment of the development fee.

Private and non-Federal lands (UMAs) potentially subject to land disturbance under the proposed permit are primarily located in Mojave desert scrub (285,000 acres), salt desert scrub (19,800 acres), and blackbrush (8,700 acres) ecosystems, although the ecosystems with the greatest proportion potentially subject to land disturbance are desert aquatic (35.5 percent) and mesquite/catclaw (23.0 percent), as presented in Table 2-8.

**TABLE 2-8**
**ACRES OF ECOSYSTEM, EXISTING LAND USES, AND EXISTING HABITAT IN CLARK COUNTY**

| Ecosystem | Habitat in Clark County | Habitat in UMA | Percent of Habitat in UMA* |
|---|---|---|---|
| Alpine | 500 | 0 | 0 |
| Bristlecone pine | 15,800 | 1,000 | 6.3 |
| Mixed conifer | 56,400 | 1,500 | 2.7 |
| Pinyon-juniper | 278,200 | 4,200 | 1.5 |
| Sagebrush | 134,600 | 900 | 0.70 |
| Blackbrush | 824,800 | 8,700 | 1.1 |
| Salt desert scrub | 190,700 | 19,800 | 10.4 |
| Mojave desert scrub | 3,273,000 | 285,000 | 8.7 |
| Mesquite/catclaw | 21,700 | 5,000 | 23.0 |
| Desert aquatic | 16,900 | 6,000 | 35.5 |
| Urban, agriculture, non-habitat | 243,500 | 189,400 | 77.8 |
| Clark County Totals | 5,056,100 | 521,500 | 6.9 |

*Primarily non-Federal lands on which incidental take may occur.

Almost all of the past urban land disturbance in Clark County occurred in Mojave desert scrub, with small amounts in salt desert scrub, mesquite/catclaw, and desert aquatic ecosystems. Agricultural activities primarily affected the mesquite/catclaw and desert riparian ecosystems.

Direct and indirect effects from multiple use activities may occur within Federal and state lands managed for uses other than conservation of biological resources. These areas are classified as MUMAs in this plan. The maximum proportion of the county potentially subject to direct or indirect effects of land use and land disturbance activities (in areas classified as MUMA and UMA) varies from none for the alpine ecosystem to 69.2 percent for desert aquatic (Table 2-9).

**TABLE 2-9**
**LANDS POTENTIALLY SUBJECT TO DIRECT AND INDIRECT EFFECTS (acres)**

| Ecosystem | Clark County Total | Remaining Habitat in UMA | Remaining Habitat in MUMA | Total UMA + MUMA | Total UMA + MUMA (%) |
|---|---|---|---|---|---|
| Alpine | 500 | 0 | 0 | 0 | 0 |
| Bristlecone pine | 15,800 | 1,000 | 0 | 1,000 | 6.3 |
| Mixed conifer | 56,400 | 1,500 | 0 | 1,500 | 2.7 |
| Pinyon-juniper | 278,200 | 4,200 | 18,700 | 22,900 | 8.2 |
| Sagebrush | 134,600 | 900 | 16,300 | 17,200 | 12.8 |
| Blackbrush | 824,800 | 8,700 | 279,600 | 288,300 | 35.0 |
| Salt desert scrub | 190,700 | 19,800 | 39,600 | 59,400 | 31.1 |
| Mojave desert scrub | 3,273,000 | 285,000 | 1,111,800 | 1,396,800 | 42.7 |
| Mesquite/catclaw | 21,700 | 5,000 | 8,000 | 13,000 | 59.9 |
| Desert aquatic | 16,900 | 6,000 | 5,700 | 11,700 | 69.2 |
| Ecosystem Totals | 4,812,600 | 332,100 | 1,479,700 | 1,811,800 | 37.6 |

The actual, versus the potential, amount of each habitat type that will be affected by indirect effects will be substantially lessened as a result of the conservation measures outlined in this MSHCP.

## 2.7.3 Incidental Take Associated with Loss of Habitat on Non-Federal Land

Incidental take of Covered Species on non-Federal lands within all ecosystems would be authorized pursuant to the terms of this plan and the 10(a) Permit. Notwithstanding the fact that Table 2-5 indicates that the known populations of many of the Covered Species are located exclusively on Federal lands, if populations are later identified on non-Federal lands within these ecosystems, incidental take of these species would be authorized by this permit. The analysis of the Covered Species included in this plan suggests to the applicant that the conservation measures on Federal lands provide adequate coverage and the incidental take of Covered Species on non-Federal lands will not appreciably reduce the likelihood of the survival and recovery of those species in the wild.

# 2.8 Measures to Minimize, Mitigate, and Monitor Impacts of Take

The following sections delineate, by responsible agency, measures proposed to minimize, mitigate, and monitor the impacts of take of species covered by the MSHCP. The measures have been derived primarily from the existing and proposed additional conservation measures identified in Appendix A that address the potential threats to each ecosystem and in Appendix B that address the potential threats to each species. Existing conservation measures are identified in italics in the text.

The following are recommended conservation actions to be undertaken by each local, state, and Federal agency participating in the MSHCP. The conservation actions include public information and education, adaptive management, and land use policies and actions. For adaptive management, the conservation actions include research, monitoring for trends, and inventories to assess the status of habitats and species. The land use policies and actions include habitat restoration and enhancement measures, protective measures which may include regulatory prescriptions, use restrictions, or other land management actions, and changes to underlying management policies.

Budgets for the implementation of conservation actions will be developed biennially as described in Section 2.12. Funding for these actions, including augmentation of land managers' budgets, will come from the endowment described in Section 2.9. Phase 1 of the MSHCP proposes adding $400,000 per year to the annual budget for the DCP, for a total of $2.05 million per year ($4.1 million per biennium) through the year 2004 and $1.65 million per year ($3.3 million per biennium) thereafter. These amounts are in constant dollars, adjusted biennially for the effects of inflation. The adjusted funding level after 2004 reflects commitments of the DCP.

## 2.8.1 Initial Conservation Measures

As described more fully in Sections 2.1 through 2.7 and Appendixes A and B of this document, the BAC and the I & M Committee identified and delineated each habitat type within Clark County, segregated the species into groups which utilize each habitat, identified actual or potential threats to both the habitats and species, and reviewed the current laws, rules and regulations applicable to each management polygon within each habitat. The BAC then analyzed and compared the threats with the existing laws, rules and regulations and the enforcement thereof to determine what additional conservation measures should be considered by each of the land managers and Clark County to ensure conservation of the habitats and each of the Covered Species. All of the recommendations to Clark County and each of the land managers are set forth below in Sections 2.8.3

through 2.8.9. Clark County and each of the land managers have committed, subject to available funding, to undertake each of the suggested conservation measures, over time.

Unless specifically modified by this MSHCP, the measures to minimize, monitor, and mitigate undertaken by Clark County, BLM, NPS, USFWS, NDOW, and NDOT in Sections 3C and 3D of the DCP are incorporated herein by reference and shall remain unless modified through the AMP and the Implementation Plan and Budget (IPB) process.

This MSHCP does not include a specific budget for each conservation measure it intends to implement during the term of the permit. It is intended that the biennial IPB process, as defined in Section 2.12.1, including a review of the results of the AMP after study and analysis by the I & M Committee and review, and approval by the USFWS and the Board of County Commissioners, all as described hereinafter, will specify which management and conservation measures are most likely to provide for the effective implementation of the MSHCP. The specific amount expended for each conservation and management activity may vary from year to year depending on the needs of habitats and species. Additional conservation measures may be developed during the term of the MSHCP as a result of recommendations from the land managers and the AMP and may be funded.

## 2.8.2 Future Conservation Measures to Deal with Changed Circumstances—The Adaptive Management Process

While the I & M Committee believes that the initial measures to be funded by the MSHCP (during the period commencing in July of 1999 through June of 2001) will be effective to conserve both habitats and the Covered Species, conditions within Clark County, the status of habitats, and the overall conditions of individual species over time will change. In addition, it is quite likely that additional and different conservation measures, not contained within the MSHCP, will be suggested and be proven to be effective during the term of the MSHCP. Finally, it may be found that measures currently funded by the MSHCP or undertaken by the land managers may prove to be ineffective to conserve either species or the habitats in which they dwell. Therefore, the Applicants and the I & M Committee, with the cooperation of USFWS and all participants, are proposing an Adaptive Management Process to gauge the effectiveness of existing conservation measures and to propose additional or alternative conservation measures, as the need arises, and to deal with changed or unforeseen circumstances.

Adaptive management can be defined as a flexible, iterative approach to long-term management of biological resources that is directed over time by the results of ongoing monitoring activities and other information. This means that biological management techniques and specific objectives are regularly evaluated in light of monitoring results

and new information on species needs, land use, and a variety of other factors. These periodic evaluations are used over time to adapt both management objectives and techniques to better achieve overall management goals as defined by measurable biological objectives. In the case of the MSHCP, these measurable biological objectives broadly include (a) maintenance of the long-term net habitat value of the ecosystems in Clark County with a particular emphasis on Covered Species and (b) recovery of listed species and conservation of unlisted Covered Species. Appendixes A and B contain the current evaluation of habitat values within each ecosystem and for each species.

The Clark County MSHCP will implement an AMP designed to provide an objective, quantitative evaluation of the effectiveness of (a) management actions in attaining program goals and (b) inventory, monitoring, and research results and interpretation. The AMP is intended to provide a scientifically sound approach, which is preferred by many resource managers when funding and scientific resources are available. The AMP is intended to provide resource managers with objective scientific data and analysis upon which to base management decisions as well as scientifically valid evaluation of management actions. The AMP is also intended to provide the I & M Committee, which funds resource management and conservation actions, with objective and scientifically valid evaluations of the need for various actions and assessment of the effectiveness of those actions. A critical element of the Clark County AMP is the database upon which management decisions are made. Such a database can provide the basis for evaluating species, ecosystem, and/or landscape status and trends, and it can be used to evaluate management actions directed at conservation of biological resources. Adaptive management requires an objective, and scientifically valid, program for collecting scientific data coupled with supervision of an accessible database by a competent scientific authority and quantitative evaluation of the data.

Specifically, it is intended that the AMP should (a) do an analysis of all land use trends in Clark County to make sure that take and habitat disturbance is balanced with solid conservation, (b) monitor population trends and ecosystem health, and (c) evaluate effectiveness of management actions at meeting MSHCP goals of conservation and recovery.

### 2.8.2.1 MSHCP Database and Scientific Authority

It is anticipated that the UNR and NNHP, through the AMP, will serve as the central data repository of all scientific data. This repository function will facilitate both collection and distribution of data from and to MSHCP Participants. Additional services of the data repository will include data security; Federal, state, and university data compliance; and data standardization. The AMP will develop the geographic information system and relational database (the Resources Database described in Section 2.8.2) to be used for biological/spatial analysis of these collected data. The database manager will ensure long-term maintenance of the database, and review of the validity and reliability of the

database will be provided by the scientific staff of the BRRC and contributing MSHCP participants. The central data repository will provide access to MSHCP data to Clark County and all Participants in the MSHCP process (online via the Internet or through other technologies such as CD-ROM or hard copy, as agreed to by the I & M Committee).

### 2.8.2.2 Development of the Adaptive Management Process

Prior to issuance of any permit, Clark County will enter into a contract with BRRC to meet with the land managers, to develop a scope of work, to estimate cost of the development of the AMP, to develop long-term projections of the cost to implement the AMP, and to develop a specific budget for the first two years of the AMP, as described below. The long-term focus of the AMP will be the evaluation of species and ecosystems within the areas of the county identified as IMAs and LIMAs and the provision of relevant information to land managers with respect to land use decisions potentially affecting biological resources in these areas. Specifically, the AMP should develop methods to (a) monitor population trends and ecosystem health and (b) evaluate effectiveness of management actions at meeting MSHCP goals of conservation and recovery.

The BRRC was established by Congress, which funded the Nevada Biodiversity Initiative to work with Federal and state agencies to develop the scientific basis for preserving biological resources with the least conflict with economic development. The MOU for the Nevada Biodiversity Research and Conservation Initiative among BRRC, the Center for Conservation Biology at Stanford University, NDOW, NNHP, USFWS, USFS, BLM, and cooperating agencies (June 1995) establishes a general framework for cooperation and participation among the signatories to develop and propose strategies for the conservation of biological resources and maintaining ecosystems throughout the State of Nevada. Additionally, the BRRC and The Nature Conservancy (TNC) also entered into an MOU (March 1995) establishing principles of cooperation for collecting, maintaining, and using information on the distribution, status, and trends of species, natural communities, and ecosystems in Nevada. The intent of the MOU is to provide information that will lead to effective and efficient approaches to "on-the-ground" conservation that provides for the preservation of Nevada's unique natural heritage.

Development of the AMP will be completed in a cooperative and coordinated manner with, and under the direction of, the I & M Committee. During the first two years, the AMP will focus on five significant areas: (1) development of the GIS data base; (2) identification of indicator species, (3) evaluation and management of roads and OHV activity (see section on OHV), (4) management of those species which appear most likely to be listed without proactive action; and (5) evaluation of means to enhance cost-effectiveness of existing species and habitat management actions.

The I & M Committee has set aside a maximum of $1.2 million for implementation of the first two years of the AMP, which was approved upon receipt of a specific scope of work.

Adaptive management must, by its very nature, be adaptive and reflect issues of concern to the I & M Committee and land management agencies and assist them in answering management-related questions. In future years, and based upon input from the agencies and its constituent members, the I & M Committee will elaborate specifics of the I & M conservation goals and priorities; and it will provide funding to the contractor to undertake specific tasks to assist Clark County and the agencies to reach those goals and, employing state-of-the-art scientific methods, including those key elements outlined below for inventory, monitoring, and research. The biennial work plan for the AMP will be developed in cooperation and coordination with the I & M Committee and, if approved by the I & M Committee, will be recommended for approval by the USFWS and adoption by the Board of County Commissioners.

### 2.8.2.3 Inventory, Monitoring, and Research

The inventory and monitoring component of the AMP is anticipated by BRRC to include six key steps which, when appropriately linked to decision making, will maximize the collection and integration of objective, reliable data into the decision-making process and is intended to minimize inappropriate or unnecessary management actions.

- ***Identification of Explicit (Quantifiable) Scientific Goals and Objectives.*** The goals of the scientific program (developed from the general goals and guidance of the I & M Committee) will include "targets of study at a wide variety of spatial scales and levels of ecological complexity." For example, targets of study will range from highly restricted spatial scales for species such as endemics found only in single desert springs to broad spatial scales for species ranging over most of Clark County in several habitat types. Targets of study may range from individual populations to entire ecosystems and landscapes including several ecosystems. Among the targets of study will be specific population characteristics of select species of concern, including Federally listed threatened and endangered species, "candidate" species and sensitive species, and other species of special conservation concern. Targets of study for ecological communities may include variables associated with composition (which species are present), structure (characteristics like shrub sizes and shapes), and function (such as presence of pollinators and nitrogen fixers). Landscape-level studies will identify targets of study that can be remotely sensed from aerial photography and/or data logging systems. The scientific goals and objectives will be dynamically optimized to incorporate the most current scientific information and respond to changes in goals and direction from the I & M Committee.

- ***Identification of Likely Environmental Stressors.*** The AMP will identify likely sources of ecological disturbance (in addition to those currently set forth in Section

2.4.2.4 and Appendixes A and B hereof) that can compromise ecosystems and their constituent species. Environmental stressors will include both natural and anthropogenic phenomena including climate change, fire, toxic pollutants, flood, water diversions, invasions of exotic species, overharvest of species, and so on. Identification and verification of stressors will be the product of research to establish mechanistic links between environmental phenomena and stress to populations, species, and ecosystems.

- ***Construction of Conceptual Models Describing Crucial Ecosystem Interactions.*** Models will outline interconnections (linkages) among ecological communities and among species and processes within them. The models are important in developing an understanding of the key processes and properties of the systems and in developing understanding of how environmental stressors affect processes like extinction. The models will be important in delimiting the boundaries of what constitutes natural variation in population and ecosystem processes and the role of humans in stressing natural processes. Models will incorporate the latest scientific concepts and paradigms, which can keep costs low and scientific understanding high.

- ***Identification of Indicator Species.*** Indicator species are surrogates of population or ecosystem processes of concern. They can be species or ecosystem components or characteristics that are easy to measure and exhibit dynamics and responses that parallel those of more difficult to measure population or ecosystem processes of concern. Indicator species are selected because they demonstrate low natural variability but respond measurably to environmental change at reasonable cost. Indicators will include population sizes and distributions of select species, physical and biotic variables associated with ecological communities, and vegetation types readily assessed by remote methods. Establishing indicators will require research into the correlation among populations and among ecosystem processes. The cost, relative efficacy, and anticipated benefits of such research will be regularly evaluated by the I & M Committee along with other alternative conservation measures, alternatives, and proposals.

  This effort will coordinate with other ongoing programs in the development of indicator species; for example, the East Mojave planning process and the Lake Mead NRA vital signs evaluation.

- ***Development of Sampling Design to Estimate Status and Trends of Indicators.*** Hypothesis testing, trend analyses, model development, and statistical inference will come from a rigorously scientific program that will be subjected to independent scientific review. Monitoring exercises will be statistically rigorous so that the program will have the highest probability to detect ecologically important trends convincingly. Sampling design, hypothesis sampling, and trend analyses are all

scientific processes that continually become better as general scientific knowledge increases. Thus, rigor in this area will require continuous reevaluation.

- ***Determination of Threshold Values That Will Trigger Proposals for Management Changes.*** Quantitative levels of status and trends will be used to trigger proposals for adjusting land management and policy. This is the basis for adaptive management, and it provides recommendations for the appropriate bodies to establish dynamic policies and management aimed at producing the desired ecological condition and the conditions required by the U.S. Fish and Wildlife Service.

Appropriately integrated, this step-by-step program will use direct measurements and surrogate variables (indirect measures of the status of a species or ecosystem) to determine the status and trends of ecosystems and their constituent species. The resulting data and analyses will provide insight and lead to recommendations for adaptive management. It is critical to this process and to the assurances made to the USFWS that the long-term scientific integrity of inventory, monitoring, and research be assured by the highest standards of scientific accountability and peer review. These are essential if the Adaptive Management Process is to provide the I & M Committee, the USFWS, resource managers, and regulatory agencies with reliable and objective information as well as recommendations for changes in management and policy.

Inventory, research, and monitoring are necessary and important activities for complex, long-term, multiple-species HCPs. Nevertheless, the lines defining the differences and similarities between monitoring and research are not sharp. Indeed, appropriate monitoring requires research methods to provide more than anecdotal information, and anecdotal information will be inadequate for both economy-seeking permit holders and for regulatory agencies. Additionally, where monitoring methods do not yet exist, research must be conducted to develop efficacious means to assess the effectiveness of the HCP. Thus, this section will elaborate on the definitions, roles, and importance of inventory, research, and monitoring activities in conservation planning.

### 2.8.2.4 Relationship Between Monitoring, Research, and Adaptive Management

Adaptive management of the conservation plan requires constant assessment of the effectiveness of management actions. That assessment occurs through monitoring, and some monitoring cannot occur without research. An effective monitoring program must have all three types of monitoring and research or else it is not possible to interpret data from the component parts of monitoring. Specifically, the efficacy of the conservation plan requires evaluation of the effects of management in light of hypothesized responses to that management and to the actual management actions. All of the different kinds of monitoring are required to make a decision to alter current management practices to reach the desired objectives of the HCP.

## a. "Shortcuts" in Monitoring

Alerting managers of the HCP to the problems of destructive, non-random change, or in a change of conceptual model of the system, must come from monitoring and research. Thus, monitoring activity will involve a wide array of variables important in assessing the processes threatening the future viability of the component populations in the HCP. Additionally, in complex multi-species HCPs, it is rarely possible to measure all populations covered in the 10(a) Permit. Time and money infrequently are adequate to allow such extensive monitoring. Thus, "shortcuts" are necessary to monitor the efficacy of the plan through time. "Shortcuts" in monitoring can come by categorizing elements of the HCP. There are several possible categorizations of HCP elements that could be appropriate and helpful. All species covered under the HCP might not be equal in terms of their importance or influence on other species in the HCP, and some species may correlate in their reaction to abiotic events within the planning area. Below are possible categories of species that can be helpful in assessing the efficacy of conservation planning.

***Indicator species:*** Indicator species are those whose dynamics are correlated with the population dynamics of other species in the HCP. This correlation allows us to measure the dynamics of one population and infer the dynamics of others. These correlations among species generally come from similar reactions by species to different abiotic stressors. For example, if several species are sensitive to drought and all decline in population numbers in the presence of drought, then documented declines in one species allows us to infer that other correlated populations also will decline. Indicators may not reliably exist (Simberloff 1998), particularly in communities dominated by density-dependent population dynamics. It is not possible to identify indicators without research documenting the correlated responsiveness of populations.

***Keystone species:*** Keystone species are those that have an influence on the dynamics (and even presence) of a number of other species often far out of proportion to their own numbers or biomass. For example, the absence of a keystone predator releases prey species from population control, resulting in competition becoming important enough among the prey species that competitive exclusion occurs. In other words, the presence of keystone species promotes species richness in an ecosystem.

***Umbrella species:*** Umbrella species are species with very large home ranges and small population densities and narrow habitat requirements (e.g., northern spotted owl, desert tortoise). Protection of the habitat of these species (quite a large amount of habitat is required for these species) supposedly protects the habitat of many other species.

***Flagship species:*** Flagship species are large and/or charismatic species (e.g., pandas, lions, bison, bald eagles) that "represent the habitat protected, and they are picked by people because they help in marshalling voter support for conservation action." Protection of these species may not protect other species, but it may create sympathy for conservation among financial donors or voters.

***Focal species:*** Focal species are simply species to which particular attention is paid in conservation efforts. Species like the marbled murrelet are neither charismatic nor are they keystones. However, they are the focus of attention in conservation efforts because they are sensitive species within the northwestern temperate rainforest ecosystem.

***Invader species:*** Invader, or exotic, species are species that have not evolved within the ecosystem in which they are now found. Some invader species are dangerously aggressive competitors or predators and can cause the extirpation of native species. Invader species include salt cedar, which threatens persistence of native willows, or bullfrogs, which threaten persistence of many "true" frogs in the western United States.

## b. The Role of Research

Research is essential to effective monitoring. Selecting indicator species requires research to determine which species correlate in their responses to changes in environmental conditions. Establishing statistically defensible correlations among species in their responses to the environment is the only scientifically efficacious method for establishing indicators. Anything less than this scientific approach could be extremely dangerous. Designating species as indicators without scientific basis could result in adaptive management that is damagingly incorrect in its ability to predict ecosystem responses to changes in the environment.

Research is also necessary for the development, and continual correction, of the conceptual model of the ecosystem. An incorrect conceptual model of the ecosystem can lead to dangerously inappropriate adaptive management. Assumptions of which management actions will lead to the desired objectives of the HCP need to be tested. For example, an HCP could hypothesize a conceptual model that posits that paved roads are damaging to nocturnal snake populations as individual snakes seek warm places at night to thermoregulate. This hypothesis requires testing. The test would not simply assess the number of snakes that become road kills on paved roads. It would assess threats to the persistence of snake populations given that some individual snakes will die on roads. The HCP could hypothesize that habitat disturbance is important to persistence of some species of plants and animals. The test of this hypothesis would require replicated treatment and control plots to quantify responses of populations to disturbance in different places in the County and in different environmental circumstances.

### 2.8.2.5 Adaptive Management Decision Making

Importantly, the adaptive management framework will allow information to be transferred directly to decision makers and land and resource planners for integration into MSHCP implementation. The process involves five steps:

- Provide a range of possible management responses.

- Determine the potential alternative ecological outcomes associated with specific phenomena being monitored.

- Assess the probabilities associated with each possible interpretation of monitoring data.

- Identify the management decision that maximizes the overall "utility" of each decision and outcome (involving considerations of the costs of misinterpretations of monitoring data and costs of wrong decisions).

- Propose research endeavors that are likely to result in identification of management actions which will allow species to be moved from evaluation to covered status.

To the extent feasible, species and habitat linkages will be addressed to produce proposals that maximize conservation of the ecosystem on which the Covered Species depends and minimize the financial cost and the inconvenience and disruption to public activities. By linking statistically validated sampling designs with explicit consideration of environmental stressors, the Clark County MSHCP will move beyond traditional census approaches—which document trends but rarely explain them—to providing land managers and the I & M Committee with the full scope of information necessary for scientifically defensible decisions in adaptively managing the biological resources of Clark County.

The scientific information generated by the AMP will be available to decision makers such as the I & M Committee, the Board of County Commissioners, the state and Federal land managers, and the USFWS, together with the considerations of available funding, socioeconomic and sociopolitical factors, human impacts, political realities, MSHCP goals and objectives, and USFWS mandates and direction. The I & M Committee will consider funding requests for management actions from Federal, state, and other land managers in light of biological data, analyses, and recommendations produced as a product of the AMP. The I & M Committee, the Board of County Commissioners, and the state and Federal land managers will also consider each of the non-biological factors listed above before making funding and management recommendations and decisions. Decisions of the USFWS will be based on the best scientific and commercial information available.

### 2.8.2.6 Implementation of the Adaptive Management Process

When approved by the I & M Committee, the Clark County Board of County Commissioners, USFWS, NDOW, and the affected land managers as meeting the requirements for long-term management of the MSHCP, the AMP will be administered by the I & M Committee and the Administrator of the MSHCP. The AMP will incorporate the input of the I & M Committee regarding stressors, management actions being considered for modification, and methods that can be used to minimize human and economic impacts while still meeting biological goals. The AMP will inform the I & M Committee of the biological factors to be considered as the committee makes ongoing funding decisions. The AMP will provide a range of management options, together with an evaluation of the biological impact of implementing each of these options. Land managers and contractors to the I & M Committee will provide species status reports detailing results of inventory, monitoring, and research together with recommendations for management action including changes important to the AMP. The species status report will include a description of inventory, monitoring, and research activities including data and analyses pertinent to management within the AMP. The analyses and conclusions will include evaluations with respect to specific goals and objectives identified in the AMP and approved by the I & M Committee and the USFWS. The quality of the data, conclusions, and recommendations in the species status reports is critical to this process and to assuring the USFWS that the inventory and monitoring will be ensured through the application of the highest scientific standards. These are essential if the AMP is to provide the I & M Committee, the USFWS, and the resource managers with reliable, objective information and recommendations. Decisions of the USFWS will be based on the best scientific and commercial then available.

Biological recommendations emanating from the Clark County AMP for inventory, monitoring, and research will be used by the I & M Committee to establish funding priorities taking into consideration available funding, socioeconomic and sociopolitical factors, human impacts, political realities, MSHCP goals and objectives, USFWS mandates and direction, and other scientific and management information as may be available. In other words, the reports and information generated by the AMP will be available to decision makers such as the I & M Committee, the Board of County Commissioners, the state and Federal land managers, and the USFWS and be available for consideration by them together with the factors mentioned above. The I & M Committee will consider funding requests for management actions from Federal, state, and other land managers, weighing heavily the quantitative biological data, analyses, and recommendations produced as a product of the AMP as well as alternatives brought forward by the AMP process. The I & M Committee, the Board of County Commissioners, and the state and Federal land managers will also consider each of the non-biological factors listed above before making funding and management recommendations and decisions.

The AMP will result in a report due to the I & M Committee in March of every even-numbered year for consideration in preparing plans and budgets in August for the ensuing biennium. The I & M Committee and the USFWS will meet during March and April to review the AMP report and other information with the purpose of narrowing the scope and range of management actions for the August budget considerations. These discussions, as well as other considerations, will inform the land managers as to the appropriate focus in their preparation of budget proposals during June and July.

## 2.8.3 Clark County Measures to Minimize and Mitigate the Impacts of Take

The mitigation and conservation measures discussed in this section include the continuation and augmentation of many measures proposed and implemented during the DCP for the desert tortoise, many of which, subject to future decisions made pursuant to the AMP, may be funded during the entire 30-year term of the proposed permit. However, because the DCP and the MSHCP have been integrated into one plan, the mitigation measures proposed in this MSHCP are intended to supersede and replace those set forth in the DCP. The mitigation measures that will be implemented, subject to future modifications, during the term of the MSHCP include the following.

### 2.8.3.1 Imposition of $550-per-Acre Development Fee and Implementation of an Endowment Fund

The MSHCP proposes that Clark County and each of the Cities which are Applicants will continue to impose the $550/acre development fee on disturbance of non-Federal property throughout the county which involve a permit issued by the county or cities. Whereas the DCP imposed the fee on all development within the County occurring below 5,000 feet in elevation, the development fee proposed by the MSHCP will be imposed on all disturbance of non-Federal property within the county, pursuant to the specific provisions set forth below.

In addition, NDOT has agreed to pay the development fee for all lands it disturbs outside of IMAs/LIMAs (whether or not the disturbance involves the actual take of species) throughout Clark County and for all land disturbance south of the 38$^{th}$ parallel in Lincoln, Nye, Esmeralda, and Mineral Counties that are in desert tortoise habitat (below 5,000 feet). The fee will be waived when land disturbance occurs as a result of Covered Species enhancement projects such as installation of tortoise fencing, reclamation of material sites prior to relinquishment, and the like.

Assuming that all of the 130,000 acres projected by this plan to be developed subject to fees during the term of the Section 10(a) Permit are actually developed, the development fee will generate over $71.5 million in fees during the term of the plan.

The development fee will be imposed on all land disturbance on private lands which is subject to development permits, as that term is defined in the Clark County Code, Section 28.46 issued by Clark County or the Cities and will be paid at the time of issuance of the building or grading permit or, in the case of NDOT, prior to the land disturbance. The development fee will not be imposed on land disturbance activities not subject to permit by Clark County or the Cities, such as, but not limited to, grubbing, surface mining activities on private property, storage of dirt and other materials and the conversion of desert lands to agriculture. On the other hand, agricultural activities or other land disturbing activities which are not required to obtain building or grading permits which are later converted to other types of development which do require building or grading permits will be required to pay the fee at the time of such conversion. In other words, although some sorts of land disturbance, such as grubbing and farming, will not require that fees be paid because that activity is not subject to permitting by the County or the Cities, subsequent land disturbance, on that same land, which is subject to permitting, such as grading, will trigger payment of the fee. Some land disturbance activities do not currently require development permits from the County or the Cities and will not pay development fees until such time as the use of the property is converted to some activity which does require a development permit. Nevertheless, incidental take of the Covered Species by the landowner or user of the land will be covered by the Section 10(a) Permit(s). The County shall provide an estimate of the number of acres of land disturbance per biennium resulting from activities not requiring payment of the development fee.

All development fees collected by Clark County will be deposited into an endowment fund which has been created by the County in connection with the DCP, as more particularly set forth in Section 2.9 hereof, the principal and income from which shall be used exclusively to fund the administration, minimization, and mitigation measures set forth in the MSHCP.

The Plan Administrator will meet with the County and City permitting departments and NDOT on a regular basis to assure that each of those entities are collecting or paying, as the case may be, the appropriate fees. Quarterly reports to the USFWS will include an accounting of all funds received and expended.

### 2.8.3.2 Funding of Conservation Measures

The provisions of the DCP call for the expenditure from $2.7 million to $3.3 million per biennial period on conservation measure for the desert tortoise. However, as more particularly set forth in Section 2.9 hereof, during Phase 1 of the MSHCP Clark County will now expend $4.1 million during each biennial period (adjusted biennially to reflect cost of living increases, not to exceed 4 percent per year) to fund conservation measures to minimize and mitigate the impacts of the incidental take of Covered Species, to develop the AMP, and to administer the MSHCP.

Because it is very difficult to determine how to reasonably allocate the cost of conservation measures between the desert tortoise and the other Covered Species (for instance, increased law enforcement benefits all species within a given habitat, and the public information and education program likewise benefits all such species), it is proposed that the entire $4,100,000 available during each biennium be placed into a "pot" to be expended as determined by the I & M Committee, the Board of County Commissioners and the USFWS pursuant to the IPB process which will occur in the fall of each even-numbered year, without specifying in this document how much money will be spent on desert tortoise matters and how much will be spent on conservation measures for the remainder of the Covered Species. The full range of conservation measures which may be initially funded (within the limits of $4.1 million per biennium) is set forth in Sections 2.9.3 through 2.9.9 hereof. Future conservation measures to be funded during each biennium will be determined by the I & M Committee, the Board of County Commissioners, and the USFWS during the IPB process after consideration of the recommendations established pursuant to the AMP, as discussed in Section 2.12.1.6.

At the end of the 30-year permit term, it is anticipated that measures identified in the AMP will have been integrated into land management practices and that most of the necessary habitat restoration and enhancement projects will have been completed. Thereafter, necessary mitigation measures are anticipated to be limited to maintenance of habitat quality through on-the-ground management activities. The current financial projections in Section 2.9 indicate that approximately $27 million would be available in the endowment fund at the end of the 30-year term, under current assumptions. Monies remaining in the endowment at the end of the permit term will be managed as a non-wasting fund to augment land managers' budgets in perpetuity for management and maintenance activities identified through the development of the AMP.

In addition, as more particularly set forth in Section 2.10 hereof, in the event the I & M Committee, the Board of County Commissioners, and the USFWS each determine that it is in the best interests of the habitats and species located within Clark County (by way of example only, construction of road barriers, the tortoise translocation program, inventories and accumulation of data regarding Evaluation Species and acquisition of grazing allotments) to institute conservation measures early in the process and, as a result, expend more than $4.1 million during any biennium, it may do so, with any expenditures in excess of $4.1 million being deducted from expenditures required in future years.

Because over 93 percent of all lands in Clark County are owned and managed by Federal and state land managers, it is anticipated that, as has been the case during the DCP, a significant portion of funding for minimization and mitigation measures will be allocated to the land managers to augment (but not replace) their budgets to allow them to more fully or quickly implement conservation measures either contained within their current plans or policies agreed to as set forth in Sections 2.8.4 through 2.8.9 or developed by

them or as a result of the measures suggested by the AMP. The conservation measures to be funded in the first biennium are included in Appendix K.

### 2.8.3.3 Administration of the MSHCP

Clark County will provide for the management and administration of the MSHCP through the I & M Committee and the MSHCP Plan Administrator.

Clark County will continue to utilize the Implementation and Monitoring Committee to review and comment on final management plans and budgets submitted by resource managers, NDOT, and the County. The major purpose of the committee will be to review and comment upon the progress of implementation of the Multiple Species Habitat Conservation Plan measures, to recommend expenditures, for the next biennium, and to assure that all interested groups will have notice of and ability to comment on habitat management decisions and implementation measures prior to funding by the MSHCP.

1. The Implementation and Monitoring Committee will:

    a. Evaluate and recommend approval, denial, or modification of proposed expenditures of MSHCP funds.

    b. Perform such further duties and responsibilities as the Clark County Board of County Commissioners will from time to time direct.

    c. Establish any technical advisory subcommittees which would assist the body of the I & M Committee with decisions of a technical nature, including, but not limited to, the AMP subcommittee. Members of the subcommittee will not be required to be members of the I & M Committee.

    d. Establish a subcommittee that will review the public information program described in Section 2.9.3.4 of the MSHCP. Members of the sub-committee will not be required to be members of the I & M Committee.

    e. Recommend to the County Commission any additional studies or projects that have not been suggested for funding by the state or Federal resource managers but which may be important for conservation of the species and ecosystems in the MSHCP.

2. All members of the I & M Committee (other than representatives of state and Federal governmental entities) will be residents of Clark County. Agencies and organizations which currently serve on the I & M Committee include:

Biological Resources Division of the U.S. Geological Survey (ex officio)
U.S. Fish and Wildlife Service (ex officio)
U.S. Forest Service (ex officio)
Bureau of Land Management (ex officio)
National Park Service (ex officio)
Nevada Division of Wildlife (ex officio)
Nevada Department of Transportation
Southern Nevada Water Authority (ex officio)
Nevada Department of Agriculture (ex officio)
One representative each from Clark County, Las Vegas, North Las Vegas, Henderson, Boulder City and Mesquite
One representative each from any Rural Town Boards which has indicated an interest in participating
Representatives of organized environmental groups (Sierra Club)
Muddy River Regional Environmental Impact Alleviation Committee
Tortoise Group
The Nature Conservancy
University of Nevada (Las Vegas and Reno)
Southern Nevada Home Builders Association
One representative of mining interests
Two representatives of OHV interests, one representing competitive and one representing non-competitive activities
One representative of grazing interests
One representative of outdoor sports enthusiasts
One representative of the Greater Las Vegas Association of Realtors
One representative of the Clark County Resource Conservation District

3. The Clark County Board of County Commissioners will appoint representatives to the committee. The list of members set forth above may be expanded to include other interest groups upon application to and approval by the Board of County Commissioners (such as USAF and Resource Conservation Districts).

4. In the event the Implementation and Monitoring Committee is unable to reach consensus with respect to the terms of the budget within 150 days after submittal, it will nevertheless forward a record of its proceedings to the Clark County Board of County Commissioners for final action.

5. Special meetings may be called by the Plan Administrator, as necessary. It is anticipated that at the commencement of the plan, frequent special meetings will be required.

6. Concerns of the Board of County Commissioners about any aspect of the budgets will be presented to the Implementation and Monitoring Committee. The I & M

Committee will prepare a report for the Board of County Commissioners to address the concerns.

The Clark County Manager has appointed a person to administer the Clark County MSHCP and to chair the proceedings of the I & M Committee.

The duties of the Plan Administrator and staff will include administering the implementation of each of the minimization and mitigation measures set forth in this Multiple Species Habitat Conservation Plan. In addition, the Plan Administrator will:

1. Deal with public inquiries concerning the Multiple Species Habitat Conservation Plan.

2. Outreach to various specific interest groups that have an interest in the plan and its effects on land management policies.

3. Facilitate coordination of efforts among the various Federal and state resource managers to avoid duplication of effort and to assure that the resource managers are using complimentary study and implementation methods so that data may be relevant and usable by all agencies.

4. Evaluate, from a County perspective, the management plans and budgets.

5. Evaluate, from a County perspective, the effectiveness of implementation measures financed by the plan.

6. Report to the I & M Committee and the Board of County Commissioners on the status of biological resources of the county.

7. Report to the I & M Committee and the Board of County Commissioners the status and likelihood of species located within the county to be listed by either the state or Federal agencies.

8. Recommend to the I & M Committee and the Clark County Commission measures to avoid future ESA listings and courses of action to support efforts to delist.

The Plan Administrator will regularly meet and confer with the Federal land managers regarding specific plans to implement this requirement and the progress of the Federal land managers in implementing the program. In addition, the Plan Administrator will independently evaluate, on behalf of the County, the effectiveness of the program in assisting in the survival and recovery of the species. Finally, the Plan Administrator will

include in the periodic reports to the USFWS the status of the program, including a monthly accounting of all funds collected and disbursed.

### 2.8.3.4 Public Information and Education Program

A public information and education (PIE) subcommittee, appointed by the I & M Committee, will assist in the formulation of the PIE program. The program will have a threefold objective:

1. Inform the public of the terms of the Section 10(a) Permits.

2. Encourage respect, protection, and enjoyment of natural ecosystems in Clark County.

3. Through education, increase the public understanding and awareness of the value of Clark County's natural ecosystems.

The audiences to be targeted by the education and information program will be:

1. Specific Interest Groups

2. Children's Groups

3. General Public

The public information and education subcommittee will observe the established Declaration, Values, Vision, and Mission and update and adapt the following statements adopted July, 1996 pertaining to the public information and education strategic plan as needed.

> **Declaration:** We declare that as members of the Clark County MSHCP Public Information and Education Subcommittee we will work to the best of its abilities to educate the public under the direction of the I & M Committee.
>
> **Values:** We value teamwork, cooperation, communication, diversity, effectiveness, and efficiency.
>
> **Vision:** A team of individuals representing various disciplines coming together to further the common interest of public information and education for the Clark County MSHCP.
>
> **Mission:** To satisfy the objectives set forth by the I & M Committee with respect to public information and education.

The public information and education program will focus on appropriate methods to convey its messages including reviewing, analyzing, updating, and implementing where feasible and necessary portions of the strategic plan.

The specific information to be disseminated and emphasized through public information and education efforts throughout the term of the Section 10(a) Permit will be directed by the I & M Committee and implemented by the Public Information and Education Subcommittee.

The Plan Administrator will be responsible for oversight of public information and education efforts and will coordinate, among other tasks, the following activities: convening of meetings of the subcommittee, assisting in the formulation and evaluation of public information and education concepts, and administering the program. In addition, the annual report prepared by the Plan Administrator will describe each public information and education activity undertaken and will provide an accounting of all funds paid out by the plan for public information and education activities.

### 2.8.3.5 Purchase of Grazing Allotments and Interest in Real Property and Water

Clark County will continue to make funds available to purchase and exchange grazing allotments from willing sellers who have contacted Clark County and have demonstrated a clear interest in selling their allotment and where such purchase or exchange meets specific habitat or species conservation goals. Decisions to exchange allotments will be made based on a net benefit analysis of the habitats and species involved, taking into consideration the habitats and species located on both allotments, recognizing that while grazing will be removed from the allotment which is being acquired, grazing will be thereafter permitted on the allotment traded to the rancher. Where appropriate, and after approval by the I & M Committee, the Board of County Commissioners and USFWS funds will also be made available to purchase and facilitate exchanges for interests in real property and water rights.

By the close of 1999, the Clark County Desert Conservation Plan, with full cooperation of willing sellers, will have contracted to purchase and will have removed cattle from over 2 million acres of public lands within Clark County. All proposals to purchase or exchange grazing allotments or real property and water rights will be presented to the I & M Committee, the Board of County Commissioners, and the USFWS prior to such purchase or exchange.

In August of 1996, the County contracted with The Conservation Fund to provide services in connection with the acquisition of allotments primarily including negotiation, coordination, and administration. The County also contracted with Pacific Agribusiness to provide allotment appraisal services in accordance with the acquisition program.

In addition, Clark County shall also make funds available to acquire or facilitate acquisition of conservation easements or other interest in real property or water by purchase, exchange, or donation to meet conservation goals and objectives, including, without limitation, acquisition necessary or appropriate for riparian birds as well as implementation of the Upper Muddy River Site Conservation Plan attached as Appendix E and completion and implementation of the Virgin River Site Conservation Plan.

### 2.8.3.6 Maintenance and Management of Allotments, Land, and Water Rights Which Have Been Acquired

As part of the program instituted by the DCP, Clark County, in cooperation with The Nature Conservancy and The Conservation Fund, has and will continue to acquire allotments and interests in real property and water rights on a willing-seller/willing-buyer basis. In order to assure viability of habitats and species located upon those lands and waters, Clark County will continue to fund actions to maintain and defend its rights to the allotments and to assure that those allotments continue to be accorded non-use status by the BLM. In addition, the County will work with the City of Boulder City to ensure the enforcement of the terms of the conservation easement and will provide funds to maintain, operate, and manage lands and water rights which it has or will acquire to conserve and protect habitats and species located thereon.

### 2.8.3.7 Construction, Monitoring, and Maintenance of Barriers along Linear Features

As part of the initial goals of the long-term DCP, Clark County has placed a high priority on the installation of barriers to protect the desert tortoise and other wildlife. In 1995, Clark Country entered into a contract with Enviroplus Consulting to determine effective and economically feasible road barriers to decrease tortoise mortality along roadways. Enviroplus completed the latter study and it was determined that one-inch-by-two-inch galvanized steel mesh was the most feasible material to use for the purpose of constructing tortoise barriers along roadways. In April 1996 Clark County entered into a contract with the Nevada Division of Forestry and Nevada Department of Transportation to conduct the field testing phase of the road barrier study. The I & M Committee decided to use the translocation site as the fencing field testing site, as the translocation site needed to be fenced. Using this site would accomplish both the Phase I field testing and translocation site fencing goals. While the Interstate 15 retrofitting and southern boundary fence construction were being completed, it was found that the prison-based honor camps were less efficient in the installation of new versus retrofitted fencing materials. Therefore, the County contracted with an Idaho-based licensed fence contractor to complete the second phase of barrier construction on the northern border of the translocation area, which was completed in 1998. Based on that experience and the Road Barrier Prioritization Study completed by UNR, the I & M Fencing Subcommittee

and Clark County decided to rely upon the use of prison-based honor camp labor for all future retrofitting projects and professional fence installers for all new fence installation as described below.

The DCP Road Barrier Construction Program initiated in 1999 is comprised of three phases including (a) the Phase One retrofitting of existing highway right-of-way fence with tortoise fencing material on U.S. 95 from approximately the California-Nevada border north to a point several miles south of State Route 165 where the highway fence ends; (b) the Phase Two construction of new tortoise fencing on relatively flat terrain along U.S. 95 north and south of State Route 165, along State Route 165, and along State Route 164; and (c) the Phase Three construction of new tortoise fencing along U.S. 95 in relatively steep and rocky terrain.

NDOT will continue to monitor tortoise fencing along NDOT rights-of-way at specific sites designated as field testing areas for the tortoise barrier program, budget permitting. This is in addition to any biennial funding for tortoise fencing. NDOT will assist in the construction, maintenance, and monitoring of barriers along federal and state roadways, within budgetary and personnel constraints, and retains the right to request additional funding from the MSHCP during the biennial budget review process. It will be the responsibility of Clark County to monitor such barriers and report maintenance needs to NDOT's District 1 office. Since the location of fencing (which barriers attach to) weaves on and off roadway rights-of-ways and no detailed inventory of fencing locations exists, it will be at the discretion of NDOT maintenance personnel to determine what barriers NDOT will assist with. Nevertheless, Clark County is ultimately responsible for all required MSHCP mitigation barriers installed along roadways in Clark County. Clark County will not be responsible for non-MSHCP barriers installed along roadways, such as the proposed barriers along State Route 163, as this was a requirement of a biological opinion issued to the Federal Highway Administration. Existing roadway fencing that is retrofitted will require the applicant to receive a temporary permit for access from NDOT's District 1 office if access will occur from the highway side. However, all new fencing located on NDOT rights-of-way will require an encroachment permit. NDOT encroachment permit conditions will be consistent with the responsibilities mentioned above.

### 2.8.3.8 Translocation of Desert Tortoises

In February of 1996, Clark County contracted with BRD and UNR to develop and implement an experimental desert tortoise translocation program. The five- to six-year program was to examine the feasibility of large-scale translocations into different habitats and the release conditions that maximized success and the long-term efficacy of translocation. The first programmatic group of tortoises was released on April 23, 1997. The translocation program has proceeded much more quickly and efficiently than was anticipated. The 1,200 tortoises being held at the Desert Tortoise Conservation Center

were translocated during the first year of the program, and by November 1, 1998 over 1,500 tortoises had been translocated into the Large-scale Translocation Study Site adjacent to Interstate 15, south of Jean, Nevada.

The translocation program has been controversial and expensive. The controversy has resulted from an overwhelming public sentiment opposed to euthanasia of displaced and surplus tortoises and a lack of options for disposition of those tortoises. The expense has resulted from the necessity of properly and humanely housing these tortoises and the cost of conducting credible research into translocation. Many experts throughout the country voiced the opinion that large-scale translocations would be unsuccessful. Many biologists and conservation experts pointed out that lack of evaluation through credible research made translocation an experimental option for disposition of displaced tortoises and a conservation benefit only if scientifically validated. The USFWS allowed the programmatic translocation of tortoises by Clark County only as part of a credible scientific study.

Preliminary results indicate that more than 80 percent of the translocated tortoises are surviving. This figure is much higher than was anticipated and certainly reflects the good environmental conditions during the fall of 1997 and throughout the spring and summer of 1998. It is anticipated that translocations during dry years and when less forage is available will result in lower survivorship. Nonetheless, these preliminary results are encouraging and refute the pessimistic predictions of many of the critics of translocation. The efficiency of the translocation program in moving a much larger number of tortoises in the first year has saved Clark County the cost of housing and maintaining these tortoises. The translocation study has resulted in a number of recommendations that will be presented to the USFWS that should streamline the handling of tortoises that, if adopted, would result in further savings. Finally, successful completion of the first phase of the translocation study should result in additional cost savings to Clark County. While a final conclusion is still premature, the Clark County Translocation Program seems to be a resounding success and will significantly expand knowledge of tortoise translocation, handling, housing, and maintenance.

### 2.8.3.9 Participation in and Funding of Local Rehabilitation and Enhancement Programs

The I & M Committee believes that local initiatives to rehabilitate and enhance habitats sponsored by local communities, in many cases present an opportunity for both the local community and the MSHCP to leverage their respective funds and to more actively involve the local communities in conservation goals and objectives supported by the MSHCP.

### a. Muddy River Regional Environmental Impact Alleviation Committee

At the present time, the Muddy River Regional Environmental Impact Alleviation Committee (MRREIAC) has instituted an active program to enhance the Muddy River ecosystem through tamarisk abatement and restoration of riparian habitat with native species with support from the communities of Moapa, Logandale, Glendale, and Overton. It has received funding from the U.S. Environmental Protection Agency, the USFWS, and the DCP to continue its work. So long as its conservation measures are determined to be effective, Clark County intends to continue to provide funding to assist MRREIAC.

### b. Las Vegas Wash Wetlands Park

Utilizing 13.5 million dollars in bond set-aside funds, Clark County is currently initiating the construction of a desert riparian and desert wetland multiuse conservation and recreational area, which will provide enhancement and rehabilitation of both wetlands and animal and plant species disturbed by rapid development in the Las Vegas Valley. Since the mid-1970s, increased effluent discharges from the fast-growing Las Vegas Valley have caused extreme headcutting and channel erosion and have reduced the riparian and wetland areas at the Las Vegas Wash from over 2,000 acres in 1975 to less

than 200 acres today. Because desert riparian and desert wetland habitats are characterized by a greater volume of water and vegetation than the surrounding desert areas, they are disproportionately important to plant and animal species relative to the surrounding upland desert and, therefore, have a very high priority for habitat enhancement for the benefit of resident native and migratory animals and plants. The Las Vegas Wash comprises important desert wetland and riparian communities in the region and may be important to a wide variety of species. Clark County will specifically establish the Wetlands Park to mitigate the effects of development on a wide variety of plant and animal species through the construction of multiple erosion control structures, the development of both open water and riparian aquatic habitats, the conversion of strand communities to restored emergent wetlands, and the enhancement of wetlands and common reed communities. Through these enhancement and restoration efforts, the Clark County Parks and Recreation Department expects to create 600-800 acres of emergent and/or open water wetlands complemented by an additional 600 acres of riparian habitat in addition to the existing upland habitat. It is estimated that over 40 species of plants are likely to occur in the wash with over 45 species of mammals, 35 species of reptiles, and a wide variety of species of amphibians and fish, including species which may be found at the Las Vegas Wash and which appear on the initial list of species to be covered in Phase 1 of the plan. Species that may benefit from the development of the plan include American peregrine falcon, southwestern willow flycatcher, Las Vegas bearpoppy, phainopepla, spotted bat, banded Gila monster, chuckwalla, relict leopard frog, and rosy two-toned beardtongue.

The Las Vegas Wash Wetlands Park will provide an important opportunity for a wide array of county, state, and Federal agencies to work together to multiply the resources dedicated to mitigation under the auspices of the Clark County Multiple Species Habitat Conservation Plan. First, under the Clark County DCP, the Clark County Department of Parks and Recreation was granted $120,000 in matching funds for the 1999-2001 biennium in order to support that agency's initial conservation efforts to establish and refurbish riparian habitats in the Las Vegas Wash, which is the site for the wetlands park. Second, the recently formed Las Vegas Wash Coordination Committee has worked directly with DCP staff to identify initial multiple species conservation efforts that will eventually be carried out by the wide variety of agencies working to enhance the water quality and flora and fauna throughout the Las Vegas Wash area. These activities will be funded through collaborative efforts of the participating agencies including the Southern Nevada Water Authority, the Bureau of Reclamation, Clark County, the Cities of Henderson and Las Vegas, and the Nevada Division of Wildlife, among several others, as well as through various grant opportunities. Finally, the Southern Nevada Public Lands Management Act of 1998 will undoubtedly provide substantial funding for conservation measures to be carried out at the site of the wetlands park, and it is fully expected that funds made available through public land sales as outlined in the act will facilitate a collaborative multiagency approach to implementing conservation measures to benefit

either endemic or migratory species at the Las Vegas Wash Wetlands Park as outlined in the MSHCP and as part of the plan's iterative development over the next 30 years.

The park will also provide opportunities for attracting extramural funds for collaborative conservation and conservation education initiatives. Through the construction and development of the Las Vegas Wash Wetlands Park Nature Center under Clark County Parks and Recreation sponsorship, a variety of extramural conservation-related program proposals will be developed in collaboration with the MSHCP Public Information and Education Committee and the Clark County School District.

Two additional important benefits of the proposed Wetlands Park include the expected improvement of water quality to the Las Vegas Valley and surrounding states as well as recreational benefits associated with this limited multiuse park facility. First, the substantial restoration of wetlands will result in the intensification of water purification which will be accomplished through natural processes endemic to wetland communities. This will directly result in enhanced water quality in the wash itself as well as in Lake Mead, which receives water after it passes through the Las Vegas Wash and will thereby affect the quality of water consumed in the Las Vegas Valley as well as in surrounding states with water allotments drawn from Lake Mead. Second, the construction of this multiuse recreational facility will permit extensive on-site environmental and conservation educational programming including a planned interpretive campus as well as substantial recreational opportunities ranging from wildlife viewing to biking, hiking, and picnicking and potential accommodation of OHV connections to the north and south, among other activities.

Finally, while there is no guarantee that the entire Wetlands Park complex will be completed as presently planned, if completed, over $50 million dollars will be spent on conservation measures. The $50 million expected to be expended on conservation measures within the park will be in addition to contributions from the MSHCP and will not be derived from the development fee.

### c. Off-Highway Vehicles

In order to implement the interim process suggested by the Rural Roads Management Subcommittee, pending completion of the first stage of the Rural Roads Adaptive Management Plan, Clark County has undertaken certain tasks and responsibilities:

1. In cooperation with the BLM, continue the joint process they have begun to establish accurate maps and determine baseline mileage of all unpaved roads within Clark County, including R.S. 2477 roads. This process should result in an updated GIS coverage for the county. This process has begun in the southern end of the county and is proceeding north.

2. In cooperation with BLM, continue the joint process they have begun to designate, close, and rehabilitate unpaved roads which have been identified and agreed upon by the I & M Committee upon the recommendation of the Rural Roads Management Subcommittee, which includes representatives of the rural communities which may be affected by such closure and rehabilitation. The subcommittee has agreed that it shall consider for closure any road thus recommended by the USFWS and that it will, at the time it recommends any designation, closure, and rehabilitation to the I & M Committee, present alternative closure plans for consideration by the USFWS. Clark County agrees that it shall continue to sponsor meetings and workshops within the affected rural communities to assure that the concerns of the rural communities and other interest groups with respect to closure and rehabilitation are considered. Future closures may include R.S. 2477 roads. Based upon preliminary estimates, at least 25 percent of existing surface disturbance will be rehabilitated within the first three years of the MSHCP, subject to funding and completion of all legal requirements OR surface disturbance rehabilitation will be accomplished based on projections set forth in an approved surface disturbance plan.

3. During the first year of the MSHCP, retrofit tortoise-proof fencing along U.S. Highway 95 and State Routes 163 and 164 within the Piute-Eldorado DWMA/ACEC to the extent that the cost thereof is within the amounts which have been approved by means of the MSHCP budgeting process.

4. During the second year of the MSHCP, continue retrofitting or award contracts for new construction within its approved budget constraints, the precise details of which shall be determined by the I & M fencing subcommittee.

5. Include in the first phase of its Adaptive Management Process a rural roads component and fund that component over the first two years of the MSHCP in an amount agreed upon between the contractor and the I & M Committee and within the overall approved AMP budget. The Rural Roads Adaptive Management Plan component shall be approved by the USFWS and the contract for the preparation thereof shall be let by Clark County prior to the issuance of the Section 10(a) Permit sought hereunder. Subject to a specific proposal from the AMP contractor and approval by the I & M Committee and the USFWS, it is contemplated that the Rural Roads Adaptive Management Plan shall include:

   A. A requirement that the contractor convene meetings or workshops with concerned organizations and experts to devise a rehabilitation standard and protocol for all road rehabilitation that will be approved by the U.S. Fish and Wildlife Service and the relevant land managers.

B. A requirement that the contractor produce a scientifically credible inventory and research plan and protocol for inventorying the status of all R.S. 2477 and other unpaved roads with respect to levels and patterns of use, physical and biological features, conspicuous impacts, obvious management requirements, historical or cultural features (e.g., Spanish Trail, Arrowhead Trail), and significant species or habitat features requiring assessment or management. This effort is intended to establish the initial database for all subsequent evaluations.

C. A requirement that the contractor begin a scientifically credible, independent research evaluation and periodic monitoring of OHV events held during the tortoise active season, and other activities on roads or associated with roads for possible species and habitat impacts.

D. A requirement that the contractor develop a tortoise handling workshop to train OHV event personnel and others in tortoise handling consistent with the USFWS-approved protocol in Guidelines for Handling Desert Tortoises During Construction Projects (Desert Tortoise Council 1994, revised 1996). The workshop will be approved by the USFWS and offered on a regular basis or on an as-needed basis to be determined by Clark County and USFWS.

E. A requirement that the contractor report to the BLM, the I & M Committee, and the USFWS, annually, for years 1, 2, and 3, regarding progress in meeting the above action requirements. The contractor will report the progress of the Rural Roads Management Subcommittee and their efforts to designate, close, and rehabilitate roads. The report shall also include an interim evaluation of the ecological, conservation, and management benefits of the actions and shall clearly set forth the criteria used in assessing the benefits. A full report from the AMP contractor will be presented at the end of three years containing the results of all inventory, monitoring, and research regarding unpaved roads as well as the effects of designation, closure, and rehabilitation. The final report will also contain a suggested plan for managing roads including closure and rehabilitation, a timetable for accomplishing road management, and proposed regulations on the use of roads including for non-speed and speed events, for casual use, and for use by non-motorized users.

F. A requirement that the contractor work with the I & M Committee, the Rural Roads Management Subcommittee, the BLM, and the USFWS as it develops and implements its plan of action.

G. In the event the USFWS, Federal land managers, and the I & M Committee determine that additional data and analysis is required, they may extend the

duration of the Rural Roads Adaptive Management Planning process and the terms and conditions for permitted events, set forth below.

### d. Draft Las Vegas Bearpoppy Memorandum of Agreement

Clark County will cooperate and work with USAF, Las Vegas Valley Water District, BLM, NPS, USFWS, NDF, NDOT, and TNC to manage populations of the Las Vegas bearpoppy in key areas of its distribution. In addition, Clark County will agree to fund for two years a position with NDF to assist in implementation of the measures set forth in the Memorandum of Agreement (Appendix F). Finally, if required, Clark County has agreed to expend up to $90,000 to protect a critical population at Nellis Air Force Base.

### 2.8.3.10 Development and Implementation of an Adaptive Management Process

As described in Section 2.8.2 of this plan, Clark County will contract with BRRC or another qualified contractor to assist it in developing the AMP.

## 2.8.4 U.S. Forest Service

The USFS proposes to incorporate the following conservation actions into their management, as necessary. These measures include the measures identified in the conservation agreement between the USFS and the USFWS. The completed conservation agreement is included as Appendix G to this volume and is incorporated as existing management actions in Appendixes A and B.

### 2.8.4.1 Public Information and Education

*USFS(1) Ensure NRA staff are familiar with the basic habitat elements of the species of concern, including requirements of endemic butterflies (larval host plants, nectar sources, puddles and mud) bats (open water, caves, mines, cliffs, crevices, and other roost sites). Palmers chipmunk (shelter requirements), and rare plants (edaphic and other requirements). (CA-GC 7.0(1))*

*USFS(2) Use all opportunities where the public is contacted (e.g., ranger stations, future visitor center and entrance stations, public meetings) to distribute materials emphasizing biodiversity protection and ecosystem management. Ensure that educational materials are focused on critical issues such as staying on trails, controlling pets, and avoidance of vegetation trampling and wildlife harassment. (CA-GC 7.0(2))*

*USFS(3) Secure funding for educational materials, including brochures, displays, driving programs, and school materials. (CA-GC 7.0(3))*

*USFS(4) Develop a series of environmental education programs (slide presentations, display boards, etc.), for presentation to schools, user groups, town board meetings, and other community events. Individual programs will highlight biodiversity, sensitive ecological resources, endemic butterflies and plants, and sensitive bats. Ensure that materials are available for use by other agencies, NRA partners, and teachers. (CA7.1)*

*USFS(5) Develop and distribute information and education materials; directed at specific user groups (climbers, cavers, mountain bikers, equestrians, off-highway vehicle users, etc.), and the public at large; emphasizing protection of riparian habitats, alpine areas, and other sensitive areas. (CA7.2)*

*USFS(6) Provide information to summer home residents on Palmer's chipmunk and rough angelica conservation. (CA7.3)*

*USFS(7) Develop display materials highlighting the unique resources and biological diversity of the Spring Mountains NRA for the NRA office, Kyle Canyon Guard Station, and for community events. (CA7.4)*

*USFS(8) Develop brochures for ten trailheads (North Loop, South Loop, Bonanza, Mary Jane Falls, Trail Canyon, Bristlecone, Big Falls, Little Falls, Robbers Roost, and Fletcher Canyon), highlighting the unique resources and biological diversity of the Spring Mountains NRA. (CA7.5)*

*USFS(9) Develop driving tour programs using tapes or low frequency radio transmitters at selected locations to provide NRA information and highlight the unique resources and biological diversity of the Spring Mountains NRA. (CA7.6)*

*USFS(10) Design and install information and educational signs in accordance with Appendix A of the Interagency Agreement # 14-48-0001-94605 between the USFS and USFWS for the Spring Mountains NRA. Signs will be located outside the Wilderness Area, at trailheads or near sensitive habitats, and will provide information on low impact recreation and ecological resource protection. Priorities include the following: (CA7.7)*

*<u>Fused PVC color signs:</u>*

*Cathedral Rock*
*Mary Jane Falls Trailhead*
*Deer Creek Picnic Area*
*Bristlecone Trailhead*
*Robbers Roost Trailhead*
*Fletcher Canyon Trailhead*
*Trail Canyon Trailhead*
*North Loop Trailhead*

*Bonanza Trailhead*
*Harris Spring Trailhead*
*Carpenter Canyon*

*Smaller signs:*

*Mummy Springs*
*Stanley B Spring*
*CC Spring*
*Trough Spring*
*Cave Spring*
*Macks Canyon Spring*

*USFS(11) Design and install signs specifically addressing Palmer's chipmunk conservation at all developed recreation sites located within its habitat. (CA7.8)*

*USFS(12) Work cooperatively with Federal, state, local agencies, tribal governments, and others to increase public education and awareness of resource values and interpretation opportunities throughout the SMNRA. (FS-OBJ-0.30)*

*USFS(13) Educate the public to the sensitivity of endemic species of the Spring Mountains, the importance of diversity, the significance of the Spring Mountains' biodiversity, and how to recreate without impacting these resources. (FS-GU-0.68)*

*USFS(14) As existing appropriate permits expire, require permittee to provide for education and interpretation of natural resources. (FS-GU-0.125)*

*USFS(15) Educate the public to the value of Wilderness, not just as a non-motorized recreation area, but as a place of natural processes and of personal risks. (FS-OBJ-12.13)*

## 2.8.4.2 Research

*USFS(16) Secure funding for research based on priorities identified below. (CA-GC 6.0(1))*

*USFS(17) Encourage and support research in the Spring Mountains NRA, particularly in the Carpenter Canyon Research Natural Area, to assist with management concerns as well as to focus on basic research interests. (CA-GC 6.0(2))*

*USFS(18) Develop an information package identifying and promoting research opportunities in the Spring Mountains NRA and Carpenter Canyon RNA. Update and distribute to local researchers, universities, and other research entities. (CA6.1)*

*USFS(19) Conduct research on the species of concern and ecological communities of the Spring Mountains NRA by prioritizing research needs and identifying funding sources. Priority research needs include the following: (CA6.2)*

- *Seed germination and other habitat requirements of Clokey eggvetch, including analysis of factors such as seed caching and predation by rodents and insects, fire, and other perturbations (CA6.2a).*

- *Autecology, spatial extent of population (particularly Kyle Canyon Wash), and larval host plant relations of the Spring Mountains acastus checkerspot. (CA6.2b)*

- *Fire ecology and disturbance regimes of plant communities, particularly as pertaining to maintenance of populations and habitat for rare plants, butterflies and their host plants, Palmer's chipmunk, bats, and other species. (CA6.2c)*

- *Fire management for ecosystem health within the urban interface. (CA6.2d)*

- *Metapopulation dynamics of Mt. Charleston blue and Morand's checkerspot (including spatial limits of Wallace Canyon population), and genetic distinctiveness of three phenotypes of Morand's checkerspot. (CA6.2e)*

- *Relationships of ants and the larval stages of Bret's blue, Mt. Charleston blue, dark blue, and Spring Mountains icarioides blue. (CA6.2f)*

- *Habitat requirements of Morand's checkerspot, Mt. Charleston blue, Spring Mountains acastus checkerspot, and dark blue, to determine why the taxa are not distributed across the range of their host plants. (CA6.2g)*

- *Effects of human disturbance, including caving, climbing, and other forms of recreation on bats. (CA6.2h)*

- *Winter habits of bats: Migration patterns and destinations, habits of bats that overwinter and hibernate in the NRA. (CA6.2i)*

- *Palmer's chipmunk: Features of movements and home ranges, dispersal patterns, and behavioral interactions between Palmer's chipmunk and golden mantled ground squirrel as related to habitat condition. (CA6.2j)*

- *Survey and study of NRA customer needs to determine who is visiting, what is expected from their visits, and how to communicate with non–English-speaking visitors. This survey would assess visitor awareness of, and interest in species and ecological resource conservation issues. (CA6.2k)*

- *Development of a recreation use monitoring strategy to determine amount, type, and timing of recreation trail use. (CA6.2l)*

- *Waste management in the Wilderness Area: Effects of waste on resources and methods for control or removal. (CA6.2m)*

### 2.8.4.3 Inventory

*USFS(20) Inventory for populations of rare flora and fauna on an annual basis. A Native Species Site Survey Report will be used to record new records of species occurrence, and copies of this form will be provided to the Nevada Natural Heritage Program. Species and area priorities identified to date are as follows: (CA2.1)*

- *Mojave bajada and wash plants - halfring milkvetch, Death Valley beardtongue, black wooly-pod, Spring Mountains milkvetch - very high priority (CA2.1a)*

- *Spring plants - upswept and dainty moonwort - very high priority (CA2.1b)*

- *Bret's blue butterfly - focus inventory at Big Timber Spring - very high priority (CA2.1c)*

- *Townsend's big-eared bat - very high priority (CA2.1d)*

- *Butterfly habitats - Foxtail Canyon, Mt. Potosi - very high priority (CA2.1e)*

- *Bat roosts - Column Cave (summer, winter), Pinnacle Cave (spring, fall, winter) - very high priority (CA2.1f)*

- *Cliff plants - smooth pungent greasebush and pungent dwarf greasebush - high priority (CA2.1g)*

- *Butterflies - Spring Mountains acastus checkerspot, dark blue butterfly, Morand's checkerspot, Mt. Charleston blue - high priority (CA2.1h)*

- *Bats – Allen's lappet-browed bat - high priority (CA2.1i)*

- *Butterfly habitats - Mummy Mountain, Harris Mountain, Fletcher Peak, West side of Mount Stirling, Trail Canyon/North Loop intersection, Mud Springs, Wallace Canyon - high priority (CA2.1j)*

- *Bat roosts (cliff climbing areas) - Imagination Wall, Cathedral Rock, Echo Cliff, unnamed wall east of South Loop Trail, The Hood - high priority (CA2.1k)*

- *Bat water sources - unsurveyed springs - high priority (CA2.1l)*

- *Neotropical migratory bird habitat - riparian areas (will also include inventory of brown-headed cowbird nest parasitism) - high priority (CA2.1m)*

- *Raptor inventory - high priority (CA2.1n)*

- *Forest plants - Nevada willowherb and Charleston grounddaisy - medium to low priority (CA2.1o)*

- *Fringed myotis - medium to low priority (CA2.1p)*

- *Butterfly habitat - Wood Spring - medium to low priority (CA2.1q)*

*USFS(21) Evaluate inventory priorities on an annual basis and coordinate in development of inventory strategies. (CA-GC)*

*USFS(22) Work cooperatively with interested groups to evaluate caves. The inventory process should document all unique biological, hydrological, geological, mineralogical, paleontological, educational, scientific, cultural, and/or recreational values. (FS-ST-0.50)*

### 2.8.4.4 Monitoring

*USFS(23) Evaluate monitoring priorities on an annual basis and coordinate in development of additional monitoring protocols for species and habitats, as needed. (CA-GC 3.0(1))*

*USFS(24) Use the results of monitoring activities to, where feasible and necessary, refine management strategies for protection of the species of concern. Where monitoring has indicated status decline or habitat degradation for the species of concern, develop and implement strategies to avert further decline or degradation, and improve species status and habitat quality. (CA-GC 3.0(2))*

*USFS(25) Conduct annual monitoring of (a) Clokey eggvetch and (b) rough angelica. Monitoring efforts will be in accordance with the protocol developed by TNC in cooperation with USFWS and USFS (Nachlinger and Combs 1996a, 1996b). (CA3.1)*

*USFS(26) Develop a butterfly monitoring plan, emphasizing population, host plant and habitat monitoring. Frequency and intensity of monitoring identified in plan will be based on population status, abundance, and threats. Conduct annual monitoring for high priority butterfly species, using methods described in the butterfly monitoring plan. At present, Bret's blue, Morand's checkerspot, Mt. Charleston blue butterfly, Spring*

*Mountains acastus checkerspot, and the dark blue are the highest priority species. Conduct periodic monitoring for medium priority butterfly species, using methods described in the butterfly monitoring plan. At present, Spring Mountains comma skipper, Nevada admiral, Spring Mountains icarioides blue, and Carole's silverspot are medium priority species. (CA3.2)*

*USFS(27) Develop a Palmer's chipmunk monitoring plan, emphasizing population and habitat monitoring. Frequency and intensity of monitoring identified in plan will be based on population status, abundance, and threats. Conduct periodic monitoring for the Palmer's chipmunk, using methods described in the Palmer's chipmunk monitoring plan. (CA3.3)*

*USFS(28) Develop a bat monitoring plan, emphasizing roost site and water source monitoring for known occurrences of bats. Frequency and intensity of monitoring identified in plan will be based on species occurrence, habitat suitability, and threats. Conduct periodic monitoring for bats, using methods described in the bat monitoring plan. (CA3.4)*

*USFS(29) Develop and implement a plan to monitor springsnail populations and habitats at Kiup Spring, Willow Creek, and Cold Creek. (CA3.5)*

*USFS(30) Develop a plan to monitor riparian function and habitat condition. The plan will focus primarily on Deer Creek, Cold Creek, Willow Creek, and Carpenter Canyon, but may include others areas as appropriate. Monitoring protocol will be specific to each area, emphasizing evaluation of habitat requirements of the species particularly dependent on these areas. Conduct periodic monitoring of riparian areas, using methods described in the riparian monitoring plan. (CA3.6)*

*USFS(31 Develop and implement a monitoring program for assessing effects of recreational use on high elevation communities and the species that occur in these communities. (CA3.7)*

*USFS(32) Develop and implement a program to monitor selected biodiversity hotspots and species of concern habitats not covered in 3.1 through 3.7, based on periodic biologist site visits and/or photo points to document habitat conditions. This program will provide information needed to assess management suitability and the need to modify management practices in these areas. Determination of features that should be managed in these areas will be based, in part, on information provided in the report "Spring Mountains National Recreation Area Biodiversity Hotspots and Management Recommendations" (TNC 1996). A form for recording basic monitoring information will be developed with the technical assistance of TNC. Because it will not be logistically feasible to annually visit all known areas for these species, site visits will be most frequent in the most vulnerable or sensitive areas (typically, areas most accessible by*

*people). Where appropriate, photo points will also be established. Priorities species and habitats include the following ( indicates photo point will be established) (CA3.8)*

- *Carpenter Canyon (Palmer's chipmunk, bats, Lahontan cutthroat trout, butterflies, plants, riparian stream corridor) - annual visit (CA3.8a)*

- *Deer Creek (Palmer's chipmunk, bats, butterflies, plants, riparian stream corridor); Upper Kyle Canyon, including Mary Jane Falls (Palmer's chipmunk, butterflies, plants, riparian areas and spring sources); Upper Lee Canyon, including Three Springs (Palmer's chipmunk, butterflies, plants), and; Macks Canyon, Macks Canyon Spring, and Macks Road (Palmers chipmunk, bats, plants) - annual visit (CA3.8b)*

- *Willow Creek (butterflies, springsnails, plants, riparian stream corridor); Camp Bonanza and North Divide Trail, including McFarland and Whiskey springs (bats, plants); and, Cold Creek (butterflies, springsnails, riparian stream corridor) - annual visit (CA3.8c)*

- *Wheeler Well (bats, plants), and Trough Spring (to monitor habitat following restoration) - annual visit. (CA3.8d)*

- *Stanley B Spring (plants, riparian area) - annual visit (CA3.8e)*

- *Fletcher Canyon and Spring (bats and plants), Mummy Spring, and lower North Loop Trail (plants) - periodic visit. (CA3.8f)*

- *Lee and Kyle canyons summer home sites (plants, Palmer's chipmunk); Mahogany Grove (plants); Robber's Roost (plants) - periodic visit. (CA3.8g)*

- *Lost Cabin Spring, CC Spring, and Cave Spring (to monitor habitat condition following restoration) - periodic visit. (CA3.8h)*

- *Peak Spring (plants) - periodic visit (CA3.8i)*

- *Harris Mountain and Saddle (plants) - occasional visit (CA3.8j)*

- *Mud Springs area (plants) - occasional visit (CA3.8k)*

- *Big Timber and Rock Spring (to monitor habitat condition following restoration) - occasional visit (CA3.8l)*

- *Roses Spring (to monitor habitat condition following restoration) - occasional visit (CA3.8m)*

*USFS(33) Develop and implement a recreation monitoring strategy involving trail counters and wilderness rangers. This strategy will include development of methods resulting in collection of data to assess recreation trends and effects on the species of concern and ecological resources. (CA3.9)*

*USFS(34) Develop and implement a cumulative impact tally to monitor effects of NRA activities on the species of concern and their habitats. This program will provide sufficient information to trigger the need for quantitative monitoring or remedial actions to halt species declines. (CA3-10)*

*USFS(35) Develop and implement a plan to inventory and map problem areas of non-native plants, and monitor encroachment over time. (CA3-11)*

*USFS(36) Monitor increase of exotic non-native plant populations in the alpine to identify the need for any trail closures and restrictions for equestrian use. (FS-GU-12.16)*

### 2.8.4.5 Protection

*USFS(37) Focus new recreation development (campgrounds, picnic areas, and other facilities), in the least sensitive areas at lower elevations, to lessen visitor impacts on the species of concern and other sensitive ecological resources. (CA-GC 4.0(1))*

*USFS(38) Encourage partnerships with volunteers to maintain and enhance natural resources in the NRA. (CA-GC 4.0(2))*

*USFS(39) Adhere to goals, objectives, standards and guidelines detailed in the Plan Amendment which promote protective management of the species of concern and other ecological resources. (CA-GC 4.0(3))*

*USFS(40) Identify specific areas of exceptional sensitivity where conservation management will be emphasized over recreation. (CA-GC 4.0(4))*

*USFS(41) Minimize clearing of undergrowth during construction of new facilities. (CA-GC 4.0(5))*

*USFS(42) Prior to use of pesticides and other chemicals, determine potential impacts to the species of concern (e.g., butterflies, bats), and implement strategies to avoid impacts to those species. (CA-GC 4.0(6))*

*USFS(43) Protect habitat of the species of concern from dispersed recreation (e.g., heavy foot traffic, off-road vehicles, mountain bikes), and the adverse effects of wild horses and burros. (CA-GC 4.0(7))*

*USFS(44) Develop and implement an overnight wilderness permitting process that provides education on sensitive resources. (CA4.1)*

*USFS(45) Develop and implement a climbing "self registration" process that encourages development of new routes away from ecologically sensitive areas. (CA4.2)*

*USFS(46) Develop and implement a plan to protect bat roosts in mines and caves. The plan will address the following protective measures: Gating or closing mines and caves to protect bat roost sites, removing important bat roost mines and caves from future additions of NRA maps, avoiding identification of exact locations of maternity roosts, caves, and occupied mines to the general public, determining the need to close roads to mines and caves, and avoiding use of heavy equipment near mine and cave roosts. (CA4.3)*

*USFS(47) Facilitate, with Clark County, enforcement of leash laws, and control of feral cats and dogs in areas where adverse effects on Palmer's chipmunk and other wildlife have occurred, particularly areas adjacent to the private developments of Mt. Charleston, Deer Creek, and Lee Canyon. (CA4.4)*

*USFS(48) Coordinate with county health department in management of disease transmittal by animals to humans (e.g., hanta virus, plague) to ensure that control methods do not have adverse effects on populations of Palmer's chipmunk or other species of concern. (CA4.5)*

*USFS(49) Manage wild horses and burros in the NRA to avoid damage to species of concern habitats, particularly in lower Lee Canyon , northwest Mount Stirling, Wheeler Pass, Wheeler Wash, Wood Canyon, Carpenter Canyon, and lower Deer Creek, and continue to quickly remove any stray horses at upper elevations, particularly in upper Lee Canyon, Deer Creek, and Kyle Canyon. (CA4.6)*

*USFS950) Develop and distribute information to equestrians on the importance of using pelletized feed within the NRA, and develop and distribute a weed-free feed policy for equestrians on Federal lands. (CA4.7)*

*USFS(51 Sign closure order allowing USFS to prohibit camping within specific distance of water sources, based on species and habitat protection needs, and control dispersed, primitive camping in the NRA by enforcing the closure order. (CA4.8)*

*USFS(52) Develop and implement plan to collect seed for endowment and cultivation of sensitive and rare plants. (CA4.9)*

*USFS(53) Expand Carpenter Canyon Research Natural Area to help protect unique alpine biodiversity. (CA4.10)*

*USFS(54) Consider, and as appropriate, develop additional protective designations in the NRA to protect the species of concern and other ecological resources. (CA4.11)*

*USFS(55) Coordinate with owners of golf course in lower Kyle Canyon on procedures for use of pesticides, fertilizers, and other chemicals, to eliminate deleterious effects on endemic butterflies, rare plant pollinators, and other species of concern. (CA4.12)*

*USFS(56) Ensure consistent law enforcement and ranger presence on the east side of the NRA, west side of the NRA, and in the Wilderness Area, a minimum of four days per week per area (including weekends and holidays) during the period April 15 - October 15, and a minimum of three days per week (including weekends and holidays) during the period October 15 - April 15. Enforcement will emphasize protection of the species of concern and their habitats (e.g., peregrine falcon eyries, bat roosts, and alpine species). Increased wilderness ranger presence in high elevation forests and alpine areas will provide a means to distribute information on species conservation needs, ecological resource sensitivity, and low impact recreation use practices. (CA4.13)*

*USFS(57) Remove brown-headed cowbirds where nest parasitism occurs during neotropical migratory bird inventories or other activities. (CA4.14)*

*USFS(58) Work with utility companies to ensure poles are raptor-safe. (CA4.15)*

*USFS(59) Coordinate with Nevada Department of Transportation and USFS road crews to ensure that road maintenance activities (e.g., shoulder work, road salting) do not adversely affect the species of concern (in particular, Morand's checkerspot, Spring Mountains acastus checkerspot, and rough angelica in Kyle Canyon, and Spring Mountains acastus checkerspot along Deer Creek Highway). (CA 4.16)*

*USFS(60) Limit impacts of new administrative facilities on natural and heritage resources, and visual quality. (FS-OBJ-0.19)*

*USFS(61) Manage all active claims and abandoned mines to minimize effects on natural, visual, and heritage resources and provide protection for the public. (FS-OBJ-0.34)*

*USFS(62) Maintain roads to a standard necessary for public safety and as needed to respond to resource management objectives, including resource protection and recreation, through maintenance of road surfaces and minimizing erosion. (FS-OBJ-0.37)*

*USFS(63) New recreational facilities will be located and designed to ensure public safety, ecosystem health, and customer satisfaction. (FS-OBJ-0.44)*

*USFS(64) Continue to provide rock climbing opportunities while protecting resource values. (FS-OBJ-0.45)*

*USFS(65) Acquire available land within the Spring Mountains National Recreation Area on a willing seller basis to protect natural resources, provide public recreation opportunities, and increase efficiency of land management. (FS-OBJ-0.52)*

*USFS(66) Prohibit parking and camping within riparian areas. (FS-ST-0.3)*

*USFS(67) Where possible, maintain historic floodplain and channel width, slope, and gradient. (FS-GU-0.5)*

*USFS(68) Maintain/restore open pools of slow moving water (0.5 meter in diameter) at some historic water sources, well distributed throughout the range. Develop open pools of water at least 0.5 meter in diameter at newly developed/diverted water sources. (FS-GU-0.6)*

*USFS(69) Develop new perennial water sources, including guzzlers, only to benefit native species, to improve distribution of non-native species, where historic water sources have disappeared, or where access is limited. Only develop water sources in the Wilderness or WSAs to improve desert bighorn sheep habitat. These developments must protect wilderness character. (FS-GU-0.7)*

*USFS(70) When developing water sources, pipe water from a point downstream of the source if snails or other sensitive species are present, or if the spring source has not been previously developed. (FS-ST-0.8)*

*USFS(71) Collection of threatened, endangered, and sensitive plant species requires a permit from the Regional Forester, except for traditional use by American Indians. (FS-ST-0.28)*

*USFS(72) Work with Nevada Division of Wildlife, US Fish and Wildlife Service, the Audubon Society, and other interested agencies and organizations to control cowbird populations as monitoring identifies negative impacts to species of concern from this parasitic, non-native species. (FS-GU-0.30)*

*USFS(73) New roads, administrative facilities, and developed recreation sites other than low-impact facilities (trails, trailhead parking, signs, restrooms, etc.) will be outside a 100 yard buffer zone around known Clokey eggvetch and rough angelica populations or potential habitat, and outside biodiversity hotspots (defined as areas of particular diversity or sensitivity) (FS-ST-0.31)*

*USFS(74) Design new roads and motorized trails to maintain a minimum 0.5 mile distance from active or recently active desert tortoise burrows. (FS-GU-0.32)*

*USFS(75) For organized, motorized events on unpaved roads or trails within 0.5 mile of active desert tortoise burrows, require special permit provisions for desert tortoise protection. (FS-GU-0.33)*

*USFS(76) Use temporary closures (roads, trails, dispersed areas) to protect important seasonal habitat for species of concern (animals, plants, insects), in coordination with appropriate state and local agencies. (FS-GU-0.34)*

*USFS(77) Allow access to all caves only from the beginning of March through the end of May; and from the beginning of September through the end of October. Seasonal restrictions will remain in place until bat roosting/hibernating inventories have been completed. Long-term seasonal restrictions will be determined based on survey results. Allow year-round access to Robbers' Roost Cave. (FS-ST-0.51)*

*USFS(78) Gate cave or mine openings where needed for public safety and resource protection. (FS-GU-0.54)*

*USFS(79) Rock climbing within 100 yards of known active or recently active peregrine falcon nests will be allowed only from the beginning of July through the end of January. Specific routes may be signed as necessary to inform of seasonal closures if nests are identified. Monitor peregrine nesting success to determine if the 100-yard closure is effective. (FS-ST-0.57)*

*USFS(80) Develop and maintain a network of shaded fuelbreaks to interrupt continuous stands of fuel. Maintain 50 linear feet/acre of downed trees with a 12-inch diameter at breast height within the shaded fuelbreak (if fuelbreak is being managed ecologically for the late seral stage of Pinyon/juniper and Mixed Conifer Land Type Associations, or if managed for other seral stage within Palmers chipmunk habitat). Use existing road corridors and natural barriers. (FS-GU-0.91)*

*USFS(81) Work cooperatively with interested groups to establish seasonal use periods for caves and to educate cave users. (FS-GU-0.103)*

*USFS(82) Manage designated and informal use (unnumbered) trails that are causing resource damage to reduce damage and restrict use to a single trail. (FS-GU-0.123)*

*USFS(84) Lower Deer Creek is removed from the Spring Mountains Wild Horse and Burro Territory due to danger posed by this herd to traffic on Kyle and Lee Canyon highways. Appropriate Management Level (AML) for wild horses and burros in Cold Creek is: horses, 26; burros, 0 (based upon 1992 range analysis and estimated*

*population). The analysis showed a downward trend in the vegetation community composition, and soil condition (erosion and compaction) within a one-mile radius of the ponds. Utilization on willow exceeded 40%. This is excessive utilization for a community in a downward trend. This Appropriate Management Level is therefore based upon 30% of 1993 population which was 92 wild horses. No burros use this area; therefore, Appropriate Management Level for burros is 0. (FS-OBJ-11.12)*

*USFS(85) Future trail alignments in the developed canyons will emphasize public safety, resource protection, and customer satisfaction. (FS-OBJ-11.17)*

*USFS(86) Provide protection of the riparian areas (in accordance with NV Revised Statute 503.660) at Cold and Willow Creeks through the use of new road alignments, vehicle barriers, and/or signage. Redirect parking and camping away from riparian corridors. Allow only day-use, walk-in activities to occur within the riparian corridor. (FS-ST-11.1)*

*USFS(87) Allow day-use only in the meadow area in Lee Canyon. Use temporary closures to allow for resource restoration/rehabilitation. (FS-ST-11.4)*

*USFS(88) Provide trail markers and post restrictions to bouldering in the vicinity of Robbers' Roost Cave to protect Jaeger ivesia and Clokey greasebush. Interpretive signage may be used as appropriate. (FS-GU-11.5)*

*USFS(89) Construct fences in strategic locations to keep wild horses out of Kyle and Lee Canyons. (FS-GU-11.20)*

*USFS(90) Close the Bristlecone Trail to motorized vehicles. Place barriers to prohibit off-trail travel into populations of species of concern. Use signs to educate users to the importance of species of concern, and the threats to their existence. (FS-ST-11.33)*

*USFS(91) Address user conflicts on Bristlecone Trail through a site-specific planning involving US Fish and Wildlife Service, trail users, and interested groups. (FS-GU-11.35)*

*USFS(92) Work with recreation residence associations to maintain the character and quality of recreational residence areas (summer homes under permit on National Forest System lands) while protecting natural resource values. (FS-GU-11.44)*

*USFS(93) Only allow low standard recreation facilities, including small camping areas or restrooms to be developed in upper Kyle and Lee canyons west of State Highway 158 as a resource protection measure. Allow new campgrounds and picnic areas to be developed in lower Kyle and Lee canyons, east of State Highway 158. (FS-ST-11.54)*

*USFS(94) Allow limited expansion of ski area in Lee Canyon and enhancement of skiing opportunities and facilities within the scope of an approved master development plan and under the following constraints: (FS-ST-11.57)*

- *Expansion occurs within the existing sub-basin.*
- *Does not impact any threatened, endangered, or sensitive species or species of concern, or its habitat.*
- *Expansion is commensurate with development of additional parking in the lower Lee Canyon area, and shuttle services.*
- *Expansion incorporates defensible space design and fire safe facilities.*
- *Where consistent with other standards and guidelines.*

*USFS(95) Protect natural and heritage resources and natural processes that enhance backcountry/wilderness recreational opportunities, including prohibiting consumptive uses of wilderness resources except where authorized by law or regulation. (FS-OBJ-12.2)*

*USFS(96) Protect wilderness resources, including live and dead bristlecone pines, from removal/cutting for fuel. (FS-OBJ-12.6)*

*USFS(97) Keep wild horses and burros out of the Wilderness. (FS-OBJ-12.8)*

*USFS(99) Discourage foot-traffic and camping at Mummy Spring by removing visitor-made trails, trail signage, and restoring native vegetation in riparian areas. (FS-GU-12.6)*

*USFS(100) When maintaining upper North Divide Trail switch-backs, minimize ground disturbance to protect rare plants. (FS-GU-12.8)*

*USFS(101) Relocate South Loop Trail away from meadow if practical, and if other resources will not be affected. (FS-GU-12.9)*

## 2.8.4.6 Restoration and Enhancement

*USFS(102) Secure funding for restoration programs beyond those under the scope of Interagency Agreement # 14-48-0001-94605. (CA-GC 5.0(1))*

*USFS(103) Wherever possible, select only locally native species for restoration, and where appropriate, use seed from the plant species of concern and endemic butterfly host plants. (CA-GC 5.0(2))*

*USFS(104) Ensure that restoration projects focus on protection and enhancement of the species of concern and do not inadvertently cause irretrievable damage to the habitats of the species of concern (e.g., open water for bats, mud puddles for butterflies). (CA-GC 5.0(3))*

*USFS(105) Develop native plant material and seed list for restoration projects by plant community. The list will specifically identify larval and nectar host plants for the endemic butterflies. Develop plan to collect local seed for restoration efforts and © establish and maintain a native seed bank. (CA5.1)*

*USFS(106) Restore habitat in accordance with Interagency Agreement # 14-48-0001-94605 between the USFS and USFWS for the Spring Mountains NRA. All restoration activities will be designed and implemented in coordination with the Technical Working Group (CA1.6) to avoid inadvertent adverse effects on the species of concern. Priorities identified to date are as follows: (CA5.2)*

- *McFarland Spring - Improve fence, treat head cut, construct dry well - very high priority (CA5.2a)*
- *Mummy Spring - Remove informal trails - very high priority (CA5.2b)*
- *Carpenter Canyon - Close last ¼ mile of road, create parking area -very high priority (CA5.2c)*
- *Trough Spring - Close road, treat road bed, seed area - high priority (CA5.2d)*
- *Lost Cabin Spring - Close road, eliminate diversion, restore spring brook - high priority (CA5.2e)*
- *Big Timber Spring - Remove stock tank and stock pond - high priority (CA5.2f)*
- *Gold Spring - Remove stock tank, headbox, and pipeline - high priority (CA5.2h)*
- *Middle Mud Spring and East Mud Spring - Repair fence, remove headbox and pipeline -medium priority (CA5.2i)*
- *Buck Spring - Remove headbox, pipeline, and trough - medium priority (CA5.2j)*
- *Macks Canyon Spring - Extend exclosure - medium priority (CA5.2k)*

- *Younts Spring - Eliminate salt cedar, remove impoundment - medium priority (CA5.2l)*

- *Santa Cruz Spring - eliminate salt cedar, construct exclosure, dry well, and pipeline - medium priority (CA5.2m)*

- *Ninetynine Spring - Discontinue dredging, construct exclosure, dry well, and pipeline - medium priority (CA5.2n)*

- *Mexican Spring - Discontinue dredging, construct exclosure, dry well, and pipeline - medium priority (CA5.2o)*

- *Cougar Spring - Construct exclosure, dry well, and pipeline - medium priority (CA5.2p)*

*USFS(107) Work with willing private property owners to restore and enhance the Cold Creek area. This effort will include plans to relocate facilities (e.g., fences, patios, and sheds) outside the riparian zone, and to control camping and fires (to protect butterflies), and maintain habitats for the species of concern (e.g., mud and seeps). (CA5.3)*

*USFS(108) Develop and begin implementing a comprehensive restoration plan for the Willow Creek area. This plan will include relocation of roads and campgrounds out of the riparian area, removal of unneeded spur roads, a walk-in day-use plan, protection and habitat enhancement for springsnails, butterflies (including mud), and phainopepla. The plan will emphasize opportunities for public participation. (CA5.4)*

*USFS(109) Work with willing summer home residents on the NRA to ensure that all future improvements avoid adverse effects to the species of concern, and where possible, enhance their habitats and populations. (CA5.5)*

*USFS(110) Work with Las Vegas Ski and Snowboard Resort to develop protective strategies for sensitive ecological resources. This will include investigating options for erosion control of the Lee Canyon ski slopes with native seed mixes, including* Astragalus calycosus *var.* mancus *to enhance butterfly habitat, management of herbicides and pesticides, and a plan for eventual elimination of non-native seeding, and management of the Three Springs area. (CA5.6)*

*USFS(111) Remove selected informal high-elevation and alpine campsites (particularly those within or near the habitats of the plant species of concern and butterfly host plants) encourage use of specific strategically placed campsites, and remove high elevation fire rings. (CA5.7)*

*USFS(112) Remove roads causing environmental damage: road to Cave Spring road to CC spring, road to Lost Cabin Spring, and identify additional roads for closure, particularly in biodiversity hotspots, and work with community groups to close them. (CA5.8)*

*USFS(113) Organize volunteer work parties to manually remove exotic plants and noxious weeds along the ridgeline trail and other high elevation routes. (CA5.9 )*

*USFS(114) Develop and implement vegetation management and restoration plans for campgrounds and day use areas that enhance resources for Palmer's chipmunk, endemic butterflies, and rare plants. Priority areas include: (CA5.10)*

- *Deer Creek Picnic Area - Move picnic tables out of the riparian zone, and revegetate the area to enhance habitat for Palmer's chipmunk, neotropical migratory birds, and bats. (CA5.10a)*

- *Lee Canyon campgrounds and picnic areas - Create cover sites for Palmer's chipmunk, and revegetate areas to enhance chipmunk and butterfly habitat. (CA5.10b)*

- *Kyle Canyon campgrounds and picnic areas - Create cover sites for Palmer's chipmunk, and revegetate areas to enhance chipmunk and butterfly habitat. (CA5.10c)*

- *Gary Abbot Campground - Close campsite and restore area to enhance habitat of Clokey eggvetch and butterflies. (CA5.10d)*

*USFS(115) Work with volunteers to provide nest boxes for cavity nesting western and mountain bluebirds and roosting bats to replace lost habitat. (CA5.11)*

*USFS(117) Remove existing water developments and debris from springs, providing they no longer serve their original purpose, are not critical to wildlife, and the items are not of historical significance. (FS-ST-0.13)*

*USFS(118) Use seed mixtures or seedlings for site rehabilitation, fire rehabilitation, or permit requirement in order of preference: 1) Native plants; 2) no seeding (only if erosion is not a serious concern and there is no cheatgrass invasion); 3) non-persistent (sterile) exotics; and 4) persistent exotics. (FS-GU-0.16)*

*USFS(120) Provide a minimum of five wildlife cover sites per acre within developed or primitive recreation sites by maintaining or adding dead and down wood material or rocks at appropriate locations. (FS-ST-0.38)*

*USFS(121) Remove all structures related to grazing activities that are not necessary for current management, or of historic value. (FS-ST-0.49)*

*USFS(122) Close all undesignated spur roads in riparian areas; close other spur roads on a case by case basis, after site specific analysis. (FS-GU-0.63)*

*USFS(123) Relocate existing roads outside of washes, riparian areas, and 50-year floodplains if relocation will result in better resource conditions. Priority should be given to relocating roads when major maintenance is required and to roads that: 1) Are located in vital habitat for plant or animal species of concern, and 2) receive higher levels of use. (FS-GU-0.64)*

*USFS(124) Require site/area rehabilitation upon completion/termination as part of all new permits. (FS-ST-0.126)*

*USFS(125) Enhance developed sites where feasible to restore resource or wildlife values where recreation use has adversely affected resources. (FS-OBJ-11.5)*

*USFS(129) Provide water sources for wildlife adjacent to or within developed facilities. Maintain public restrooms to prevent access by wildlife (Palmers chipmunk). (FS-GU-11.11)*

*USFS(130) Restore and maintain the natural, ecological, and visual character of the Wilderness. (FS-OBJ-12.1)*

*USFS(131) Restore water sources to historic flows in the Wilderness. (FS-OBJ-12.7)*

*USFS(132) Where possible, remove obvious exotic plants (dandelions, cheatgrass) in the Wilderness manually. (FS-GU-12.2)*

*USFS(133) Remove fire rings from the Wilderness. Emphasis should be placed on removing features which encourage use on degraded or sensitive sites. (FS-GU-12.4)*

### 2.8.4.7 Land Use Policies and Actions

*USFS(134) Maintain a philosophy of adaptive management in implementing this CA which provides the basis for changes and mid-course corrections as determined to ensure species viability and habitat protection. (CA-GC 1.0(1))*

*USFS(135) Develop new trails and encourage trail use outside of biodiversity hotspots to avoid further adverse effects on rare and sensitive species. (CA-GC 1.0(2))*

*USFS(136) Implement the principles of ecosystem management in the Spring Mountains NRA (CA-GC 1.0(3))*

*USFS(137) Conduct preactivity surveys for the species of concern prior to any actions that may affect them, and design projects to minimize or avoid adverse effects. Ensure that surveys consider unique habitat components of the species of concern (e.g., mud and puddles for butterflies) (CA-GC 1.0(4))*

*USFS(138) Secure funding for projects involving inventory, monitoring, research, protection, restoration, and education in the Spring Mountains NRA. (CA-GC 1.0(5))*

*USFS(139) Secure funding for additional staff positions including a field ecologist, biologist, botanist, interpreters, visitor center personnel, wilderness manager and rangers, dispersed recreation rangers, and law enforcement officers. (CA-GC 1.0(6))*

*USFS(140) Ensure that all NRA staff annually review a copy of this CA and are familiar with its intent and terms. This will provide the basis for informed decision making in providing for species and ecological resource protection during planning and implementation of new and ongoing projects. (CA1.1)*

*USFS(141) Ensure that all NRA staff annually review species and ecosystem protection recommendations made by field researchers. This information is summarized in the document "Management Recommendations for Species and Ecosystem Management in the Spring Mountains National Recreation Area," on file in the Spring Mountains NRA office. (CA1.2)*

*USFS(142) Conduct annual briefings with USFS, USFWS, and State line officers (management) to update them on the status of CA implementation and to provide an assessment of future funding needs. (CA1.3)*

*USFS(143) Provide NRA staff and key permittees and partners with annual information on biodiversity hotspots, the species that occur in these areas, and the importance of avoiding adverse impacts to the species of concern and their habitats. (CA1.4)*

*USFS(144) Provide copies of this CA to, and hold annual meetings with, partners and other interested parties to increase awareness of conservation priorities and encourage partnerships in accomplishment of conservation actions. (CA1.5)*

*USFS(145) Establish a technical advisory group comprised of individuals with knowledge and expertise on conservation of the species of concern, and convene annual meetings to discuss conservation actions. (CA1.6)*

*USFS(146) Integrate efforts in this CA with the Clark County Multispecies Planning effort to ensure that mutual goals to achieve species conservation are accomplished. (CA1.7)*

*USFS(147) Coordinate with BLM in project planning and implementation in conservation of the species of concern and other sensitive ecological resources within their purview, and work towards inclusion of BLM lands within the Spring Mountains ecosystem into the CA. (CA1.8)*

*USFS(148) Develop and distribute a field guide for use by Spring Mountains NRA and Red Rock NCA staff and others in identifying species of concern and their habitats in the Spring Mountains. (CA1.9)*

*USFS(149) Maintain, periodically update, and make accessible to NRA staff and other involved agencies and partners, a Geographic Information System, with locations of the species of concern and other sensitive ecological resources. This will provide baseline information useful for avoiding where feasible, or minimizing when necessary, adverse impacts on the species of concern and their habitats. (CA1.10)*

*USFS(150) Develop and implement a prescribed burn plan for the NRA , with emphasis on ecosystem health and enhancement of habitat for sensitive bats, endemic plants and butterflies, and other ecological resources. This plan will, at a minimum, determine the location, species, and habitats for enhancement, identify studies needed prior to implementation, outline a public information campaign, and identify the time frame in which the plan will be implemented. The prescribed burn plan will address concerns, and where feasible implement recommendations for protection of rare and sensitive flora and plant communities (Nachlinger and Reese 1996), overwintering pollinators, endemic butterflies and their host plants (Weiss et al. 1997), Palmer's chipmunk (Tomlinson 1995), bats (Ramsey 1994, 1997), and other species of concern. This plan will specifically address the issue of whether or not Clokey eggvetch may benefit from prescribed burns. (CA1.11)*

*USFS(151) Develop and implement a fuelwood plan for the NRA which addresses and ameliorates potential impacts to the species of concern, in particular, Palmer's chipmunk, bats, and other species that may be affected by fuelwood cutting. The fuelwood plan will address concerns, and where feasible, implement recommendations for protection of Palmer's chipmunk (Tomlinson 1995), bats (Ramsey 1994, 1997), butterflies (Weiss et al. 1997), reptiles, overwintering pollinators, and other species. (CA1.12)*

*USFS(152) Identify and pursue purchases or exchanges on a willing seller basis of National Forest inholdings that will benefit the species of concern and other sensitive ecological resources. (CA1.13)*

*USFS(153) Develop and implement memoranda of understanding with climbing and caving groups, and hold annual meetings emphasizing species conservation, identifying protective measures, and specifying surveys for the species of concern prior to establishment of new climbing or caving opportunities. The information derived from these programs will assist the FS in determining future management actions for species protection. (CA1.14) Identify additional special interest groups and develop memoranda of understanding. (CA1.14)*

*USFS(154) Maintain or enhance ecosystem health, function, sustainability, and diversity (plant, animal, and community). (FS-OBJ-0.1)*

*USFS(155) Maintain or restore the health and size of riparian areas at natural water sources, and at human-made water sources where native and desired non-native species have become accustomed to using them (e.g., broken pipelines). (FS-OBJ-0.2)*

*USFS(156) Return fire, as a historic ecological process, to the SMNRA. Maintain and improve ecosystem function and health through the management of prescribed fire and prescribed natural fire. (FS-OBJ-0.3)*

*USFS(157) Continue to provide firewood and meet ecosystem health goals and objectives by allowing dead and down, and green fuelwood collection. (FS-OBJ-0.4)*

*USFS(158) Maintain air quality at a level that is adequate for the protection and use of resources (Air Quality Related Values) and that meets or exceeds air quality standards as set by Clark County Health District. (FS-OBJ-0.5)*

*USFS(159) Maintain historic/natural operation of floodplains, where possible. (FS-OBJ-0.6)*

*USFS(160) Maintain historic conditions of water chemistry, temperature, clarity, and surface flow. (FS-OBJ-0.7)*

*USFS(161) Manage for endemic levels of native insects and diseases within the ecosystem. (FS-OBJ-0.8)*

*USFS(162) Prevent the destruction or adverse modification of critical threatened and endangered species habitat, recover populations of threatened and endangered species, and avoid the listing of additional species as threatened or endangered by maintaining populations and ecological processes necessary to their sustainability. (FS-OBJ-0.9)*

*USFS(163) Increase populations of threatened, endangered, and sensitive species, and species of concern, and their suitable habitat over the long term. (FS-OBJ-0.10)*

*USFS(164) Provide sufficient habitat to support the continued existence of all native resident and migratory species throughout the planning area. Restore desert bighorn sheep to their historic range. (FS-OBJ-0.11)*

*USFS(165) Provide sufficient habitat to support the continued existence of desired non-native species so long as their presence does not limit the viability of native species. (FS-OBJ-0.12)*

*USFS(166) Forage utilization will be 30% or less on any area in the Spring Mountains NRA. (FS-OBJ-0.13)*

*USFS(167) The habitat capability (population size in relation to available resources) to support elk will be based upon 15% of available resources available water and forage; and animal condition. Elk populations will be maintained at current 1996 population levels until additional habitat is provided through ecosystem and vegetation management. (FS-OBJ-0.14)*

*USFS(168) Manage wild horses and burros in a thriving ecological balance with long-term ecosystem health. (FS-OBJ-0.15)*

*USFS(169) Appropriate management levels (population size) for wild horses and burros will be based upon limiting factor: available water and forage; area sensitivity; and animal condition. Initial levels will be based upon 7% of available water. (FS-OBJ-0.16)*

*USFS(170) Manage cave resources within the SMNRA to protect resources, provide for public safety, and provide recreational opportunities as set forth in the Federal Cave Resources Protection Act of 1988. (FS-OBJ-0.18)*

*USFS(171) Develop new relationships/partnerships and strengthen existing efforts with user groups, including hunters, trappers, rock climbers, cavers, trail users, summer home and special use permittees, and American Indians, to help manage the SMNRA and protect resources. (FS-OBJ-0.29)*

*USFS(172) Assert claims to water that benefit recreation development, in-stream flow, wildlife, threatened, endangered, and sensitive species, species of concern, and wild horse and burro populations. (FS-ST-0.9)*

*USFS(173) Divert 25% or less of the surface flow from new developments at springs, seeps, and streams. (FS-ST-0.11)*

*USFS(174) Chaining will not be allowed. (FS-ST-0.18)*

*USFS(175) Use prescribed natural fire throughout the SMNRA, where lives and property can be protected and outside the Creosote and Blackbrush Land Type Associations, to achieve ecosystem health goals and reduce fuels when conditions, fuel, weather, and national/local fire seasons allow. (FS-GU-0.20)*

*USFS(176) Planning for prescribed fires will include community involvement in determining the strategy, timing, and any coordination for fuelwood removal prior to and after the burn. (FS-ST-0.21)*

*USFS(177) Use prescribed fire, silvicultural and mechanical treatments, and shaded fuelbreaks throughout the SMNRA to achieve ecosystem health goals, reduce fuel loads, and protect public safety, developed areas, and private property. (FS-GU-0.22)*

*USFS(178) Use prescribed fire within known and potential habitat of Clokey eggvetch to improve habitat suitability when fuel, weather, and local/national fire season allows. (FS-GU-0.23)*

*USFS(179) All species listed as candidates for the Federal threatened or endangered species list, all species listed as protected rare, endangered, and critically endangered by the State of Nevada, and all Forest Service sensitive species will be considered "species of concern," and treated as if they were on the Forest Service sensitive species list. (FS-ST-0.27)*

*USFS(180) Limit negative impacts to all species of concern due to management activities. Enclosed species list is the current (9/96) list of species of concern. (FS-GU-0.29)*

*USFS(181) New facilities and roads will be sited so as to avoid vital populations or habitats of species of concern. (FS-ST-0.35)*

*USFS(182) Retain all snags that do not pose a threat to public safety or extreme fire danger. Snags are retained to provide habitat for cavity nesting animals and animals that feed upon the insects living within dead trees. Retain a minimum of 5 snags per acre in late seral stages of the Pinyon/juniper, Mixed Conifer, and Bristlecone Pine Land Type Associations in all cases. (FS-ST-0.36)*

*USFS(183) Retain a minimum of 50 linear feet/acre of downed trees with a minimum 12 inch diameter on sites being managed for late seral stage of the Pinyon/Juniper and Mixed conifer Land Type Associations, to provide ground cover for small mammals, amphibians, reptiles, and invertebrates. Trim branches and limbs as necessary. Place downed trees in such as way as to not affect drainage patterns; impede traffic or use of recreation facilities; create a public safety problem; and where consistent with "defensible space." (FS-ST-0.37)*

*USFS(184) Permit application of herbicides and insecticides only to avoid or control epidemic outbreaks of insect and plant diseases where there is a threat to public safety, private property, or extreme fire danger. When applied, use only formulations registered by the EPA for the intended use, at minimum effective rates, and using selective methods. Avoid use in habitat for threatened, endangered, or sensitive species, or species of concern whenever possible. Single tree treatment will be used. (FS-ST-0.39)*

*USFS(185) Do not permit introduction of new non-native species of fish or wildlife. (FS-ST-0.40)*

*USFS(186) Initial elk populations will be maintained at current 1996 population levels until such time as additional elk habitat is provided through ecosystem and vegetation management. Work with NDOW to reduce the initial elk populations, should the elk herds not move into newly created habitats. (FS-ST-0.42)*

*USFS(187) Work with NDOW to identify current elk population's utilization levels of key forage species, home ranges of elk herds, and resource overlap with other grazing animals. (FS-ST-0.43)*

*USFS(188) Cooperate with NDOW to reduce elk population when habitat capability is exceeded by 15%. if possible, reduce population size to 20% below. (FS-ST-0.44)*

*USFS(189) Develop and maintain cooperative partnerships with hunters and trappers to benefit ecosystem health. (FS-GU-0.46)*

*USFS(190) Close all livestock allotment on the Spring Mountains NRA to grazing under term or temporary grazing permits. Livestock will only be permitted to graze to achieve specific desired ecological conditions. Domestic sheep and goats are prohibited throughout the Spring Mountains NRA. (FS-ST-0.48)*

*USFS(191) Construction above or in the vicinity of a cave will be designed in a way to insure protection of the cave resources. Diversion of surface drainage into caves is prohibited. (FS-ST-0.52)*

*USFS(192) Where possible, maintain native vegetation around cave openings for a minimum distance of 100 yards. (FS-GU-0.53)*

*USFS(193) All gates on caves and mines will be designed to provide for unrestricted access for bats. Temporary (test) gates of PVC or other light, impermanent material will be constructed first to determine bats' reaction to gate design, prior to final design and construction of permanent gates. (FS-ST-0.55)*

*USFS(194) Prohibit alteration of cave and mine entrance (except for gating to protect cave resources) or their use as disposal sites for slash, spoils, or other refuse. (FS-ST-0.56)*

*USFS(195) Dead and down fuelwood collection areas may be designated in the Mixed Conifer Land Type Association (outside the Wilderness) when necessary to meet specific ecosystem health goals and objectives. As necessary, minimize impacts to Palmers chipmunk. (FS-GU-0.59)*

*USFS(196) Avoid cutting fuelwood, or cutting trees for salvage or sanitation within 0.5 mile of active or recently active flammulated owl or goshawk nest. Trees hazardous to public safety or extreme fire danger may be removed. Insect and disease treatments may occur within this area to control epidemic outbreaks. (FS-GU-0.60)*

*USFS(197) Allow collection of snags only between the months of October and the end of February. (FS-ST-0.61)*

*USFS(198) Minimize paving of existing unpaved forest system roads within the SMNRA, provided public safety and resource management objectives are met. (FS-GU-0.62)*

*USFS(199) Allow motorized vehicle use only on designated roads and trails, except for snowmobile use in approved areas. Close washes to motorized use. (FS-ST-0.65)*

*USFS(200) Allow bicycle use only on established and/or designated roads and trails. (FS-ST-0.66)*

*USFS(201) No sale of National Forest System land within the SMNRA. (FS-ST-0.67)*

*USFS(202) Use bulldozers in fire suppression only as a last resort (lives or private property threatened). (FS-GU-0.89)*

*USFS(203) When possible, use existing human-made and natural barriers as control lines in preference to building new lines when suppressing wildfires and prescribing fires. (FS-GU-0.92)*

*USFS(204) Do not use bulldozers to create control lines for prescribed burns. (FS-ST-0.93)*

*USFS(205) Allow development of new bolted climbing routes under a voluntary route registration system. After development of more than 5 routes, new climbing areas in Wilderness and WSAs will require site survey before additional routes are developed. (FS-ST-0.106)*

*USFS(206) Develop or realign trails into climbing areas as appropriate to provide for public safety and resource protection. (FS-GU-0.108)*

*USFS(207) Abandoned mine entrances may be closed for public safety after surveys to determine the locations of biological and heritage resources have been conducted. (FS-GU-0.114)*

*USFS(208) Require permits for publicized and/or organized events with 25 or more participants. (FS-ST-0.130)*

*USFS(209) Require permits for groups with 15 or more pack or saddle stock. Require as part of the permit, all participants must stay on approved trails. Require removal of all hay and fecal material as part of site rehabilitation. (FS-ST-0.131)*

*USFS(210) New facilities, special uses, or private developments on National Forest System lands will be constructed or carried out using "defensible space," guidelines to limit the incidence, speed, and damage from wildfire, where consistent with maintaining habitat for species of concern. (FS-ST-0.134)*

*USFS(211) Provide additional developed recreation facilities in appropriate locations to encourage use away from upper Kyle and Lee Canyons. Emphasize new facilities in lower Kyle and Lee Canyons (east of Highway 158), at Cold Creek, and on the west side of the Spring Mountains. (FS-GU-0.135)*

*USFS(212) New campgrounds and picnic areas will be located outside the 50-year floodplain, riparian areas, and avalanche hazard zones. (FS-ST-0.137)*

*USFS(213) Allow development of low standard facilities (signs, trails, restrooms) and parking areas within the 50-year floodplain if no other alternative is available. Design these facilities to provide for public safety and to maintain floodplain function. (FS-GU-0.138)*

*USFS(214) Provide alternative parking sites, road alignments, and fencing where feasible to allow for continued recreational use outside of riparian areas. (FS-GU-0.140)*

*USFS(215) Construct any new roads outside riparian areas, washes, and the 50-year floodplain; and at least 100 yards away from existing water sources, except at crossings perpendicular to the water course. (FS-ST-0.141)*

*USFS(216) New commercial developments will be approved only if they meet all the following requirements: (FS-ST-0.144)*

- *Do not negatively impact threatened, endangered, or sensitive species, or species of concern;*
- *Incorporate "defensible space" design (landscape design to prevent loss of property or life in case of wildfire), and fire safe facilities;*
- *Provide for education and interpretation of natural resources;*
- *Fit within a mountain setting;*
- *Offer activities not generally provided on private land;*
- *Minimize visual impacts;*
- *Traditional or historic public use(s) is not limited;*
- *Private land is not available;*
- *Provide additional public restrooms (as appropriate);*
- *Gambling is not part of Forest Service authorization.*

*USFS(217) New administrative facilities will be located outside the 50-year floodplain, riparian areas, and avalanche hazard zones. (FS-ST-0.145)*

*USFS(218) All new administrative facilities will use drought tolerant landscaping with an emphasis on native species. (FS-GU-0.146)*

*USFS(219) All private lands within the SMNRA outside of developed subdivisions are suitable for acquisition on a willing seller basis, through purchase, exchange, or donation. (FS-GU-0.147)*

*USFS(220) Consider disposal through exchange of land occupied by Special Use Permits or summer homes if it would result in ecosystem, administrative, and recreational benefits and where exchange will further the purposes of the Spring Mountains National Recreation Area Act. (FS-GU-0.150)*

*USFS(222) Allow surface flows to return to ecosystem use in developed canyons. (FS-OBJ-11.4)*

*USFS(223) Develop cooperative management relationships with recreational residence associations in developed canyons. (FS-OBJ-11.15)*

*USFS(224) Allow collection of butterflies in Lee Canyon, Cold Creek, Willow Creek, and upper Kyle Canyon only through permits. (FS-ST-11.6)*

*USFS(225) Where possible, control access to, and revegetate areas in the developed canyons that are adjacent to recreation developments and have slopes greater than 25 percent. (FS-GU-11.7)*

*USFS(226) To maintain wildlife cover in developed sites, encourage campground hosts/concessionaire to provide wood for purchase by campers/picnickers. (FS-GU-11.10)*

*USFS(227) Designate specific primitive camp and picnic sites in upper Macks Canyon and at the Archery Range (at Deer Creek) by using parking barriers, fencing, signing, and education. (FS-GU-11.24)*

*USFS(228) Prohibit snowmobile use in upper Lee Canyon (west of Deer Creek Highway) except for administrative use, search and rescue, and operational use within or for the Las Vegas Ski and Snowboard Resort. (FS-ST-11.25)*

*USFS(229) Provide entrance stations on State Highways 157 and 158 at the entrances to upper Kyle and Lee canyons, in cooperation with Federal, state, and local agencies, and local residents and business interests. The stations will include gates or other methods to manage traffic flow. (FS-GU-11.51)*

*USFS(230) Provide additional multi-use recreation facilities in lower Kyle or Lee canyons. (FS-GU-11.53)*

*USFS(231) As possible, develop additional snow play area in Kyle Canyon, within the area road and parking capacity, or if needed parking/transportation capacity is provided. Avoid species of concern. If avalanche hazard zones cannot be avoided, provide for adequate forecasting, warning, and closure. (FS-GU-11.63)*

*USFS(232) Manage the Carpenter Canyon Research Natural Area to retain its natural and scientific values. (FS-OBJ-12.3)*

*USFS(233) Reduce impacts of non-native plants in the Wilderness. (FS-OBJ-12.4)*

*USFS(234) Allow fires to play their historic role in the Wilderness, where consistent with the protection of wilderness resources, public safety, and private property and developed facilities in surrounding areas. (FS-OBJ-12.5)*

*USFS(235) Allow natural disturbances (fire, flood, avalanche) in the Wilderness to achieve desired condition of vegetation mosaic. Use management tools to achieve desired condition only if other alternatives are not available. (FS-GU-12.1)*

*USFS(236) Allow for treatment of exotic pests within the Wilderness when scientific evaluations indicate a need. Only use pesticides when no other options are available and then use the least persistent chemical or biological pesticide. Avoid use in habitat for species of concern whenever possible. (FS-GU-12.3)*

*USFS(237) Trail construction and commercial uses within the Research Natural Area are prohibited, except for outfitters/guides passing through the RNA on the Mt. Charleston Loop Trail. (FS-ST-12.10)*

*USFS(238) Rock climbing in the Fletcher Canyon and Robbers' Roost areas (both within and outside the Wilderness boundary) will continue only on existing routes until surveys for species of concern are complete. After surveys have been completed, local restrictions or seasonal closures may be used to protect species of concern. (FS-GU-12.12)*

*USFS(239) Wilderness permits are required for all overnight use within the Wilderness. Prohibit camping in sensitive areas, as determined through monitoring. (FS-ST-12.13)*

*USFS(240) Camp stoves are not restricted within the Wilderness. Campfires of any kind are prohibited. (FS-ST-12.14)*

*USFS(241) Discontinue equestrian use in the alpine if monitoring determines that equestrian use is having a negative impact on vegetation within the biodiversity hotspots. (FS-ST-12.17)*

*USFS(242) Pack and saddle stock are limited to day use on all of South Loop Trail and on North Loop Trail from Trail Canyon trail junction to Charleston Peak (FS-ST-12.18)*

*USFS(243) Encourage the use of weed-free feed. (FS-GU-12.19)*

*USFS(244) A maximum of 15 pack or saddle stock will be permitted to use the trails in the Wilderness for organized trail rides. (FS-ST-12.24)*

*USFS(246) Maintain unfragmented blocks of land in the West Side management area . (FS-OBJ-13. 2)*

*USFS(247) Habitat Capability for elk: Wheeler Pass, 87; Lovell Summit, 65. (FS-OBJ-13.8)*

*USFS(248) Appropriate Management Level for wild horses and burros in Wheeler Pass: horses, 11; burros, 0 (based upon 7% of available water). Lowest recorded water flow rate is used; assuming wild horses require 10 gallons of water per day. Those gpm rates (gallons per minute): Wheeler Well, 0.0 gpm; Buck Spring, 0.75 gpm; Rosebud Spring, 0.34 gpm. Appropriate Management Level for wild horses and burros in Wheeler/Wallace: horses, 10; burros, 21 (based upon 7% of available water). Lowest recorded water flow rate is used; assuming wild horses require 10 gallons of water per day; burros require 5 gallons of water per day. Those gpm rates (gallons per minute): Kiup Spring, 1.7 gpm; Ford Spring, 0.25 gpm; Carpenter Tank, 0.0 gpm; Lee Spring,*

*unknown; Trout Spring, 0.0; Horse Spring, 0.0 Dedicated to community/private use). Appropriate Management Level for wild horses and burros in Red Rock Territory: horses, 50; burros, 50 (based upon Bureau of Land Management recommendations and the best available information). (FS-OBJ-13.10)*

*USFS(249) Maintain large undisturbed blocks of vegetation in an unfragmented condition without new roads or motorized trails including: Lovell Wash/Younts/Rose Springs area. (FS-ST-13.2)*

*USFS(251) Take advantage of the remote setting of this Mt. Sterling management area to actively restore historic disturbance regimes and improve wildlife habitat. (FS-OBJ-14.2)*

*USFS(252) Maintain existing roadless character of the Mt. Sterling Wilderness Study Area until such time as Congress makes the decision regarding inclusion in the National Wilderness Preservation System. (FS-OBJ-14.6)*

*USFS(253) Habitat capability for elk for Mount Stirling is 97. (FS-OBJ-14.7)*

*USFS(254) Initial Appropriate Management Level for Johnnie Territory: horses, 50; burros, 75 (based upon Bureau of Land Management recommendations and the best available information). (FS-OBJ-14.8)*

*USFS(255) Prohibit construction of developed recreation sites or additional roads in the Mount Stirling WSA until such time as Congress makes the decision regarding inclusion in the National Wilderness Preservation System. (FS-ST-14.2)*

USFS(256) Include in their agency budget requests adequate dedicated and earmarked funding to allow USFS to fully operate, manage, maintain, and monitor their lands pursuant to the terms of this MSHCP and to fulfill their obligations to protect the species and ecosystems consistent with statutory obligations imposed by Congress. They acknowledge that funds collected by Clark County and paid to them to assist in land management policies and actions are not intended to be substituted for monies which would otherwise be allocated to them to fulfill statutory obligations to protect the resources, but are intended to supplement those funds.

## 2.8.5 U.S. Fish and Wildlife Service

Existing conservation measures are identified in italics in the text.

### 2.8.5.1 Public Information and Education

*USFWS(1) Develop interpretive outreach program highlighting unique habitat and the biotic communities of Clark County (Ecological Services and DNWR).*

USFWS(2) Coordinate outreach actions and publications with PIE where deemed appropriate by USFWS and Clark County (Ecological Services and DNWR).

### 2.8.5.2 Research

USFWS(3) Encourage the development and dissemination of knowledge regarding the ecosystems in Clark County (DNWR).

USFWS(4) In cooperation with the I & M Committee, identify and implement research projects that address management issues and concerns (DNWR).

### 2.8.5.3 Inventory (Status)

USFWS(5) Conduct preactivity surveys for biological resources before implementing projects which may impact resources; and avoid sensitive species to the extent possible (DNWR).

### 2.8.5.4 Monitoring (Trends)

USFWS(6) *Monitor and protect water sources and water flows (springs, seeps, and streams) to assure adequate water is provided for sensitive species (DNWR).*

USFWS(7) *Trap or remove exotic animals as necessary within the Desert National Wildlife Refuge Complex (DNWR).*

USFWS(8) Develop and implement long-term surveys to assess population trends, to document breeding and nesting activity in southern Nevada in the spring, and to assess occurrence in southern Nevada during the summer months (phainopepla and summer tanager) (DNWR).

USFWS(10) Investigate the basic ecology of obligate pollinators of target plant species to insure complementarity of conservation recommendations and the location of protected areas, insuring the inclusion of the pollinator's full habitat and food source requirements (DNWR).

USFWS(11) Monitor populations and population trends of Covered and Evaluation Species on the DNWR as appropriate (DNWR).

## 2.8.5.5 Protective Measures

*USFWS(12) Allow collection by permit only; permits granted only for scientific research that furthers the USFWS mission (DNWR).*

*USFWS(13) Adopt and implement policies to protect plant species from dispersed or unregulated recreation (DNWR).*

*USFWS(14) Implement snag management in habitat areas, including limiting wood collection to down wood, and coordination of fire management activities within proposed wilderness areas of the DNWR (DNWR).*

*USFWS(15) Manage woodcutting, shrub clearing, and limit other human activity disturbance off existing roads within the DNWR (DNWR).*

*USFWS(16) Protect existing stands of mesquite and catclaw (DNWR).*

*USFWS(17) Protect existing riparian habitat from the effects of recreational activities (DNWR).*

*USFWS(18) Manage pesticide use consistent with integrated pest management program. Apply only approved pesticides, with certified applicators, and according to label instructions (DNWR).*

*USFWS(19) Focus recreation activities into less sensitive areas (DNWR).*

*USFWS(20) Minimize clearing of undergrowth in construction of new facilities within the DNWR (DNWR).*

*USFWS(21) Prohibit access to caves for recreation (DNWR).*

*USFWS(22) Prohibit horses, burros, and livestock grazing (DNWR).*

*USFWS(23) Coordinate with the U.S. Air Force to minimize the footprint on the ground for congressionally mandated ordnance impacts (DNWR).*

*USFWS(24) Prohibit highway and road construction on the Refuge (DNWR).*

*USFWS(25) Retrofit roads to permit ingress and egress to the DNWR for a broad range of organisms (DNWR).*

*USFWS(26) Conduct biological surveys prior to road maintenance and retrofit activities, (DNWR).*

*USFWS(27) Ensure that roads are engineered to adequately spread runoff to minimize erosion (DNWR).*

USFWS(28) Ensure that adequate law enforcement and ranger patrolling is implemented within the DNWR (DNWR).

USFWS(29) Develop a conservation agreement for white-margined beardtongue with agencies as appropriate (Ecological Services).

USFWS(30) Implement the memorandum of agreement between USFWS and managing agencies for Las Vegas bearpoppy (Ecological Services).

USFWS(31) Maintain dead snags and fallen trees on slopes and canyon bottoms in the DNWR (DNWR).

USFWS(32) Limit collection of dead wood including yucca skeletons to within 100 feet of designated roads (DNWR).

USFWS(33) Evaluate effects of rock climbing on biological resources. Rock climbing is currently allowed, but is under investigation; if adverse impacts are found it will be prohibited on DNWR (DNWR).

### 2.8.5.6 Restoration and Enhancement Measures

*USFWS(35) Create new open water resources for bats and other wildlife (DNWR).*

USFWS(36) Expand the seed bank program to include populations in the Sheep Mountains areas (DNWR).

USFWS(37) Enhance mesquite and catclaw stands by removing the competing tamarisk and replacing with native species (DNWR).

USFWS(38) Implement reseeding with native plant species and other soil stabilization and habitat restoration actions following fires within the DNWR (DNWR).

USFWS(39) If proposed actions will result in surface disturbance near a population of white bearpoppy, remove soil with seed source and relocate to a potential habitat site and monitor over time (DNWR).

USFWS(40) Restore/rehabilitate all key access points of closed roads and areas (DNWR).

USFWS(41) Rehabilitate and restore adjacent upland and tributary systems to the Muddy River on Moapa Valley National Wildlife Refuge (DNWR).

### 2.8.5.7 Land Use Policies and Actions

*USFWS(42) Assure full and continuing implementation of existing management policies and actions, and monitoring of sensitive habitats and species (DNWR).*

*USFWS(43) Review and implement management measures to protect habitat and species from military impacts (DNWR).*

*USFWS(44) Assure implementation of Integrated Pest Management Plans (DNWR).*

*USFWS(46) Consolidate utility corridors to the extent feasible on Federal lands (DNWR).*

*USFWS(47) Prohibit camping within one-quarter mile of water sources (DNWR).*

*USFWS(48) Provide an Environmental Assessment of the effects of the expansion of any public use areas, especially effects on species of concern (including Covered Species) (DNWR).*

*USFWS(49) Implement measures incorporated in the Conservation Agreement for the Spring Mountains NRA with the USFS (Ecological Services).*

*USFWS(50) Review and provide a written report concerning the proposed management plans and budgets which will evaluate the consistency of the proposed management plans with the ESA, recovery plans, and this conservation plan, prior to the submittal of the proposed management plans and budgets to the I & M Committee. The written report will be provided within 45 days after the proposed management plans and budgets are submitted to the USFWS. In addition, if required by law, the Federal land managers will consult or confer with the USFWS pursuant to Section 7 of the ESA regarding the proposed management plan and budget. The Section 7 Biological Opinion, if required, and the report will be furnished to the I & M Committee to assist it in its deliberations. Section 7 consultations may take up to 135 days (Ecological Services).*

*USFWS(51) Cause minimization measures that result from authorization of incidental take pursuant to Section 7 of the ESA (Section 7) to be consistent with the mitigation measures required under this plan, under normal circumstances. However, nothing in this plan is intended to prohibit or proscribe the USFWS from requiring measures in excess of that provided for in this plan, should the circumstances so warrant (Ecological Services).*

*USFWS(52) Coordinate with and provide technical assistance to the I & M Committee. (Ecological Services)*

*USFWS(54) Include in its agency budget requests adequate funding to allow it to fully perform the obligations and tasks assigned to it pursuant to the terms hereof, including, but not limited to, the review of the biennial management plan and budget as well as cooperating with and providing technical assistance to the I & M Committee.*

*USFWS(55) Convene Muddy River Recovery Implementation Team to develop and oversee implementation of the Muddy River Recovery Implementation Plan (Ecological Services).*

*USFWS(56) Convene Virgin River Recovery Implementation Team to develop and oversee implementation of the Virgin River Recovery Implementation Plan (Ecological Services).*

# 2.8.6 Bureau of Land Management

Actions that require an amendment to the RMP or Red Rock General Management Plan before they can be implemented are identified by [1]. Actions affecting OHV activities in ACECs will also require an amendment to the RMP.

## 2.8.6.1 Public Information and Education

BLM(1) Provide environmental information and educational materials to the public from the Red Rock Canyon NCA (RRCNCA) visitor center.

BLM(5) Develop brochures, pamphlets, and interpretive signs for covered species and the habitats of which they depend as determined to be appropriate by BLM in coordination with the HCP I & M Committee.

BLM(6) On a case by case basis, BLM will install signs at springs explaining the need for their protection and to reiterate State law that prohibits camping within 100 yards of water sources.

BLM(4) Promote awareness among users and managers of caves on public lands through development of informational and educational materials concerning conservation methods and potential hazards.

## 2.8.6.2 Research

BLM(9) BLM will cooperate with the I & M Committee and through the Adaptive Management Plan participate in the identification, development, and implementation of

research projects located on Public Lands. Emphasis shall be placed on research that addresses management concerns and the conservation of covered and evaluation species.

BLM(8) Manage the Desert Tortoise Conservation Center Management Area (CCMA) (this includes the Desert Tortoise Conservation Center and the surrounding basin consisting of 11,014 acres) to support desert tortoise research and other research associated with the Mojave Desert Ecosystem. When feasible, expand the function of the center to include an environmental education/awareness program in close coordination with other Federal agencies and State and local governments.

BLM(7) Encourage the obtainment and dissemination of knowledge regarding the Mojave Desert ecosystem including desert tortoise biology.

### 2.8.6.3 Inventory (Status)

BLM(13) Continue to conduct inventories as determined by the BLM and I & M Committee on special status plant species to determine their distribution, abundance, and potential threats and take appropriate actions to protect the habitat of these plant and animal species.

BLM(15) BLM will cooperate with the Nevada Division of Wildlife and Clark County I & M Committee to implement surveys to determine the distribution, abundance, and potential threats on the southwestern willow flycatcher, phainopepla, summer tanager, Arizona Bell's vireo, yellow-billed cuckoo, and blue grosbeak and other species as necessary.

BLM(17) BLM will develop and maintain a digital data base for all inventory data collected and cooperate with other participants in establishing and maintaining a repository for digital biological data covering Clark County.

BLM(19) Inventory and monitor mesquite and acacia habitats in Amargosa Valley Area, Stump Springs, Pahrump Valley, Hiko Wash, Piute Wash, Meadow Valley Wash and other areas determined to be important as resting and/or nesting habitat for resident and neo-tropical migrants.

### 2.8.6.4 Monitoring (Trends)

BLM(32) Develop and implement a monitoring program for the Las Vegas bearpoppy in cooperation with the Lake Mead National Recreation Area. The presence or absence of known pollinators will be documented as a part of the monitoring study

BLM(35) Monitor water table levels at the Pahrump, Moapa, Stewart Valley, and Stump Springs mesquite woodlands.

BLM(36) Monitor water sources including springs, seeps and streams to assess condition and trend.

BLM(38) Continue to establish and read vegetation trend monitoring plots in desert tortoise Critical Habitat (and/or in desert tortoise ACECs once established) and in active grazing allotments to determine vegetation trend over time.

BLM(33) Develop and implement a monitoring program for BLM Special Status Plants such as the alkali mariposa lily, Blue Diamond cholla and covered and evaluation moss species in the Red Rock Canyon NCA.

BLM(34) Monitor road and trail proliferation in desert tortoise ACECs, Las Vegas bearpoppy management areas, and WSAs.

### 2.8.6.5 Protective Measures

BLM(39) Prohibit collection of plants, animals, and mineral materials in Red Rock Canyon NCA without a permit.

BLM(57) Allow backcountry camping only in designated areas of Red Rock Canyon NCA.

BLM(97) Restrict mountain bikes and other mechanized non-motorized vehicles to designated trails within the RRCNCA and only allow new trails consistent with the conservation of BLM sensitive species, including the Spring Mountain milkvetch.

BLM(71) Limit motorized uses in the Piute/Eldorado "Conserved Habitat" to designated roads and trails.

BLM(44) Close portions of the Red Rock Canyon NCA to vehicle use or limit use to designated roads and trails.

BLM(71) Limit motorized vehicles in WSAs to existing roads and trails as listed in inventory maps, or as otherwise authorized. Close unauthorized roads in WSAs.

BLM(76) Prohibit OHV competitions within Red Rock Canyon NCA.

BLM(102) Do not allow OHV speed events within ¼ mile of key mesquite woodlands from February 1 to August 1.

BLM(108) Maintain the existing closure of 3,360 acres in the Muddy Mountains to all motorized and mechanized vehicles.

BLM(118) Do not allow competitive off-road vehicle events within ¼ mile of natural water sources and associated riparian areas.

BLM(48) Manage fires occurring in the WSAs to the lowest suppression intensity possible.

BLM(54) Require the use of a resource advisor for all fires within important habitats for covered and evaluation species.

BLM(51) Prohibit commercial collection of vegetative specimens within WSAs. Hobby collection may be allowed for personal use but not for commercial use, as long as the collection activity method meets the non-impairment criteria.

BLM(41) Prohibit commercial collection of cactus/yucca skeletons except in designated areas such as disposal areas, gravel pits, and sites associated with Federally approved projects that will result in the loss of surface vegetation. Casual collection of cactus/yucca skeletons is prohibited in tortoise ACECs. Casual collection outside these areas will be discouraged.

BLM(95) Prohibit the cutting of firewood in Red Rock Canyon NCA. Elsewhere permits are required on a discretionary basis consistent with the protection of sensitive species.

BLM(101) Protect snags as important habitat features.

BLM(91) Harvesting mesquite will require a permit (for green or dead and down) consistent with sustaining the plant communities in a healthy and vigorous state, and also consistent with sustaining viable wildlife populations.

BLM(79) Close WSAs to authorization/renewal of material site rights-of-way and mineral materials disposal until a decision is reached on their status.

BLM(86) Whenever possible, avoid surface occupancy in riparian zones.

BLM(89) Where feasible, proposals for saleable materials in essential habitats for special status species will be avoided.

BLM(96) Work with the Nevada Power Company and other utilities to modify existing powerline towers or poles to meet BLM standards for the prevention of raptor mortality (Olendorff et al. 1981 Raptor Research Report #4).

BLM(100) Manage caves to ensure that important bat roosting sites and hibernacula are not negatively impacted by recreational use. If gating is necessary to protect cave resources, ensure that the gates will allow for bat ingress and egress.

BLM(115) Manage all cave resources as wild systems, free from commercial or show cave type developments. Special Recreation Permits for commercially guided trips by qualified cave experts may be considered if environmental studies show that cave resources will not be impacted.

BLM(117) Protect key nesting areas, migration routes, important prey base areas, and concentration areas for birds of prey on public lands through mitigation of activities during National Environmental Policy Act compliance.

BLM(114) Manage public lands adjacent to the Ash Meadows ACEC and Moapa National Wildlife Refuge to compliment spring and aquatic habitat for special status species, including projects that may affect ground water levels or spring flows.

BLM(120) Determine water needs to meet management objectives. File for appropriate water rights on public and acquired lands in accordance with the State of Nevada water laws for those water sources that are not Federally reserved.

BLM(93) Using "best management practices" as identified by the Sate of Nevada, minimize contributions from both point and non-point sources of pollution (including salts) resulting from public land management actions. Where applicable, proposed management actions would comply with local, state, tribal and Federal air quality laws, regulations, and standards (Conformity; per 40 CFR 93.100 et seq.).

BLM(99) Enter into conservation agreements with the U.S. Fish and Wildlife Service and the State of Nevada, that if implemented, could reduce the necessity of future listings of the species in question. Conservation agreements may include, but not be limited to, the following: Las Vegas bearpoppy, white-margined penstemon, and phainopepla.

BLM(111) Prior to the disposal of identified public lands, an analysis will be conducted to determine their resource values, including the occurrence of Special Status Species and sensitive habitats such as riparian and aquatic habitats. Land disposal will be consistent with conservation of special status species unless there is an overriding public benefit.

BLM(119) Close the Sunrise Mountain and Nellis Dunes Special Recreation Management Areas to casual recreational shooting in accordance with Clark County's designated no shooting zone.

BLM(107) Allow no net loss of Las Vegas bearpoppy habitat on Public Land from Federally approved projects through mitigative actions including avoidance and rehabilitation.

BLM(87) Limit casual use to the extent possible on Blue Diamond Hill for the protection of the Blue Diamond cholla (covered species) by enforcing existing access restrictions.

BLM(81) Investigate the development, feasibility, and benefits of pre-treating Blue Diamond Cholla habitat for fire prevention (e.g., fuel breaks on exposed slopes) per the proposed conservation agreement.

BLM(300) Fifty acres in Jean Lake Valley and thirty acres in Hidden Valley are being fenced to conserve white-margined penstemon habitat.

BLM(301) Limit the construction of new roads for the development of utility lines within special status species habitat.

BLM(20) Improve aquatic, riparian and mesquite woodland habitats including Meadow Valley Wash.

BLM(90) Provide protection (such as fencing) around springs and riparian habitats to prevent habitat degradation from excessive use by grazing animals.

BLM(12) Identify, evaluate, manage and protect cave resources on public lands for the purpose of maintaining the unique, non-renewable, and fragile biological, scientific, and recreational values for present and future uses.

BLM(103) Livestock grazing will be managed consistent with riparian objectives of reaching or maintaining proper functioning condition (PFC).

BLM(125) As grazing systems are developed for each allotment, ensure the system is consistent with the conservation of BLM special status species. Where conflicts occur, encourage Clark County to obtain grazing privileges on a willing seller basis.

BLM(59) Manage wild horses and burros as necessary to maintain thriving ecological balance and consistent with the protection of special status species in important habitat areas.

BLM(58,60) Wild horses and burros will be removed when herds have expanded beyond designated herd area boundaries or Appropriate Management Level is exceeded.

BLM(81) Implement actions in the Blue Diamond Cholla Conservation Agreement [see Appendix H] to ensure the long-term viability of the species.

BLM(98) Provide adequate law enforcement presence to ensure that management actions and restrictions are implemented for the conservation of covered and/or evaluation species.

BLM(302) Protect important resting/nesting habitat such as riparian areas and mesquite/acacia woodlands. Do not allow projects that may adversely impact the water table supporting these plant communities.

BLM(127,128) The livestock grazing program shall be managed to meet the Bureau's Standards and Guidelines as developed by the Southern Great Basin/Mojave Resource Advisory Committee. The standards are listed below:

> STANDARD 1. SOILS: Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity and sustain the hydrologic cycle.
>
> STANDARD 2. ECOSYSTEM COMPONENTS: Watersheds should possess the necessary ecological components to achieve state water quality criteria, maintain ecological processes, and sustain appropriate uses.
>
> Riparian and wetlands vegetation should have structural and species diversity characteristics of the stage of stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).
>
> STANDARD 3. HABITAT AND BIOTA: Habitats and watersheds should sustain a level of biodiversity appropriate for the area and conducive to appropriate uses. Habitats of special status species should be able to sustain viable populations of those species.

## 2.8.6.6 Restoration and Enhancement Measures

BLM(123) Within desert tortoise critical habitat/ACECs, Las Vegas bearpoppy habitat, and other important habitats for covered and evaluation species, require reclamation of activities which result in loss or degradation of habitat, with habitat to be reclaimed so that pre-disturbance condition can be reached within a reasonable time frame. Reclamation may include salvage and transplant of cactus and yucca, recontouring the area, scarification of compacted soil, soil amendments, seeding, and transplant of seedling shrubs. If necessary subsequent seeding or transplanting efforts may be required, should monitoring indicate that the original effort was not successful.

BLM(143) Rehabilitate, reclaim or revegetate areas subjected to surface-disturbing activities where feasible. . When rehabilitating disturbed areas, first manage for optimum

species diversity by seeding native species, except where non-native species are appropriate.

BLM(303) Implement a program to rehab surface disturbances including the first hundred feet or so of "closed" roads and trails within proposed desert tortoise ACECs, Las Vegas bear poppy habitat, and other areas important for special status species.

BLM(135) Implement reseeding with native plant species and other soil stabilization and habitat restoration actions following wildfires within areas important for the conservation of covered species and where the feasibility of success is reasonably certain.

BLM(137) Cooperate with NPS, FS, USFWS, Clark County and others on a reclamation program which will include maintaining a seed bank and live plants for rehabilitation of disturbed or burned areas if necessary.

BLM(304) Maintain and/or improve 45,750 acres of Las Vegas bearpoppy habitat in four bearpoppy management areas: Sunrise, Lovell Wash, Bitter Spring, and Gold Butte. Protect Las Vegas bearpoppy habitat within the Apex land sale area in cooperation with Clark County.

BLM(109) In cooperation with NDOW, the USFWS, and ADC, monitor brown-headed cowbird and raven populations and implement population controls of these species where necessary for the conservation of covered species.

BLM(142) Control and/or eradicate tamarisk. Rehabilitate the area with native species to help reduce the potential for tamarisk reestablishment and improve ecosystem health.

BLM(121) Determine instream flow requirements and apply for necessary water rights on the Virgin River and Meadow Valley.

BLM(138) Cooperate with the U.S. Fish and Wildlife Service and others in the implementation of the Virgin River Fishes Recovery Plan and the Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem.

BLM(106) Take appropriate protective actions to maintain or improve springsnail habitat, including the reestablishment of populations of springsnails.

BLM(140) Improve riparian areas, giving priority to areas Functioning at Risk with a downward trend. Implement measures to protect riparian areas, such as fencing and/or alternate water sources away from the riparian area. Insure that the minimum requirement of Proper Functioning Condition on all riparian areas is maintained or achieved.

BLM(141) Improve approximately 400 acres of aquatic and riparian habitat on the Virgin River, Muddy River, and Meadow Valley Wash from its existing poor to fair condition to good or better condition by replacing tamarisk with native species.

BLM(136) In cooperation and coordination with the Nevada Division of Wildlife, the U.S. Fish and Wildlife Service, and others, assist with the elimination of exotic fish and invertebrates from springs and streams where necessary for the conservation of covered species.

### 2.8.6.7 Land Use Policies and Actions

BLM(80) Red Rock Canyon NCA is closed to mining laws, subject to valid and existing rights (83% of blue diamond cholla population is protected)

BLM(162) In accordance with the BLM/Clark County Interlocal Agreement approved July 1, 1997, BLM will regulate and manage organized recreational activities on County RS2477 roads in accordance with 43 CFR subpart 8372 within proposed or designated desert tortoise ACECs.

BLM(163) BLM will review their special status species list annually and update it as appropriate to include the MSHCP "covered" species , and where appropriate, "evaluation" species.

BLM(11) Survey abandoned mines for the presence of bats before authorization of mine closures. If use of the mine by bats is documented, consider installing bat gates to ensure that the habitat continues to be suitable for bats, while promoting public safety. Total closure of abandoned mines known to support bats should be considered only as a last resort.

BLM(306) Approximately 11,014 acres of the Desert Tortoise Conservation Center Management Area are available for withdrawal by other Federal agencies when such transfer would further objective SS-4 (Manage the CCMA [11,013acres] to support desert tortoise research and other research associated with the Mojave Desert Ecosystem. When feasible, expand the function of the center to include an environmental education/awareness program in close coordination with other Federal agencies and State and local governments.)

BLM(145) During development of all activity plans, give special attention to protecting riparian zones as wildlife habitat and to protect associated native floral and fauna.

BLM(164) The following are land acquisition priorities on a willing seller basis:

1) Private lands required to meet management objectives within designated ACECs, WSAs, T&E habitat and areas containing special status species.

2) Private lands along the Virgin River south of Riverside bridge.

3) Lands not specifically identified for acquisition could be acquired on a case-by-case basis for the following reasons: a) protection of T&E and special status species; b) to provide resource protection; c) to facilitate implementation of the Resource Management Plan; d) to provide a more manageable land ownership pattern; or e) to maintain or enhance public uses and values.

BLM(200) Withdraw from entry under locatable mineral laws 11,014 acres comprising the Desert Tortoise Conservation Center Management Area. Also do not authorize (or renew) material sites rights-of-way, mineral material disposal, and solid and fluid mineral leasing within the CCMA.

BLM(201) Withdraw from locatable mineral entry and close to all solid mineral leasing within ¼ mile of natural springs, the floodplain of the Virgin and Muddy Rivers, and all ACECs.

BLM(202) Allow fluid mineral leasing, subject to No Surface Occupancy stipulations within areas having important cultural, geological, and riparian resources; special status species plant and animal habitat; Areas of Critical Environmental Concern; administrative sites; and Special Recreation Management Areas. (See the RMP ROD [Record of Decision] for a list of ACECs and acreages which includes 866,000 acres.)

BLM(203) Allow fluid mineral leasing subject to timing and surface use constraints in the following ACECs: Amargosa Mesquite (Crystal), Gold Butte (Parts B and C).

BLM(204) Do not allow saleable mineral disposal in ACECs with the following exception: 1) allow saleable mineral disposal within ½ mile of Federal and State highways and county roads identified by the RMP. These will only be allowed as extensions to existing material site rights-of-way and free use permits for State and local governmental entities, and 2) allow existing free-use and community pit authorization at one site in the Rainbow Gardens ACEC to be reauthorized or renewed but do not allow expansion of the sites.

BLM(206) Designate the following areas as ACECs for the conservation of Federally listed and special status species of wildlife and plants:

| | |
|---|---|
| Piute/Eldorado | 329,440 acres |
| Coyote Springs | 75,500 acres |
| Mormon Mesa | 151,360 acres |

| | |
|---|---|
| Gold Butte (Parts A, B, & C) | 344,437 acres |
| Rainbow Garden | 37,620 acres |
| River Mountains | 5,617 acres |
| Virgin River | 6,411 acres |

BLM(207) Implement the following management actions in desert tortoise ACECs (743,209 acres):

1) Minimize impacts to tortoise habitat during fire suppression by minimizing the use of mechanized equipment and where possible, staying on existing roads and trails. However, the priority shall be in keeping the wildfire to an absolute minimum.

2) Manage for zero wild horses and burros within desert tortoise areas of critical environmental concern.

3) Implement inventory, monitoring and research projects dealing with management issues within desert tortoise areas of critical environmental concern.

4) Limit utility corridors to 3,000 feet or less in width.

5) Do not allow new landfills.

6) Do not authorize military maneuvers.

7) Allow development of campgrounds only if consistent with the objectives of the Tortoise Recovery Plan.

8) On a case-by-case basis, support fencing of highways and moderately to heavily traveled dirt roads with tortoise-proof fencing and installation of culverts to allow tortoises to cross under the highway.

9) Commercial activities may be permitted on a case-by-case basis if not in conflict with the recovery of the desert tortoise.

10) Designate as “Limited to designated roads and trails” for all motorized and mechanized vehicles.

11) Allow non-speed off-highway vehicle events subject to the restrictions identified elsewhere.

12) Campers may pull their vehicles off the edge of the road but must stay within 15 feet of the edge of the road, except in Wilderness Study Areas where the vehicle must remain within the berm of the road.

BLM(208) Within desert tortoise ACECs, do not allow commercial collection of flora. Only allow commercial collection of wildlife upon completion of either a credible study or investigation that demonstrates commercial collection does not adversely impact affected species or their habitat, as determined by NDOW. This action will not affect hunting, trapping, or casual collection as permitted by the State. Limit collection or sale of desert vegetation and other vegetative resources for public use to approved areas including disposal areas, rights-of-way and gravel pits.

BLM(209) Commercial collection of decorative rock and other saleable minerals is prohibited in all ACECs and RRCNCA (already prohibited in RRCNCA). Commercial collection in other areas will be considered on a case-by-case basis consistent with the conservation of special status species.

BLM(210) Do not allow OHV speed events, mountain bike races, horse endurance rides, four-wheel drive hill climbs, mini events, publicity rides, high speed testing, and other similar speed based events within tortoise ACECs. These restrictions apply to other ACECs except that horse endurance rides and mountain bike events may be allowed on a case-by-case basis.

BLM(211) Designate 1,107,800 acres as limited to designated roads and trails for all motorized and mechanized vehicles within desert tortoise ACECs, Rainbow Garden ACEC, and areas adjacent to Red Rock Canyon NCA and Spring Mountain NRA.

BLM(215) Close all allotments, to livestock grazing, within the planning unit except for Hidden Valley, Mount Stirling, Lower Mormon Mesa, Roach Lake, White Basin, Muddy River, Wheeler Wash, Mesa Cliff, Arrow Canyon in Battleship Wash, Flat Top Mesa, Jean Lake and Arizona administered allotments . That portion of the Jean Lake allotment within the desert tortoise ACEC would be closed to grazing.

BLM(216) Additional allotment closures could be approved based on voluntary relinquishment of grazing privileges, permits or leases.

BLM(217) Establish an AML of zero burros in the Eldorado herd management area and Gold Butte (Part A) ACEC.

BLM(218) Close WSAs and ACECs to land use leases and permits under Sec. 302 of FLPMA, and airport leases.

BLM(219) Designate 158,800 acres of utility corridors. All ACECs exclusive of designated corridors are designated as right-of-way avoidance area.

BLM(220)[1] Designate important bearpoppy habitat in Lovell Wash (Muddy Mountains) and the Bitter Springs as ACECs for the protection of Las Vegas bearpoppy and sticky ringstem. These areas should be limited to designated roads and trails, closed to OHV competitive events and all forms of mineral entry. (Land Use Amendment Required).

BLM(221)[1] Limit vehicular use to designated roads and trails in and around mesquite woodlands.

BLM(222)[1] Designate significant mesquite woodlands as ACECs. The management of multiple uses within mesquite woodlands will be consistent with managing for the long-term viability of these habitats and the wildlife they support.

BLM(212) Bureau of Land Management shall consider with respect to rural roads the following measures which have been proposed by the I & M Committee and specifically those members of the I & M Committee who represent the interests of the environmental groups, the rural communities, and the OHV community:

> Relax permitting restrictions on non-speed OHV events, to the extent that such relaxation does not threaten other resource values and is consistent with law, policy, and procedures as hereinafter provided.
>
> Impose the conditions described below for organized OHV events during the first three years of the MSHCP or until the recommendation of the rural roads component of the AMP has been completed, whichever last occurs. Members of the OHV community and the environmental community recognize and agree that after completion of the rural roads component of the AMP, these rules and regulations may be modified to reflect the results of the AMP process, including the scientific component as well the socioeconomic and sociopolitical elements, and that conditions within Conserved Areas may be either more or less restrictive than those set forth herein:
>
> Utilizing a streamlined permit process as described below a permit shall be required for all non-speed OHV events with 26 or more vehicles within desert tortoise ACECs and 50 vehicles outside desert tortoise ACECs.

Within desert tortoise ACECs:

> A maximum of five permitted non-speed events and non-speed portions of speed-based events are permitted in each desert tortoise ACEC during the period of March 1 through March 15 and June 15 through August 31. No OHV non-speed

events, or non-speed portions of speed-based events, will be permitted from March 16 through June 14 and from September 1 through October 15. (The September through October dates may vary up to three days to allow a full weekend [i.e., Saturday and Sunday] for an event. A maximum of 60 permitted non-speed events and non-speed portions of speed-based events are permitted cumulatively in desert tortoise ACECs during the period of October 16 through February 28 (29 in leap year) subject to additional restrictions described below [see Appendix I, 3 maps]:

a. events with 76 to 150 vehicles shall count as two events. Events with 151 to 225 vehicles will count as three events, and events with 226 to 300 vehicles will count as four events.

b. no OHV events are permitted in the Piute/Eldorado ACEC west of US 95 during any part of the year.

c. events within the Gold Butte ACEC shall only be permitted on and east of the existing paved road between the Riverside Bridge and Whitney Pockets and on and north of the unpaved road between Whitney Pockets and the Arizona State line.

d. events within the Mormon Mesa ACEC shall only be allowed on the Carp/Elgin Road, Halfway Wash Road and the East Halfway Wash Road.

e. no OHV events are permitted in the Coyote Springs ACEC.

f. up to six non-speed OHV events are permitted in that area east of US 95 and south of SR164 during the tortoise inactive season only (October 16 through February 28).

g. vehicles shall not exceed the legal speed limit (posted or unposted) of the roads used during events. Clark County speed limit for unposted roads is 25 miles per hour. If the speed limit is not posted, the speed limit shall be 25 miles per hour

Outside ACECs:

BLM agrees to pre-approve 10 non-speed OHV events annually outside of desert tortoise ACECs where there are more than 49 entries or vehicles (thus requiring a permit) by January 1, 2000. The BLM also agrees to waiver all insurance requirements and the County agrees to pay the permit fee ($80.00 per event). The OHV promoter shall ensure that all permissions necessary from private landowners or rights-of-way grant holders are obtained prior to the BLM

approving the particular courses in question. Once the applicant has provided to the BLM the appropriate permissions and proposed course, the BLM will approve or deny the permit within 45 days. These permits shall then be granted to non-speed OHV event organizers on a first come basis.

Other Terms and Conditions:

The BLM will develop a pamphlet or similar product for distribution to the public, suggesting places to go outside ACECs and other environmentally sensitive areas. A potential target for this type of information may include rental car agencies that rent four-wheel-drive vehicles. Maps of desert tortoise ACECs should be included.

Outside desert tortoise ACECs and Rainbow Garden ACEC non-speed events and non-speed portions of speed-based events may occur on existing roads, trails, and dry washes. For the purposes of this proposal, dry washes are defined as: the channel of a flat-floored ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

# 2.8.7 National Park Service

Existing conservation measures are identified in italics in the text.

## 2.8.7.1 Public Information and Involvement

NPS(1) Develop brochures, pamphlets, interpretive signs, and exhibits for Covered Species and the habitats on which they depend as determined to be appropriate by NPS in coordination with the MSHCP I & M Committee.

NPS(2) On a case-by-case basis, install signs at springs explaining the need for their protection and to reiterate state law NRS 503.660 that prohibits camping within 100 feet of water sources.

## 2.8.7.2 Research

NPS(3) Cooperate in the identification, development, and implementation of research projects located on Federal lands. Emphasis shall be placed on research that addresses management concerns and the conservation of Covered and Evaluation Species.

NPS(4) Investigate the basic ecology of obligate pollinators of target plant species to insure complementarity of conservation recommendations and the location of protected areas, insuring the inclusion of the pollinator's full habitat and food source requirements.

### 2.8.7.3 Inventory (Status)

*NPS(5) Inventory populations of relic leopard frog and other amphibians, as time allows).*

*NPS(6) Coordinate inventory of three-cornered milkvetch and sticky buckwheat with other survey efforts on Federal lands.*

*NPS(7) Inventory bat populations in selected areas, with priority given to proposed project sites).*

NPS(8) Develop information on the population distribution of summer tanager, Arizona Bell's vireo, yellow-billed cuckoo, and blue grosbeak in the study area. Surveys are needed in the spring to document breeding and nesting activity in southern Nevada. Protect existing riparian habitat.

NPS(9) Inventory and monitor mesquite and acacia habitat that may be important as resting and/or nesting habitat for resident and neo-tropical migrants.

NPS(10) Develop information on the population distribution in the study area and the subspecific relationship of the southwestern willow flycatcher in southern Nevada. Survey in the spring to document breeding and nesting activity in southern Nevada.

### 2.8.7.4 Monitoring (Trends)

NPS(11) *Continue monitoring tortoise populations on LMNRA, and assist with ongoing survivorship studies, as appropriate.*

*NPS(12) Monitor peregrine falcon nest occupancy and production.*

*NPS(13) Monitor wintering bald eagle population trends.*

*NPS(14) Monitor populations of relict leopard frog and other amphibians, as time allows.*

*NPS(15) Monitor Las Vegas bearpoppy populations.*

NPS(16) Manage Mojave poppy bee and other gypsiferous soil species consistent with Las Vegas bearpoppy populations. The relationship between pollinators and species

should be monitored; the populations may be mutually dependent and both necessary for successful conservation management.

NPS(17) Develop and implement long-term population surveys to assess the trend of southwestern willow flycatcher and phainopepla populations and to develop population goals.

NPS(18) Monitor priority bat roosting and foraging sites and success of management actions targeted at bat protection.

NPS(19) Monitor water diversions and water table levels adjacent to significant mesquite and catclaw stands.

NPS(20) Monitor traffic volume on road and trails near sensitive resources as appropriate.

### 2.8.7.5 Protective Measures

*NPS(21) Implement the memorandum between USFWS and managing agencies for Las Vegas bearpoppy.*

*NPS(22) Prohibit destructive collecting techniques such as breaking off rock flakes and rolling cap rocks to uncover lizards.*

*NPS(23) Monitor burro populations to ensure they stay within levels prescribed in the burro management plan.*

*NPS(24) Manage burro populations under the burro management plan to ensure resources are protected consistent with NPS policies.*

*NPS(25) Prohibit commercial collection of fauna and flora.*

*NPS(26) Implement Fire Management Plan, including prescribed natural fires on undeveloped portions of the Park.*

*NPS(27) Prohibit recreational shooting.*

*NPS(28) Implement NPS Integrated Pest Management Plan.*

*NPS(29) Prohibit woodcutting and shrub clearing and limit other human disturbance off existing roadways.*

*NPS(30) Remove feral animals and uncontrolled domestic animals.*

*NPS(31) Conduct NEPA review and analysis for development of new areas for intense recreational use.*

NPS(32) Ensure that adequate law enforcement is implemented within the LMNRA.

NPS(33) Protect existing stands of mesquite and catclaw.

NPS(34) Assure long-term implementation of existing management policies and actions benefiting Covered Species through amendment of the GMP.

NPS(35) Manage rock climbing, if necessary, to protect sensitive resources.

NPS(36) Enforce existing prohibition of collecting and deter poaching through increased routine ranger patrols.

NPS(37) Include MSHCP Covered Species as sensitive species in evaluations of road construction or maintenance activities on Federal lands.

NPS(38) Work with the Nevada Power Company (and other utilities) to be sure that support towers and poles are "raptor-safe."

NPS(39) Monitor and protect water sources, including springs, seeps, and streams.

NPS(40) Install fencing or other protection of springs in identified sensitive habitat, where required to exclude cattle, wild horses, or burros.

NPS(41) Implement conservation measures for bats and other species including limiting caving, and rock climbing to areas away from bat roosts.

NPS(42) Prohibit commercial OHV tours and events in IMAs and LIMAs.

### 2.8.7.6 Restoration and Enhancement Measures

NPS(43) Where appropriate, implement reseeding with native plant species and other soil stabilization and habitat restoration actions following fires within the LMNRA.

NPS(44) Evaluate the potential for reintroduction of relict leopard frog populations into managed areas (such as Las Vegas Wash Wetlands and Park, Boulder City Wetlands Park, and Big Springs Refugium).

NPS(45) Where necessary, enhance stands of willow and cottonwood by removing the competing tamarisk and replacing with native species.

NPS(46) Enhance mesquite and catclaw stands by removing the competing tamarisk and replacing with native species.

NPS(47) Eliminate exotic fish and plant species in and around springs where appropriate and feasible.

NPS(48) Continue to monitor brown-headed cowbird populations and initiate control by trapping and removing the offending cowbirds, when and if this becomes necessary.

NPS(49) Coordinate with MRREIAC in tamarisk control and possible conservation easements with private and public landowners to allow mutually beneficial habitat management activities.

NPS(50) Restore/rehabilitate all key access points of closed roads and areas, except Road 106 and 1B, which were closed due to road hazards and not resource damage.

### 2.8.7.7 Land Use Policies and Actions

NPS(51) Assure full and continuing implementation of existing management policies and actions, and monitoring of sensitive habitats and species.

NPS(52) Add MSHCP Covered Species to sensitive species status for NPS.

NPS(53) Cooperate with other Federal agencies in actions to implement the Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem and the Virgin River Fishes Recovery Plan.

NPS(54) Develop and implement an NPS management plan in order to ensure long-term protection and conservation of relict leopard frog populations. The plan should address measures to monitor the remaining populations, grazing management, conservation agreements, conservation easements with private landowners, deterrence of poaching through regular ranger patrols, assessment of the need for refugia, and control of exotic fish and bullfrog populations.

NPS(55) As appropriate for conservation of biological resources in the LMNRA, develop conservation agreements or easements with adjacent willing landowners with habitat for Covered Species.

NPS(56) Institute and keep in full force and effect the land use controls upon all lands where grazing privileges have been purchased as established in the Short-Term HCP and DCP.

NPS(57) Prepare a biennial management plan and report (Biennial Management Plan). As set forth in other sections of this document, the Biennial Management Plan will be submitted to the USFWS through Clark County. This Biennial Management Plan will address proposed management plans and programs for the ensuing two years as well as an evaluation of management actions imposed or continued during the previous two-year period. The Biennial Management Plan will provide information enabling the USFWS and the I & M Committee to determine that the terms of the MSHCP and the permit are being fulfilled.

NPS(58) To the extent permitted by law, integrate the terms of the Multiple Species Habitat Conservation Plan and their obligations hereunder into their respective management plans which govern their land management policies.

NPS(59) Include in their agency budget requests adequate dedicated and earmarked funding to allow NPS to fully operate, manage, maintain, and monitor their lands pursuant to the terms of this MSHCP and to fulfill their obligations to protect the species and ecosystems consistent with statutory obligations imposed by Congress. They acknowledge that funds collected by Clark County and paid to them to assist in land management policies and actions are not intended to be substituted for monies which would otherwise be allocated to them to fulfill statutory obligations to protect the resources, but are intended to supplement those funds.

NPS(60) Consolidate utility corridors to the extent feasible on Federal lands.

NPS(61) Close desert tortoise critical habitat to new mining. Develop criteria for review of mineral lease requests that require a finding for any new mineral leases that such leases would be consistent with the purposes of the MSHCP.

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# 2.8.8 State of Nevada

## 2.8.8.1 Nevada Division of Wildlife

Existing conservation measures are identified in italics in the text.

### a. Public Information and Education

*NDOW(1) Cooperate with local agencies in developing a backyard habitat program.*

NDOW(2) Continue to support the Teaming with Wildlife Initiative, which would provide funding for habitat restoration, wildlife conservation education, acquisition of land for conservation purposes, development of interpretive recreation programs, and monitoring for non-game species.

NDOW(3) Facilitate awareness of the MSHCP into the ongoing Project Wild.

NDOW(4) Coordinate with PIE, as requested, in developing material for NDOW's weekly television spot with local NBC affiliate.

NDOW(30) Assist in the design and installation of Palmer's chipmunk signs at developed recreation sites in the Spring Mountains NRA.

### b. Research

NDOW(5) Cooperate with the USFWS, the I & M Committee, and the appropriate land manager to oversee a tortoise translocation program.

NDOW(6) Consider and authorize, as appropriate, in conjunction with the USFWS, utilization of wildlife collected pursuant to this plan for research and educational programs.

NDOW(7) Coordinate in efforts to inventory bat roosts (including mines prior to closure) and foraging areas to aid in the understanding of bat ecology in Clark County.

NDOW(8) Coordinate and cooperate with applied management research initiatives, as appropriate.

NDOW(9) Conduct and/or support life history and aquatic habitat assessments for native fish species in the Virgin and Muddy rivers, within constraints of budget allocations.

NDOW(31) Assist in developing information package identifying research opportunities in the Spring Mountains NRA.

### c. Monitoring (Trends)

NDOW(10) Evaluate the need for area closures at the Overton Wildlife Management Area (OWMA) to protect nesting sites of sensitive species.

NDOW(11) Pursue state funds to monitor tortoise populations and recovery within Nevada and other Covered and Evaluation Species, as appropriate.

NDOW(12) Pursue funding for inventory and assessment of amphibian populations and provide support for such efforts within constraints of budget allocations.

NDOW(32) Participate in development of monitoring plans for Palmer's chipmunk and bats in the Spring Mountains NRA.

NDOW(33) Participate in monitoring of populations of Palmer's chipmunk and bats in the Spring Mountains NRA.

NDOW(34) Participate in periodic riparian habitat monitoring.

### d. Inventory (Status)

NDOW(13) Pursue additional funding to conduct inventories of evaluation and watch species where needed.

NDOW(14) Coordinate with the Adaptive Management Program in setting species priorities, selecting survey methods, and evaluation of data collected.

NDOW(35) Participate in inventories of NRA species of concern and habitats including Townsend's big-eared bat; bat roosts (Column and Pinnacle Cave); Allen's lappet-browed bat; bat roosts (cliff climbing areas); bat water roosts (unsurveyed springs); neotropical migratory bird habitat (riparian areas); raptor inventory; fringed myotis.

### e. Protective Measures

*NDOW(15) Prohibit driving off-road in OWMA.*

*NDOW(16) Prohibit camping at OWMA except at designated camp sites.*

*NDOW(17) Regulate hobby collection and hobby possession of authorized unprotected reptiles and amphibians.*

NDOW(18) Evaluate the need to regulate commercial collection of wildlife species.

NDOW(19) Increase enforcement of regulations prohibiting camping within 100 feet of key water sources, as defined through the adaptive management process.

NDOW(20) Evaluate and seek reclassification as protected of Covered and Evaluation Species under State regulation based on classification criteria in NAC 503.103 and 503.104.

NDOW(21) Support only those public land disposals that would not significantly impact Covered or Evaluation Species found in Clark County during consultations with Federal land managers.

NDOW(36) Participate in development of plan to protect bat roosts in mines and caves in the Spring Mountains NRA.

NDOW(37) Facilitate enforcement of leash laws and feral animal control in the Spring Mountains NRA.

NDOW(38) Coordinate with county health department in management of disease (hanta virus, plague) in the Spring Mountains NRA.

NDOW(39) Participate in wild horse and burro management in the Spring Mountains NRA.

NDOW(40) Coordinate with golf courses on pesticide and fertilizer use procedures in the Spring Mountains NRA.

NDOW(41) Participate in removal of brown-headed cowbirds when found.

NDOW(42) Work with utility companies to ensure poles are raptor safe. Participate in effort with property owners to restore and enhance Cold Creek area in the Spring Mountains NRA.

### f. Restoration and Enhancement Measures

NDOW(22) Convert tamarisk to waterfowl forage or native vegetation at Overton Wildlife Management Area.

NDOW(23) In cooperation with USFWS and others, support efforts to eradicate tamarisk and/or restore native vegetation communities on public and private lands.

NDOW(24) Where appropriate and within available budget allocations, pursue acquisition or reservation of water rights and in-stream flows on a willing seller basis for maintenance of aquatic habitats for wildlife.

NDOW(25) In cooperation with USFWS and recovery teams, pursue additional funding and implement actions for non-native aquatic species eradication and aquatic habitat restoration efforts on the Virgin and Muddy Rivers.

NDOW(43) Work with summer residents to restore and enhance habitats in the Spring Mountains NRA.

NDOW(44) Work with volunteers to provide nest boxes for cavity nesters.

### g. Land Use Policies and Actions

*NDOW(26) Regulate hunting, trapping, and fishing allowed at OWMA.*

NDOW(27) Cooperate with and provide technical assistance to the I & M Committee including but not limited to assistance in the development and implementation of the Adaptive Management Program, review and evaluation of and/or assistance in collection of data for Covered and Evaluation Species.

NDOW(28) Include in its internal budget requests adequate funding to allow it to fully perform the obligations and tasks assigned to it pursuant to the terms hereof, including, but not limited to cooperating with and providing technical assistance to the I & M Committee.

NDOW(29) Review the management plan for the OWMA for consistency with the wildlife conservation goals for Covered and Evaluation Species of the MSHCP.

NDOW(45) Participate in annual manager briefing on progress and future funding needs for Spring Mountains NRA.

NDOW(46) Annual review of biodiversity hotspots by Spring Mountains NRA staff.

NDOW(47) Participate in Spring Mountains NRA technical advisory committee annual meetings.

NDOW(48) Coordinate with BLM and USFWS on MSHCP species issues in the Spring Mountains NRA.

## 2.8.8.2 Nevada Department of Transportation

### a. Public Information and Education

NDOT(1) Include in the current NDOT hazardous material awareness training course, a section identifying aquatic resources that occur within NDOT rights-of-way and the importance of fast responses on hazardous spills in such areas.

NDOT(2) Develop a worker education program for NDOT personnel in the plan area describing the MSHCP requirements. This will be coordinated by NDOT's Environmental Services Division. Currently, NDOT requires all maintenance personnel working in desert tortoise habitat to attend a desert tortoise training class.

NDOT(3) Develop a reference binder which contains natural history information on all species covered under the MSHCP and make this binder available to all workers, including contractors and encroachment permittees, involved in activities on NDOT rights-of-way. Binders will be available at NDOT's District I (Las Vegas) office and appropriate maintenance stations. Binder will also be available at construction sites that occur in the permit area.

### b. Research

NDOT(4) NDOT will continue to monitor tortoise fencing along NDOT rights-of-way at specific sites designated as field testing areas for the tortoise barrier program. At this time, fencing within NDOT rights-of-way at the translocation site is the only site being monitored.

### c. Inventory (Status)

NDOT(5) Compile an inventory of Covered Species and valuable habitat lands that occur on NDOT rights-of-way. This inventory will be accumulated on a project-by-project basis during NDOT's environmental review process.

NDOT(6) Compile an inventory of all culvert/bridge crossings and tortoise fencing within the permit area.

### d. Monitoring (Trends)

NDOT(7) Complete the NDOT land disturbance/take form when land disturbance/takes occur. NDOT Environmental Services will supply Clark County and the USFWS with four quarterly and one annual report summarizing takes, land disturbance, and mitigation fees paid. This will be incorporated into the current monitoring protocol used for the DCP.

## e. Protective Measures

NDOT(8) In previously disturbed habitat, perform maintenance and construction activities without biological surveys from NDOT's Environmental Services Division. Previously disturbed habitat, for the purpose of this conservation plan, will include those areas that NDOT had historically graded, excavated, and so on, in the previous two years (24-month period) in association with rights-of-way maintenance and construction activities. In addition, those areas which NDOT biologists or NDOT approved biological consultants deem to have no habitat value for Covered Species are considered disturbed.

NDOT(9) Survey maintenance and construction activities conducted in undisturbed habitat by NDOT's Environmental Services Division prior to disturbance. For the purpose of the MSHCP, undisturbed habitat will include those areas that NDOT had not historically graded, excavated, and so on, in the previous two years (24-month period) in association with rights-of-way maintenance and construction activities, and/or those areas which NDOT biologists or NDOT approved biological consultants deem to have potential habitat values for Covered Species.

NDOT(10) Avoid any Covered Species discovered in disturbed or undisturbed habitat in proposed maintenance or construction areas, if possible. If unable to avoid, best efforts will be made to relocate/salvage species. Relocation/salvage will only be attempted if the species is highly likely to survive the action and it is reasonably cost effective. This will be determined by NDOT's Environmental Services Division.

NDOT(11) Relocate desert tortoises and chuckwallas within 1,000 feet of encounter on public lands or approved private lands if there is a direct threat to their safety/survival.

NDOT(12) Provide a biological monitor during material site sampling/exploration.

NDOT(13) Minimize and avoid impacts to rock outcrops, lava flows, and surrounding areas. If these areas cannot be avoided and must be disturbed, clearance surveys by NDOT biologists or NDOT approved biological consultants must be conducted prior to maintenance or construction activities.

NDOT(14) Restrict maintenance and construction activities to NDOT rights-of-way.

NDOT(15) Leave natural, large woody debris in place where ever possible, particularly out of sight from roads.

NDOT(16) Eliminate unnecessary substantial earthen berms along roads if these areas are determined to attract illegal collection. MSHCP funds can be pursued for this activity if NDOT is unable to secure funding in-house.

NDOT(17) Ensure new roadside structures are designed and constructed to prevent animals from becoming trapped. Encourage retrofitting existing structures that pose a trapping problem. MSHCP funds can be pursued for this activity if NDOT is unable to secure funding in-house.

NDOT(18) Restrict spraying herbicides or other chemicals that are toxic to aquatic organisms 100 feet from the aquatic habitats, such as well developed riparian areas, wetlands or perennial waters, including tributaries to such lands. Use mechanical and/or herbicides/chemicals non-toxic to aquatic organisms when working in such lands. No herbicide spraying within 100 feet of known covered invertebrate habitat.

NDOT(19) Install highway runoff pollution control devices in areas where Covered aquatic species may be impacted by highway runoff. MSHCP funds can be pursued for this activity if NDOT is unable to secure funding in-house.

NDOT(20) Never keep relocated species for private use.

NDOT(21) To the maximum extent practicable, avoid construction and maintenance projects in habitats during sensitive times, such as breeding or nesting or overwintering (e.g., near bat hibernacula, mowing of potential butterfly habitat, or in rare plant habitat).

NDOT(22) During emergency situations, the first priority for NDOT is to protect the safety of the public. During such emergency situations (i.e., casualties, disasters-flooding, fire, national defense, security), work on roadways in Covered Species habitat will be conducted in an expedited manner. If possible, work will be confined to the road shoulder or previously disturbed area. If work is required in undisturbed areas, the area must be first surveyed by an NDOT biologist or NDOT approved biological consultant. If time prevents this, surveys will be performed by other NDOT personnel to the best of their ability.

NDOT(23) Install movement directing devices in conjunction with highway/roadway protective fencing. MSHCP funds can be pursued for this activity if NDOT is unable to secure funding in-house.

NDOT(24) Ameliorate existing, or install new, under-road culverts to allow passage of terrestrial species. MSHCP funds can be pursued for this activity if NDOT is unable to secure funding in-house.

NDOT(25) All other appropriate requirements as stated in the DCP will apply to NDOT for this conservation plan, as many avoidance and minimization measures apply to and overlap for species in both plans, including:

- To minimize any impacts on the desert tortoise, NDOT maintenance personnel will perform the following tasks while performing routine maintenance activities. When mowing, a worker will walk in front of the mower and inspect for the presence of the desert tortoise or burrows, except in areas where fencing has been installed. Also, NDOT will stay within its rights-of-way during all routine maintenance, as identified in Section 2.4.1.4. Any moving of a tortoise will only be done by trained NDOT personnel. Monitoring will be coordinated through NDOT's Environmental Services Division and will include reports of any takes by the maintainers. Funding to implement these mitigation measures of this habitat conservation plan will be provided by NDOT.

  Should NDOT personnel identify a tortoise within the rights-of-way during maintenance activities the tortoise will be moved out of harm's way. This will be done by carrying the tortoise up to 1,000 feet from the point of encounter and placing the tortoise in an undisturbed area. Burrows inhabited by tortoises will be excavated using hand tools. All burrows found in the maintenance zone will be collapsed to prevent reentry. NDOT staff handling tortoises will have been issued the appropriate state permit from the Nevada Division of Wildlife. Desert tortoises must be handled in a fashion consistent with standards promulgated by the USFWS, from time to time, whether or not they are set forth in this plan.

  If tortoises are located within the project site, they will be moved to adjacent suitable undisturbed habitat outside the rights-of-way. If suitable undisturbed habitat is not available the tortoises will be moved to the closest acceptable location. Desert tortoises will only be moved within 1,000 feet from the point where they are encountered to ensure that they remain within their home ranges and do not adversely affect other populations. During the summer months, tortoises will be relocated to another burrow or placed under a shrub. If removed from a burrow, the tortoise will be placed in an existing similar, unoccupied burrow. During winter months, tortoises will be placed in an artificial burrow. An artificial burrow will be constructed on public land, or approved private lands adjacent to NDOT's rights-of-way, that is approximately the same size, depth, and orientation as the original burrow.

  Prior to maintenance activities, a qualified desert tortoise biologist shall advise all workers through an educational program which is consistent with educational requirements as set forth in Section 7 biological opinions issued from time to time by the USFWS, that the area is desert tortoise habitat and that the desert tortoise is a threatened species. In addition, workers shall be advised of the definition of "take," they will be informed that they are responsible for avoiding impacts to desert tortoises and that potential penalties for take of desert tortoise could be up to $50,000 in fines and one year in prison per violation.

In the event that the USFWS determines, as a result of the periodic reports submitted by NDOT and the County, that routine maintenance or emergency maintenance activities within IMAs, LIMAs, or desert tortoise critical habitat are resulting in significant numbers of desert tortoises being taken (more than 69 per year), it may prescribe maintenance practices different from those set forth herein in order to reduce the number thus taken.

- During emergency circumstances, NDOT will conduct maintenance activities on highways in tortoise habitat in an expedited manner. Emergency situations involve acts of God, casualties, disasters, national defense, or security emergencies. During emergency situations, such as flash floods in which the highway is destroyed or obstructed, NDOT will take immediate steps to contain an emergency in order to protect public safety prior to initiating any form of consultation.

  Some emergencies may deposit soil from upland areas onto the roadbed and shoulder areas. This situation may also damage existing edge of roadways or culverts. In this situation, NDOT would work within the shoulder area (previously disturbed areas) to remove deposited soil from the roadbed. The roadbed and shoulder would be restored to preemergency conditions and no additional desert tortoise habitat would be disturbed. In the event that the roadbed and shoulder is disturbed by a flood or other emergency, the NDOT road crew may create a detour around the roadbed and over undisturbed desert tortoise habitat. Prior to any disturbance of desert tortoise habitat, the NDOT road crew would survey the area for the presence of any desert tortoises. Should a desert tortoise be found, it would be removed from harm's way. Mitigation will include payment of the $550/acre development fee to Clark County. In addition, NDOT will recontour and rehabilitate the disturbed desert tortoise habitat upon roadway clearance and repair.

- Prior to any disturbance of desert tortoise habitat, construction sites associated with road widening, new highway construction, and establishment and operation of material sites will be surveyed by NDOT biologists or approved NDOT consultants for the presence of any desert tortoises. Should a desert tortoise be found, it would be removed from harm's way following the procedures described above for routine maintenance activities. Material sites and construction sites will be fenced subsequent to the tortoise survey and translocation to avoid impacts to tortoises which might wander back onto these sites. Fencing will be maintained during the time that construction or operational activities continue on these sites. Construction and material sites need not be fenced when no tortoises or tortoise sign are found within the construction area or within 400 meters of the construction area. If it is more cost effective, NDOT may choose to have a biological monitor instead of fencing. If construction occurs during the tortoise inactive period (November-February), fencing or monitoring may not be required, as determined by the NDOT approved biologist subsequent to the initial clearance survey.

## f. Restoration and Enhancement Measures

NDOT(26) Within NDOT property along the Muddy River, remove tamarisk and replant with native vegetation when abandonment of the Glendale maintenance station occurs. This is expected by January 2000. Continue hazardous waste and monitoring plan that is currently in place at this station until abandonment of the site has occurred.

NDOT(27) Scarify, recontour, and reseed NDOT material sites after project completion if the site is not expected to be used for another project in the near future.

## g. Land Use Policies and Actions

NDOT(28) If possible, plan construction/maintenance projects that occur in aquatic habitat, as mentioned above, during times when spawning/nesting is unlikely. In general, the colder winter months are when such work is preferred. Best management practices should be employed during such activities. Implement any other U.S. Army Corps of Engineers terms and conditions required by the specific permit.

NDOT(29) Relinquish NDOT material sites to the appropriate agency when they are no longer useful for NDOT construction and maintenance activities.

NDOT(30) Coordinate with BLM to perform plant salvages prior to work in undisturbed habitat and/or when Covered plant species cannot be avoided, especially cactus and yucca species.

NDOT(31) Only use existing material sites in IMAs and LIMAs if no other reasonable options are available outside these areas. Prior to sampling/testing or excavating in material sites within IMAs/LIMAs or desert tortoise critical habitat outside Clark County, NDOT biologists will meet on-site with the USFWS to determine avoidance areas (undisturbed habitat) and develop appropriate minimization measures. (Expansion of existing materials sites or acquisition of new material sites which involves Federal lands or another Federal nexus shall be in compliance with Section 7 of the ESA.)

NDOT(32) Require contractors and encroachment permittees to abide by all MSHCP requirements.

NDOT(33) Pursue funds for environmental provisions included in transportation-related funding measures that occur during the term of the MSHCP.

NDOT(34) During project development and design, avoid areas known to support Covered Species to the maximum extent practicable.

NDOT(35) Within IMAs and LIMAs, if NDOT acquires new material sites or expands existing material sites, NDOT will relinquish the same amount of acreage from existing material sites within IMAs and LIMAs to the appropriate agency.

## 2.8.8.3 Nevada Division of State Parks

### a. Public Information and Involvement

*NSP(1) Provide rules in brochure and signs throughout the park to remind people of rules and regulations.*

*NSP(2) Provide literature on the desert tortoise. There is also a display specifically for the desert tortoise at the entrance to Valley of Fire State Park.*

*NSP(3) Displays in the Valley of Fire visitor center reinforce rules and regulations.*

*NSP(4) Provide discussion concerning protection of resources during interpretive programs.*

### b. Protective Measures

*NSP(5) Prohibit off-road driving and post signs to that effect throughout Valley of Fire State Park.*

*NSP(6) Prohibit collection or destruction of vegetation, including dead and down material.*

*NSP(7) Prohibit collection or destruction of rocks or other minerals.*

*NSP(8) Prohibit hunting, collection (other than for scientific research), or harassment of any wildlife.*

*NSP(9) Conduct routine Park Ranger patrols daily to protect and preserve resources.*

*NSP(10) Limit trails to areas that are sparsely vegetated, mainly in natural washes. Other trails will be developed by using "social trails" where vegetation has already been removed.*

*NSP(11) Prohibit open campfires, except in designated campgrounds.*

*NSP(12) Limit camping to areas provided. No overflow camping is permitted.*

*NSP(13) Require approval of the Supervisor or their representative for all "special recreation" (hang gliding, rock climbing, equestrian, ATV use, mountain biking, etc.).*

*NSP(14) Fence and close to the public sensitive areas of the Park, except for during interpretive hikes.*

*NSP(15) Prohibit use of pitons, chocks, or other such climbing devices or any magnesium carbonate chalk in climbing the formations, except for rescue operations, in Valley of Fire State Park.*

*NSP(16) Prohibit unconstrained pets or domestic animals.*

### c. Restoration and Enhancement Measures

*NSP(17) Where possible, establish erosion control in areas that present problems.*

### d. Land Use Policies and Actions

*NSP(18) To the extent feasible, ensure that minimal impacts occur to resources during the planning stages for projects.*

*NSP(19) Construct all facilities to create the least amount of visual impact to the park.*

## 2.8.8.4 Nevada Division of Forestry

### a. Protective Measures

*NDF(1) Regulate the removal and possession of cacti and yucca for commercial purposes (NRS 527.060-120).*

*NDF(2) Prohibit the removal or destruction of native flora listed as fully protected (NRS 527.270), except by special permit.*

*NDF(3) Cooperate, to the maximum extent practicable, with Clark County, and enter into agreements, as appropriate, with Clark County and other Participants in the MSHCP for the administration and management of any areas established for the conservation, protection, restoration, and propagation of species of native flora which are threatened with extinction (NRS 527.300).*

# 2.9 Financial Assurances for the MSHCP

## 2.9.1 Existing Funding of the DCP

The following analysis of the funding program for the DCP was developed to provide an assessment of the potential range of alternative program implementation strategies for the MSHCP, in terms of the funding and budget constraints. The steps and assumptions of the analyses are outlined in detail below.

The DCP is currently funded by:

- the assessment of an impact fee of $550 per acre of land disturbance authorized by Clark County or incorporated areas within the county below 5,000 feet in elevation;
- the interest generated from an endowment fund accumulated from unexpended fees; and
- impact fees on NDOT rights-of-way south of the 38$^{th}$ parallel that are below 5,000 feet in elevation.

Other sources of funding will be pursued in the development of the MSHCP, but this analysis assumes the continuation of the funding program and commitments developed for the DCP.

The DCP requires the collection of the fee for the life of the program (30 years), and the average expenditure of $1,650,000 per year for the first 10 years of the program and $1,350,000 for the remaining 20 years, calculated in 1994 dollars, that is, with a cost of living adjustment (COLA) indexing system for future expenditures. The analysis of this program in the DCP (Table 8 in the DCP, Table 2-10 in this report), projected that the program would provide adequate funding through the 30-year term of the DCP and leave an endowment balance of $39,000,000 in the year 2024. This projection was based on population growth projections provided at the time by the County's Comprehensive Planning Department.

## 2.9.2 Funding the MSHCP through Continuation of Development Fees

The MSHCP proposes to minimize and mitigate the impacts of take of Covered Species on non-Federal lands in Clark County through expenditures of funds raised through imposition of its development fee of $550/acre on all lands in Clark County as they are developed that require a permit from the County and Cities (which imposition will be

**TABLE 2-10**
**PROJECTED ANNUAL REVENUES AND COSTS OF THE DCP**
**(1994 DOLLARS)**

| | Year | Projected Acres Disturbed per Year | Income/year @ $550 per Acre | Interest Income @ 2 percent Over Inflation | Program Costs | Net Annual Income | Cumulative Endowment Starting at $7,000,000 |
|---|---|---|---|---|---|---|---|
| 1 | 1994 | 5,810 | $3,195,500 | $140,000 | $1,650,000 | $1,685,500 | $8,685,500 |
| 2 | 1995 | 5,661 | $3,113,550 | $173,710 | $1,650,000 | $1,637,260 | $10,322,760 |
| 3 | 1996 | 5,513 | $3,032,150 | $206,455 | $1,650,000 | $1,588,605 | $11,911,365 |
| 4 | 1997 | 5,365 | $2,950,750 | $238,227 | $1,650,000 | $1,538,977 | $13,450,343 |
| 5 | 1998 | 5,217 | $2,869,350 | $269,007 | $1,650,000 | $1,488,357 | $14,938,699 |
| 6 | 1999 | 5,069 | $2,787,950 | $298,774 | $1,650,000 | $1,436,724 | $16,375,423 |
| 7 | 2000 | 4,921 | $2,706,550 | $327,508 | $1,650,000 | $1,384,058 | $17,759,482 |
| 8 | 2001 | 4,773 | $2,625,150 | $355,190 | $1,650,000 | $1,330,340 | $19,089,821 |
| 9 | 2002 | 4,626 | $2,544,300 | $381,796 | $1,650,000 | $1,276,096 | $20,365,918 |
| 10 | 2003 | 4,478 | $2,462,900 | $407,318 | $1,650,000 | $1,220,218 | $21,586,136 |
| 11 | 2004 | 4,331 | $2,382,050 | $431,723 | $1,350,000 | $1,463,773 | $23,049,909 |
| 12 | 2005 | 4,184 | $2,301,200 | $460,998 | $1,350,000 | $1,412,198 | $24,462,107 |
| 13 | 2006 | 4,037 | $2,220,350 | $489,242 | $1,350,000 | $1,359,592 | $25,821,699 |
| 14 | 2007 | 3,891 | $2,140,050 | $516,434 | $1,350,000 | $1,306,484 | $27,128,183 |
| 15 | 2008 | 3,744 | $2,059,200 | $542,564 | $1,350,000 | $1,251,764 | $28,379,947 |
| 16 | 2009 | 3,597 | $1,978,350 | $567,599 | $1,350,000 | $1,195,949 | $29,575,896 |
| 17 | 2010 | 3,451 | $1,898,050 | $591,518 | $1,350,000 | $1,139,568 | $30,715,464 |
| 18 | 2011 | 3,305 | $1,817,750 | $614,309 | $1,350,000 | $1,082,059 | $31,797,523 |
| 19 | 2012 | 3,159 | $1,737,450 | $635,950 | $1,350,000 | $1,023,400 | $32,820,924 |
| 20 | 2013 | 3,013 | $1,657,150 | $656,418 | $1,350,000 | $963,568 | $33,784,492 |
| 21 | 2014 | 2,867 | $1,576,850 | $675,690 | $1,350,000 | $902,540 | $34,687,032 |
| 22 | 2015 | 2,722 | $1,497,100 | $693,741 | $1,350,000 | $840,841 | $35,527,872 |
| 23 | 2016 | 2,576 | $1,416,800 | $710,557 | $1,350,000 | $777,357 | $36,305,230 |
| 24 | 2017 | 2,431 | $1,337,050 | $726,105 | $1,350,000 | $713,155 | $37,018,385 |
| 25 | 2018 | 2,286 | $1,257,300 | $740,368 | $1,350,000 | $647,668 | $37,666,052 |
| 26 | 2019 | 2,141 | $1,177,550 | $753,321 | $1,350,000 | $580,871 | $38,246,923 |
| 27 | 2020 | 1,996 | $1,097,800 | $764,938 | $1,350,000 | $512,738 | $38,759,662 |
| 28 | 2021 | 1,851 | $1,018,050 | $775,193 | $1,350,000 | $443,243 | $39,202,905 |
| 29 | 2022 | 1,707 | $938,850 | $784,058 | $1,350,000 | $372,908 | $39,575,813 |
| 30 | 2023 | 1,562 | $859,100 | $791,516 | $1,350,000 | $300,616 | $39,876,429 |

made by the adoption of County and City Ordinances in substantially the same form as set forth in Chapter 28.46 of the Clark County Code, but which will be modified to cover all lands within the County and the Cities) to assist in the implementation of conservation policies and activities carried out primarily within IMAs and LIMAs. In addition, the imposition of the development fee will apply to all NDOT rights-of-way in Clark County and NDOT rights-of-way in Lincoln, Nye, Mineral, and Esmeralda Counties that occur south of the 38$^{th}$ parallel and below 5,000 feet.

Pursuant to the provisions of the DCP, Clark County established an endowment fund to be used exclusively for the administration and implementation of that plan. The DCP anticipated that at the commencement of that plan, it would have accumulated approximately $7 million. In fact, at the commencement of the DCP and upon issuance of the Section 10(a) Permit on August 1, 1995, Clark County held approximately $14 million in the endowment fund. As of June of 1999, the endowment fund has grown to approximately $25,000,000.

Upon approval of this MSHCP and issuance of the Section 10(a) Permit, the endowment fund and its income will be used exclusively to administer and implement the terms of the MSHCP.

The MSHCP proposes to integrate the financial assurances and commitments of the DCP into the MSHCP, which would provide an additional $400,000 per year (in constant dollars) to those already committed to implementation of the DCP. Thus, the MSHCP proposes to expend a total of $2,050,000 per year, or $4,100,000 per biennium, adjusted biennially to reflect cost of living increases, not to exceed 4 percent per year, to fund implementation of measures identified in this MSHCP for conservation of Covered Species, including the desert tortoise, and development of information and/or mitigation measures to enable addition of Evaluation Species to the Covered Species list. The primary source of funding will be derived from the continuation of fees collected for each acre of disturbance of non-Federal lands in the plan area and interest from the endowment fund.

Subsequent to Phase 1, as additional species are added as Covered Species to the permit, up to an additional $1,000,000 per year, with cost of living adjustments as set forth above, may be added to the funds available for implementation of MSHCP measures.

All funds collected pursuant to the MSHCP will be deposited with the County and made a part of the endowment fund to be used exclusively for the administration and implementation of the conservation measures. Funds remaining in the endowment fund at the conclusion of the term of the permit will be retained by the County in an interest-bearing account and expended in cooperation with the USFWS solely and exclusively for conservation measures consistent with the recommendations of the AMP.

### 2.9.2.1 Excess Expenditures

In the event the I & M Committee recommends and the USFWS and the Board of County Commissioners approves expenditures in excess of $4,100,000 during any biennium to take advantage of early implementation of conservation measures, market conditions, or any other factor they deem appropriate, additional expenditures may be authorized (Excess Expenditures), which will be deducted from expenditures required during future biennial periods.

At the commencement of each biennial IPB process, Clark County will provide the I & M Committee and the USFWS with a calculation of the amount of the required expenditure for the ensuing biennium, plus the cost of living adjustment, less the amount of any approved excess expenditures paid out during previous biennial periods divided by the number of biennial periods remaining in the Section 10(a) Permit and the MSHCP at the time of the excess expenditure. In other words, in the event excess expenditures are made, such excess expenditures shall be divided by the biennial periods remaining in the Section 10(a) Permit and the result will be deducted from the required expenditures in all future biennial periods. A separate calculation will be required for excess expenditures for each biennial period, because the years remaining in the permit will decrease as years go by.

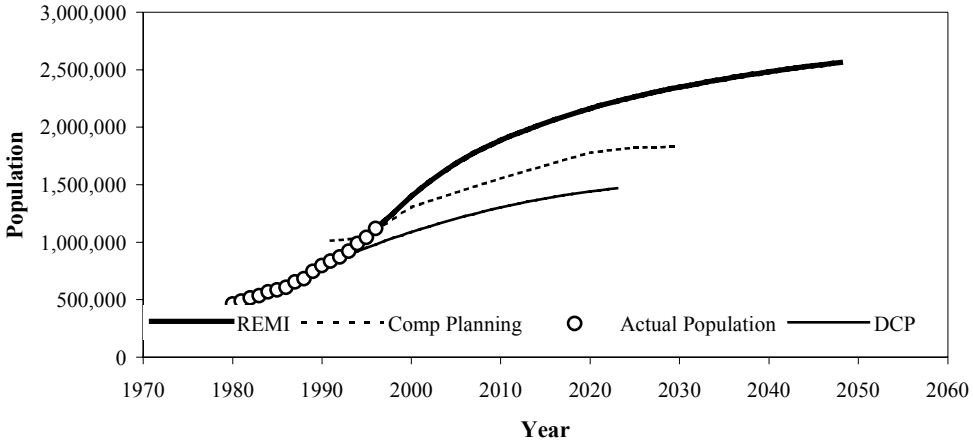
As part of the biennial IPB process, the I & M Committee and the USFWS will evaluate the balance between proposed excess expenditures and the potential risk of depleting the endowment. This evaluation will require an assessment of the performance of the endowment (in terms of fees collected and interest earned) and the long-term conservation value of the proposed excess expenditures and the relative benefits of providing for conservation measures in perpetuity.

After review and approval by the I & M Committee, and prior to submittal to the Board of County Commissioners, Clark County shall submit the proposal for excess expenditures to the USFWS as part of the IPB, as hereinafter described. The USFWS shall review and either approve or reject the proposal, designating those specific expenditures which they are disapproving, within 30 days after receipt of the proposal.

### 2.9.2.2 Revised Population Projections

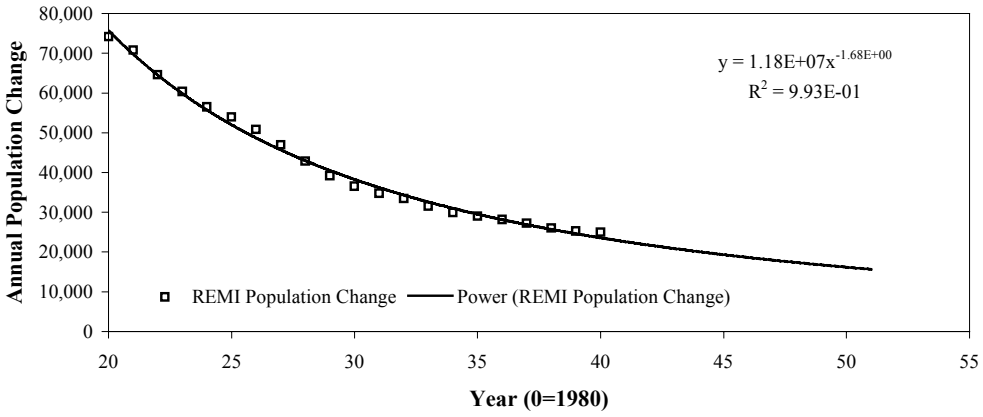
Clark County Comprehensive Planning provided the population projection used as the basis for development of the funding program in the MSHCP in 1997. An additional projection used a model developed by Regional Economic Models, Inc. (REMI). These two sources were utilized in preparing population projections for the MSHCP (Figure 2-17).

**Figure 2-17. Population Projections for Clark County**




The REMI model was calibrated to reflect recent population trends in southern Nevada and provides a population projection for Clark County through the year 2019, based in part on projected hotel room construction. Because the term of the MSHCP is proposed for 30 years, it was necessary to project the population trend beyond 2019. This population projection was made by extracting the trendline of annual population change from the last 20 years of the projection and extending it beyond the year 2019 (Figure 2-18).

**Figure 2-18. Projections Beyond REMI Model**




## 2.9.2.3 Revised Financial Projections

The financial model used to project future financial performance of the development fee system has been revised from that utilized in the DCP to incorporate the revised REMI population projections, more realistic calculations of interest accrual, and a ratio of land disturbance to population increase based on data from the implementation of the DCP. The model was also modified to make it easier to evaluate the effect that changes in

initial assumptions could have on the financial performance of the development fee–based system. These modifications to the model are described below.

## a. Assumptions

The assumptions used in the analysis are:

- The term of the MSHCP will be 30 years (beginning in 1998).
- The fee will continue at $550 per acre of authorized disturbance.
- The number of acres that will be disturbed during the permit period will coincide with the increased population projections.
- The dollar amount of the endowment in June 1999 is $25,000,000.

## b. Land Disturbance Projections

The financial and land disturbance reports covering the period from July 1995 to April 1997 (Clark County Department of Administrative Services, June 4, 1997) provide data on the acres of disturbance, fees collected, and interest earned by the County for the DCP from August 1995 through April 1997. During this 21-month period a total of 12,800 acres of land disturbance were reported, which corresponds to an average of 7,300 acres per year of land disturbance (Table 2-11).

**TABLE 2-11**
**RECORDED LAND DISTURBANCE UNDER THE DCP**

| | Total | 1995 | 1996 | 1997 |
|---|---|---|---|---|
| Acres | 12,800 | 2,300 | 7,900 | 2,600 |
| Months | 21 | 5 | 12 | 4 |
| Acres/month | 610 | 470 | 660 | 640 |
| Acres/year | 7,300 | 5,600 | 7,900 | 7,700 |

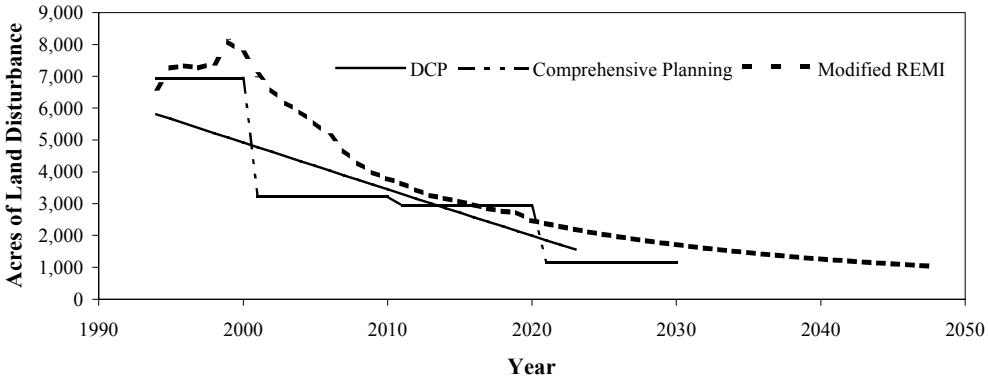
A total of $8,754,121 was accumulated by the DCP during the corresponding period. Of this total, $7,028,762 ($4,016,435/year) was from mitigation fee collection and $1,725,359 ($985,920/year) from interest. Fee collections reported closely matched $550/acre ($4,016,435 ÷ 7,300 acres = $550.2/acre).

The revised REMI population projections were used as the basis for the development of projected land disturbance. The acreage of land disturbance per increment of population growth in the county was derived from this period by dividing the average annual acres of land disturbance in 1995-1997 (7,300 acres per year) by the average annual population growth for the years 1995 and 1996 (66,939 inhabitants per year). The resulting ratio of

0.109 acre of land disturbance per new inhabitant per year is used to project annual rates of land disturbance from annual population change in the model.

This ratio, the number of acres of land disturbance for each new inhabitant, is a key assumption affecting the long-term performance of the program. The actual ratio using the population (919,388) and existing developed acreage (170,000) in 1993 (from the DCP) is 0.1849 acre of land development for each existing inhabitant. The ratio that Clark County Comprehensive Planning used in a preliminary analysis of the MSHCP funding program is 0.1304 acre of land disturbance per new inhabitant. The ratio used in the DCP was 0.1916. Projections of these rates of land disturbance are compared below as Figure 2-19.

**Figure 2-19. Projected Land Disturbance in Clark County**




The calculated ratio of 0.109 acre disturbed per new inhabitant per year appears to provide a conservative estimate of population-based land disturbance and therefore a conservative estimate of the potential generation of fees from future population increases. This ratio may, however, underestimate the actual amount of land disturbance that may occur with population growth if the realized ratio is close to that assumed in the DCP.

The DCP projected a total of 111,000 acres of land disturbance over the 30-year term of the permit (1994-2023). The revised projection based on the REMI model is 121,000 acres for this period (through 2023) and 130,000 acres for the term of the MSHCP (through 2028).

## 2.9.2.4 Model Characteristics

The financial performance model developed for the DCP was revised and updated using the modified REMI population projections and land disturbance projections, and to provide for more flexible examination of alternatives. The model is implemented on a Microsoft Excel spreadsheet. Data inputs that can be manipulated to evaluate their effects on performance of the program are:

- Interest – average rate of return on endowment
- Budget increase cap – proposed annual rate of budget change
- Inflation – average future rate of inflation
- MSHCP fee – held at $550 per acre
- MSHCP fee index – to evaluate effects of fee indexing
- Additional MSHCP budget – potential budget augmentation (above the expenditures mandated by the DCP) for implementation the MSHCP beginning in 1998

The data outputs of the model are:

- Endowment in year 2024 – the future dollar amount remaining in the endowment at the end of the DCP term
- Endowment in year 2028 – the future dollar amount remaining in the endowment at the end of the proposed MSHCP
- Cumulative expenditures year 2024 – cumulative amount spent during the term of the DCP in 1994 dollars
- Cumulative expenditures year 2028 – cumulative amount spent during the proposed term of the MSHCP in 1994 dollars
- DCP-required cumulative expenditures year 2024 – cumulative amount of expenditures through the term of the DCP, totaling $43,500,000

The model also provides a graphical output of the funds potentially available for the program, both in future budget dollars and budget adjusted for inflation to 1994 dollars through the proposed term of the MSHCP.

The model calculates these outputs on an annual basis from 1995 to 2028. The model also calculates MSHCP budget amounts as an addition to the base $1,650,000 program cost per year for the first 10 years of the DCP (1995-2004), and $1,350,000 per year for the last 20 years (2005-2024). In all of the cases discussed below, total expenditures for the MSHCP are greater than the $43,500,000 required to be spent by 2024 (in 1994 dollars) that was incorporated by inference into the agreements for the DCP.

The revised model was run with the original DCP criteria and population projections as well as with the more recent Comprehensive Planning projection and REMI projection. These were also compared with a projection made in a review of the DCP financial analysis by Kathy Ong of Hobbs, Ong, & Associates, Inc. (June 13, 1997). The financial projections and financial performance to date indicate that the actual rate of population

growth and the concomitant fees collected are consistent with the REMI model projections for the first three years of the DCP. All of the projections resulted in improved financial performance when compared to the projection in the DCP.

### 2.9.2.5 Alternative Financial Management Options for the MSHCP Funding Program

Future financial performance of the MSHCP funding program was investigated by manipulating the effects of fund management in two aspects: alternative levels of expenditures through the 30-year period and alternative levels of the endowment remaining at the end of the 30-year period. These results of several representative projections are provided below.

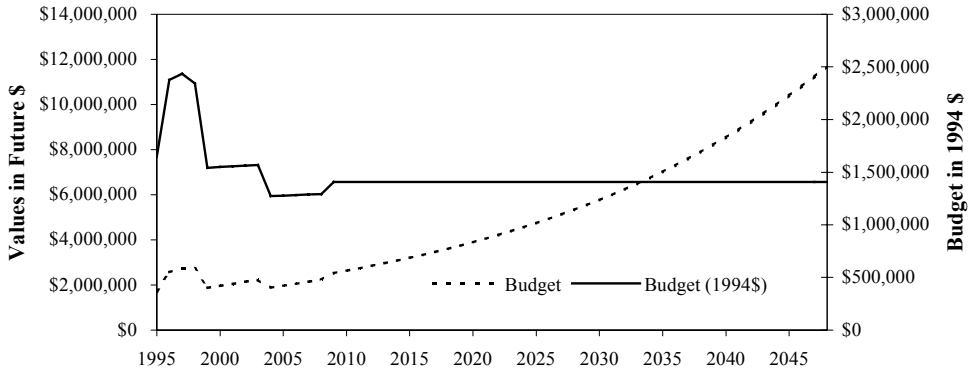
#### a. Extension of DCP

If the current DCP structure is extended to the MSHCP, with the following assumptions:

- 6 percent rate of return on fund investments
- 4 percent rate of inflation
- 4 percent cost-of-living increases in budget

the projected performance would allow allocation of an additional $65,000 per year to the DCP budget for MSHCP actions (Figure 2-20).

**Figure 2-20. Funds Available: Continuation of DCP**




The endowment would hold $122 million at the end of the DCP term (the year 2024) and $185 million at the end of 30 years (the year 2028).

#### b. Index Fees to Inflation

If land disturbance fees are indexed to match inflation and the assumptions remain the same, the projected performance would allow an allocation of an additional $105,000 per year to the DCP for MSHCP actions. The amount remaining in the endowment at the end

of the plan would be approximately the same, with $125 million in 2024 and $191 million in 2028.

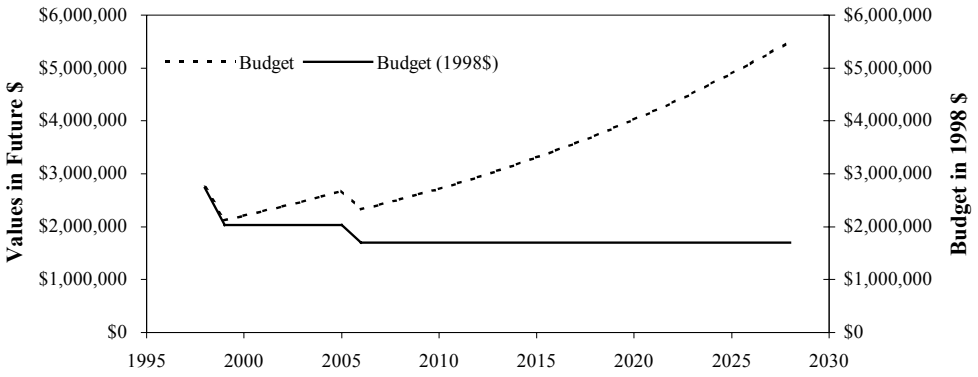
### c. Increased Rate of Return: Proposed MSHCP Phase 1 Funding

The rate of return on investment assumed in the DCP may be overly conservative. If the current DCP structure is extended to the MSHCP, with the same assumptions, except increasing the rate of return on investment by one point:

- 7 percent rate of return on fund investments
- 4 percent rate of inflation
- 4 percent cost-of-living adjustments in the budget

the projected performance of the endowment with these assumptions would allow allocation of an additional $400,000 per year to the DCP budget for MSHCP actions, beginning in 1999 and through the year 2028 (Table 2-12 and Figure 2-21).

**Figure 2-21. Funds Available: MSHCP Phase 1**




The effective budget would be approximately $2 million through 2005 and adjust to approximately $1.7 million per year in 1998 dollars through the year 2028 (the decrease after 2005 reflects the commitment to expend $1.65 million for the first 10 years of the DCP and $1.35 million thereafter). This represents the adjusted budget of the DCP plus an additional $400,000 per year to fund MSHCP Phase 1 activities. Approximately $173 million would remain in the endowment in 2028 ($53 million in 1998 dollars). Expenditures through 2028 would total $64 million (in 1998 dollars).

### d. Maximum Sustainable Budget with Increased Rate of Return: Proposed MSHCP Phase 2 Funding

The maximum sustainable annual rate of spending, assuming an increased rate of return on investment over the DCP assumption, would allow allocation of up to an additional $1,400,000 per year to the current DCP budget to fund MSHCP Phase 2 actions. This would cover the proposed MSHCP Phase 1 expenditures of $400,000 plus an additional

**TABLE 2-12**
**PROJECTED ANNUAL REVENUES: PROPOSED MSHCP PHASE 1**

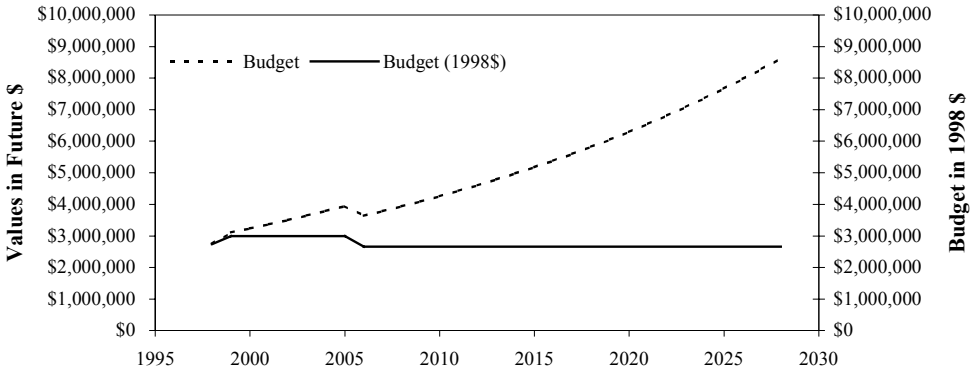
| | Year | Projected Acres Disturbed per Year | Income/Year @ $550 per Acre | Interest Income 7.00% | Program Costs + 4% Inflation | Net Annual Income | Cumulative Endowment | Total Acres Disturbed | Projected Program Costs 1998 Dollars |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1998 | 7,418 | $4,455,000 | $575,000 | $2,738,664 | $2,291,337 | $24,135,507 | 32,705 | $2,738,664 |
| 1 | 1999 | 8,092 | $4,450,631 | $1,845,258 | $2,116,000 | $4,179,888 | $28,315,395 | 38,419 | $2,034,615 |
| 2 | 2000 | 7,724 | $4,248,474 | $2,130,774 | $2,200,640 | $4,178,608 | $32,494,004 | 43,885 | $2,034,615 |
| 3 | 2001 | 7,046 | $3,875,543 | $2,410,224 | $2,288,666 | $3,997,102 | $36,491,105 | 49,113 | $2,034,615 |
| 4 | 2002 | 6,584 | $3,621,242 | $2,681,121 | $2,380,212 | $3,922,150 | $40,413,256 | 54,114 | $2,034,615 |
| 5 | 2003 | 6,164 | $3,390,343 | $2,947,590 | $2,475,421 | $3,862,512 | $44,275,767 | 58,899 | $2,034,615 |
| 6 | 2004 | 5,882 | $3,235,290 | $3,212,539 | $2,574,438 | $3,873,391 | $48,149,158 | 63,475 | $2,034,615 |
| 7 | 2005 | 5,547 | $3,050,594 | $3,477,212 | $2,677,415 | $3,850,391 | $51,999,549 | 67,853 | $2,034,615 |
| 8 | 2006 | 5,123 | $2,817,715 | $3,738,588 | $2,322,676 | $4,233,628 | $56,233,177 | 72,040 | $1,697,156 |
| 9 | 2007 | 4,676 | $2,571,754 | $4,026,334 | $2,415,583 | $4,182,505 | $60,415,682 | 76,046 | $1,697,156 |
| 10 | 2008 | 4,277 | $2,352,556 | $4,311,437 | $2,512,206 | $4,151,787 | $64,567,469 | 79,878 | $1,697,156 |
| 11 | 2009 | 3,986 | $2,192,283 | $4,596,453 | $2,612,694 | $4,176,041 | $68,743,510 | 83,543 | $1,697,156 |
| 12 | 2010 | 3,792 | $2,085,774 | $4,885,048 | $2,717,202 | $4,253,620 | $72,997,130 | 87,049 | $1,697,156 |
| 13 | 2011 | 3,647 | $2,005,727 | $5,180,000 | $2,825,890 | $4,359,837 | $77,356,966 | 90,403 | $1,697,156 |
| 14 | 2012 | 3,441 | $1,892,318 | $5,481,219 | $2,938,926 | $4,434,611 | $81,791,577 | 93,611 | $1,697,156 |
| 15 | 2013 | 3,264 | $1,795,290 | $5,788,246 | $3,056,483 | $4,527,052 | $86,318,629 | 96,680 | $1,697,156 |
| 16 | 2014 | 3,164 | $1,740,385 | $6,103,218 | $3,178,742 | $4,664,860 | $90,983,490 | 99,616 | $1,697,156 |
| 17 | 2015 | 3,075 | $1,691,061 | $6,428,031 | $3,305,892 | $4,813,201 | $95,796,690 | 102,424 | $1,697,156 |
| 18 | 2016 | 2,969 | $1,632,916 | $6,762,920 | $3,438,127 | $4,957,709 | $100,754,399 | 105,110 | $1,697,156 |
| 19 | 2017 | 2,841 | $1,562,770 | $7,107,505 | $3,575,653 | $5,094,623 | $105,849,022 | 107,679 | $1,697,156 |
| 20 | 2018 | 2,758 | $1,516,926 | $7,462,524 | $3,718,679 | $5,260,772 | $111,109,794 | 110,137 | $1,697,156 |
| 21 | 2019 | 2,727 | $1,499,705 | $7,830,175 | $3,867,426 | $5,462,454 | $116,572,248 | 112,489 | $1,697,156 |
| 22 | 2020 | 2,476 | $1,361,888 | $8,207,723 | $4,022,123 | $5,547,489 | $122,119,737 | 114,738 | $1,697,156 |
| 23 | 2021 | 2,378 | $1,307,729 | $8,594,152 | $4,183,008 | $5,718,873 | $127,838,610 | 116,889 | $1,697,156 |
| 24 | 2022 | 2,285 | $1,256,923 | $8,992,695 | $4,350,328 | $5,899,290 | $133,737,899 | 118,947 | $1,697,156 |
| 25 | 2023 | 2,199 | $1,209,192 | $9,403,975 | $4,524,341 | $6,088,825 | $139,826,724 | 120,916 | $1,697,156 |
| 26 | 2024 | 2,117 | $1,164,286 | $9,828,621 | $4,705,315 | $6,287,592 | $146,114,316 | 122,799 | $1,697,156 |
| 27 | 2025 | 2,040 | $1,121,980 | $10,267,271 | $4,893,527 | $6,495,724 | $152,610,040 | 124,600 | $1,697,156 |
| 28 | 2026 | 1,967 | $1,082,073 | $10,720,575 | $5,089,269 | $6,713,380 | $159,323,421 | 126,323 | $1,697,156 |
| 29 | 2027 | 1,899 | $1,044,382 | $11,189,193 | $5,292,839 | $6,940,735 | $166,264,156 | 127,971 | $1,697,156 |
| 30 | 2028 | 1,834 | $1,008,740 | $11,673,797 | $5,504,553 | $7,177,984 | $173,442,140 | 129,548 | $1,697,156 |

$1,000,000 per year. In 1998 dollars, the total budget would be up to $3 million until 2005 and decrease to $2.7 million through 2028 (the decrease reflecting the decreased DCP commitment from $1.65 million to $1.35 million after the first 10 years). The model assumptions are the same as for the previous alternative:

- 7 percent rate of return on fund investments
- 4 percent rate of inflation
- 4 percent cost-of-living adjustments in budget

The difference between this projection and projection c. above results from the difference in the endowment left at the end of the plan. With maximum sustainable budget, the endowment would have approximately $28 million in 2028 ($9 million in 1998 dollars), substantially less than the $173 million at the lower level of expenditures. Total cumulative expenditures through the year 2028, however, would total $92 million (in 1998 dollars), or $28 million more (Table 2-13 and Figure 2-22).

**Figure 2-22. Funds Available: MSHCP Phase 2**




# 2.9.3 Potential Sources of Extramural Funding for the MSHCP

Several additional sources of funding may be available for conservation measures proposed in the MSHCP. These are outlined below.

## 2.9.3.1 Las Vegas Wash Wetlands Park

The Las Vegas Wash Wetlands Park is being implemented in the Las Vegas Wash area of Clark County to deal with the impacts of past changes in the quantity and quality of water flows resulting, in part, from the urbanization of the Las Vegas Valley. This program includes significant opportunities for the incorporation of conservation measures that would complement the MSHCP. These measures could provide specific benefits to the desert riparian and wetlands ecosystems and species that depend upon them.

**TABLE 2-13**
**PROJECTED ANNUAL REVENUES: PROPOSED MSHCP PHASE 2**

| | Year | Projected Acres Disturbed per Year | Income/Year @ $550 per Acre | Interest Income 7.00% | Program Costs + 4% Inflation | Net Annual Income | Cumulative Endowment | Total Acres Disturbed | Projected Program Costs 1998 Dollars |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1998 | 7,418 | $4,455,000 | $575,000 | $2,738,664 | $2,291,337 | $24,135,507 | 32,705 | $2,738,664 |
| 1 | 1999 | 8,092 | $4,450,631 | $1,845,258 | $3,116,000 | $3,179,888 | $27,315,395 | 38,419 | $2,996,154 |
| 2 | 2000 | 7,724 | $4,248,474 | $2,060,774 | $3,240,640 | $3,068,608 | $30,384,004 | 43,885 | $2,996,154 |
| 3 | 2001 | 7,046 | $3,875,543 | $2,262,524 | $3,370,266 | $2,767,802 | $33,151,805 | 49,113 | $2,996,154 |
| 4 | 2002 | 6,584 | $3,621,242 | $2,447,370 | $3,505,076 | $2,563,535 | $35,715,341 | 54,114 | $2,996,154 |
| 5 | 2003 | 6,164 | $3,390,343 | $2,618,736 | $3,645,279 | $2,363,799 | $38,079,140 | 58,899 | $2,996,154 |
| 6 | 2004 | 5,882 | $3,235,290 | $2,778,775 | $3,791,090 | $2,222,974 | $40,302,114 | 63,475 | $2,996,154 |
| 7 | 2005 | 5,547 | $3,050,594 | $2,927,919 | $3,942,734 | $2,035,779 | $42,337,893 | 67,853 | $2,996,154 |
| 8 | 2006 | 5,123 | $2,817,715 | $3,062,273 | $3,638,608 | $2,241,380 | $44,579,272 | 72,040 | $2,658,695 |
| 9 | 2007 | 4,676 | $2,571,754 | $3,210,560 | $3,784,152 | $1,998,163 | $46,577,435 | 76,046 | $2,658,695 |
| 10 | 2008 | 4,277 | $2,352,556 | $3,342,760 | $3,935,518 | $1,759,798 | $48,337,234 | 79,878 | $2,658,695 |
| 11 | 2009 | 3,986 | $2,192,283 | $3,460,336 | $4,092,939 | $1,559,680 | $49,896,914 | 83,543 | $2,658,695 |
| 12 | 2010 | 3,792 | $2,085,774 | $3,565,786 | $4,256,656 | $1,394,904 | $51,291,818 | 87,049 | $2,658,695 |
| 13 | 2011 | 3,647 | $2,005,727 | $3,660,628 | $4,426,922 | $1,239,432 | $52,531,250 | 90,403 | $2,658,695 |
| 14 | 2012 | 3,441 | $1,892,318 | $3,743,419 | $4,603,999 | $1,031,737 | $53,562,987 | 93,611 | $2,658,695 |
| 15 | 2013 | 3,264 | $1,795,290 | $3,812,244 | $4,788,159 | $819,375 | $54,382,362 | 96,680 | $2,658,695 |
| 16 | 2014 | 3,164 | $1,740,385 | $3,867,679 | $4,979,686 | $628,378 | $55,010,740 | 99,616 | $2,658,695 |
| 17 | 2015 | 3,075 | $1,691,061 | $3,909,939 | $5,178,873 | $422,127 | $55,432,867 | 102,424 | $2,658,695 |
| 18 | 2016 | 2,969 | $1,632,916 | $3,937,453 | $5,386,028 | $184,341 | $55,617,207 | 105,110 | $2,658,695 |
| 19 | 2017 | 2,841 | $1,562,770 | $3,947,901 | $5,601,469 | ($90,797) | $55,526,410 | 107,679 | $2,658,695 |
| 20 | 2018 | 2,758 | $1,516,926 | $3,939,941 | $5,825,528 | ($368,660) | $55,157,750 | 110,137 | $2,658,695 |
| 21 | 2019 | 2,727 | $1,499,705 | $3,913,532 | $6,058,549 | ($645,312) | $54,512,438 | 112,489 | $2,658,695 |
| 22 | 2020 | 2,476 | $1,361,888 | $3,863,537 | $6,300,891 | ($1,075,466) | $53,436,972 | 114,738 | $2,658,695 |
| 23 | 2021 | 2,378 | $1,307,729 | $3,786,359 | $6,552,927 | ($1,458,839) | $51,978,132 | 116,889 | $2,658,695 |
| 24 | 2022 | 2,285 | $1,256,923 | $3,682,462 | $6,815,044 | ($1,875,659) | $50,102,473 | 118,947 | $2,658,695 |
| 25 | 2023 | 2,199 | $1,209,192 | $3,549,495 | $7,087,645 | ($2,328,959) | $47,773,514 | 120,916 | $2,658,695 |
| 26 | 2024 | 2,117 | $1,164,286 | $3,384,896 | $7,371,151 | ($2,821,969) | $44,951,545 | 122,799 | $2,658,695 |
| 27 | 2025 | 2,040 | $1,121,980 | $3,185,877 | $7,665,997 | ($3,358,139) | $41,593,405 | 124,600 | $2,658,695 |
| 28 | 2026 | 1,967 | $1,082,073 | $2,949,411 | $7,972,637 | ($3,941,153) | $37,652,252 | 126,323 | $2,658,695 |
| 29 | 2027 | 1,899 | $1,044,382 | $2,672,211 | $8,291,543 | ($4,574,950) | $33,077,302 | 127,971 | $2,658,695 |
| 30 | 2028 | 1,834 | $1,008,740 | $2,350,717 | $8,623,204 | ($5,263,747) | $27,813,555 | 129,548 | $2,658,695 |

Funding for conservation measures in the park will further the general and specific goals of the MSHCP. The biological resources in the park will be managed as part of the AMP.

The Las Vegas Wash Wetlands Park will create a variety of opportunities for multiplying the resources dedicated to mitigation under the auspices of the MSHCP. First, during the first two years of the MSHCP, Clark County has agreed to contribute $115,000 to the Clark County Department of Parks and Recreation to be utilized exclusively for conservation measures in the wetlands park. This grant is specifically contingent upon the Department of Parks and Recreation matching the grant with a contribution from outside funding sources for conservation measures. Such conservation measures will include protection from future erosion, restrictions applicable to destructive types of human access, removal of tamarisk and common reed replacement with vegetation native to the area, removal of trash and garbage which has accumulated over the years, improvement of water quality, fire management and control policies, constraints on all visitor activity in nesting areas and during nesting seasons and continued long-term maintenance and management of the wash.

The park will also provide opportunities for attracting extramural funds for collaborative conservation and conservation education initiatives. Through the construction and development of the planned Las Vegas Wash Wetlands Park Environmental Education Center and Interpretative Campus under Clark County Parks and Recreation sponsorship, a variety of extramural conservation-related program proposals will be developed in collaboration with the MSHCP Public Information and Education Committee and the Clark County School District.

Finally, it is anticipated that the entire Las Vegas Wash Wetlands Park will cost approximately $150 million, of which at least $50 million will be expended on conservation measures directly implementing the goals and objectives of the MSHCP beginning in the fall of 2000 with the creation of the first detention facility and the first enhanced wetlands.

## 2.9.3.2 Federal Grants and Appropriations

### a. Public Lands Management Act

In October of 1998, Congress passed and the President signed the Southern Nevada Public Lands Management Act (PLMA), which has provided an unprecedented opportunity to enhance both growth management and environmental planning in Clark County.

As estimated by the Congressional Budget Office, the sale of the approximately 27,000 acres of Federal lands scattered within the urban areas within the Las Vegas Valley, as mandated in PLMA, is expected to generate gross sales of an estimated $420 million during the initial six years of implementation of its provisions, from 1998 to 2003. Ultimate gross sales could be substantially higher.

PLMA, with some exceptions, mandates that 85 percent of the proceeds of the sales be deposited into a special account to be expended on five specifically enumerated areas.

1. Acquisition of environmentally sensitive lands in the state of Nevada, with a priority given to lands within Clark County.

2. Development of the MSHCP.

3. Development of parks, trails, and natural areas within Clark County.

4. Capital improvements in specified and specially managed areas within Clark County, with a cap of 25 percent per fiscal year.

5. Reimbursement of BLM costs and expenses incurred in facilitating the sales.

Thus, the special account from which Clark County would draw funds would receive an estimated $357 million over the six-year period, or approximately $60 million per year (85 percent of total proceeds).

It is estimated that expenditures in categories 4 and 5 above are likely to result in approximately 27 percent of the $60 million, or approximately $16 million per year, being paid to the Federal agencies. The balance of the fund, or approximately $46 million per year, would be available for the remaining three expenditure categories (acquisition of environmentally sensitive lands, development of the MSHCP, and development of parks, trails, and natural areas in Clark County), all of which would benefit the MSHCP. In addition, the special account must be invested in interest-bearing accounts, which will add to the amount available.

At the time of publication of this MSHCP, Federal, state, and MSHCP officials are reviewing the PLMA and negotiating regarding the implementation of its provisions. Obviously, the rate of sales, when they will commence (the PLMA provides "as soon as practical"), what prices the land will be sold for, and when the first distribution of funds will occur have not been accurately determined. However, regardless of the finalization of the details, even the most conservative interpretation of the PLMA makes it unquestionably clear that close to 50 percent of the total proceeds will be available both directly to the MSHCP and for uses which should significantly augment several of its purposes—the acquisition of sensitive habitat and the development of parks, trails, and natural areas.

In addition, the BLM, NPS, USFS, USFWS, and its Refuge Division have recently agreed to the essential terms of a Memorandum of Understanding, the draft of which sets forth a cooperative and mutually beneficial process to continue the development of the MSHCP throughout its 30-year term utilizing funds generated by the PLMA. There is no

guarantee that requests for PLMA funds to continue the development of the MSCHP will be granted by the Secretary of the Interior, as provided in the PLMA. However, the MOU provides for a process wherein the Federal land managers who are responsible for the management of approximately 90 percent of the land within Clark County, together with representatives of the Implementation and Monitoring Committee of the MSHCP, the contractor of its Adaptive Management Process, and the USFWS will meet and confer regularly regarding what issues should be investigated as part of the AMP, to devise scientifically valid inquiries regarding those issues, and to submit joint applications to the Secretary for PLMA funding for the purpose of instituting management actions which will better provide for the conservation of species and habitats within Clark County.

At the present time, and subject to any requirements imposed by the Secretary of the Interior, it is the intent of the I & M Committee, as reflected in the draft MOU, to reach agreement with the Federal agencies with respect to applications for PLMA funds for development of the MSHCP as part of the biennial budget process. Such funds will only be expended on MSHCP development activities that are approved by the Committee, Federal agencies, the USFWS, the Secretary of the Interior, and the Board of County Commissioners.

### b. Other Federal Programs

A number of other Federal programs are potentially available for the development or implementation of the Clark County MSHCP. The MSHCP has and will continue to pursue an active and aggressive program to seek outside sources for both planning and implementation activities. These include state, Federal, or private grants, such as:

- Land and Water Conservation Funds
- TEA-21 (Transportation Efficiency Act–21st Century) and future transportation-related funding measures
- Special Legislation for Conservation Planning
- ESA Section 6 funds available for land acquisitions associated with approved HCPs

## 2.9.3.3 Additional Funding Sources

Additional sources of extramural funding are expected to include matching funds grants currently under discussion with UNR in collaboration with BRRC as well as grants solicited from foundations such as John D. and Catherine T. MacArthur Foundation, the Pew Charitable Trust, and Richard Mellon Foundation, among others, whose interests in conservation principles and practices are particularly reflected in this plan's ecosystem-centered approach to conservation.

# 2.10 Changed Circumstances, Unforeseen Circumstances, No Surprises, and Other Federal Commitments

Section 10 regulations [50 CFR 17.22(b)(2)(iii)] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the Habitat Conservation Plan Assurances ("No Surprises") Rule [50 CFR 17.2, 17.22(b)(5) and (6); 63 FR 8859] defines "unforeseen circumstances" and "changed circumstances" and describes the obligation of the permittees and the USFWS.

## 2.10.1 In General

The Applicants and Participants have made every effort to anticipate the minimization, monitoring, and mitigation measures (conservation measures) necessary to conserve the Covered Species and the habitats that support those species and, to that end, have relied upon the best scientific and commercial information available and have consulted the biologists who have participated in the BAC, biologists working for the USFWS and NDOW, and other experts having relevant information and data concerning the Covered Species and their habitats. In addition, the AMP and the flexible provisions regarding the expenditure of mitigation funds provided by the Applicants are intended to meet and address future exigencies and emergency situations. Thus, the MSHCP is intended to reduce the potential for adverse changed or unforeseen circumstances on the Covered Species and their habitats to a level of insignificance. However, notwithstanding the provisions of the MSHCP, should adverse changed or unforeseen circumstances result in, or threaten, a substantial change in the population of any Covered Species or the overall quality of any habitat of that species, as determined pursuant to the procedure outlined hereinafter, the Applicants and the USFWS shall cooperate to resolve the adverse impacts in accordance with this section.

The terms "changed circumstances" and "unforeseen circumstances" as defined in this MSHCP are intended to have the same meaning as defined in the Habitat Conservation Plan Assurances ("No Surprises") Rule:

> ***Changed Circumstances:*** If additional conservation and mitigation measures are deemed necessary to respond to changes in circumstances that were provided for in the HCP, the permittee(s) will be expected to implement the measures specified in the HCP, but only those measures and no others; and

***Unforeseen Circumstances:*** The USFWS will not require the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water or other natural resources, even upon a finding of unforeseen circumstances, unless the permittee(s) consent. Upon a finding of unforeseen circumstances, the USFWS will be limited to modifications within conserved habitat areas and the HCP's operating conservation program. Additional conservation and mitigation measures will not involve the commitment of additional land, water or financial compensation or additional restrictions on the use of land, water or other natural resources.

## 2.10.2 Methodology for Developing Criteria for Changed Versus Unforeseen Circumstances

The USFWS will determine changed versus unforeseen circumstances based on the likelihood of the change or event occurring during an average 30-year period (the proposed term of the MSHCP). These criteria will be refined during the first year of the permit through the collection and analysis of available data on the frequency and magnitude of events identified below. Data will be from the ecosystems covered by the MSHCP within Clark County or appropriate, scientifically comparable surrogate areas.

The data on natural catastrophic events will be analyzed using applicable statistical methods to describe and predict, within appropriate confidence limits, the probability of occurrence of those events during the term of the permit. For example, fire history within pinyon-juniper, including the year and acreage of habitat burned, can be described statistically. This statistical description can be used to predict the largest burn size expected during the next 30-year period. A fire smaller than this would represent changed circumstances; whereas a fire larger than this would represent an unforeseen circumstance. To the extent that appropriate data are available, the probabilities of occurrence of invasion by exotic species or species-specific disease or any other circumstance that significantly threaten Covered Species or their habitats will also be analyzed.

## 2.10.3 Procedure for Determining Occurrence of Unforeseen Circumstances

Prior to making a determination regarding the occurrence of any unforeseen circumstance, the USFWS shall comply with the following procedure:

### 2.10.3.1 Notice to Applicants and Participants

The USFWS shall provide written notice to each of the Applicants and the Participants together with a detailed statement of the facts regarding the unforeseen circumstance involved, the anticipated impact thereof on the Covered Species and its habitat, and all information and data that supports the allegation. In addition, the notice shall include any proposed conservation measure(s) that is believed would address the unforeseen circumstance, an estimate of the cost of implementing such conservation measure, and the likely effects upon (a) the economy and lifestyle of the residents of Clark County, (b) the existing plans and policies of any Federal or state land managers, and (c) the multiple users of habitats which might be involved in the imposition or implementation of the conservation measure(s).

### 2.10.3.2 Response through the AMP

The Applicants and Participants, in consultation with the USFWS, may choose to perform an expedited AMP analysis of the Covered Species or its habitat affected by the alleged unforeseen circumstance and to modify or redirect existing conservation measures to mitigate the effects of the unforeseen circumstance, within the scope of existing funded conservation actions. To the extent that these modified or redirected conservation measures do not affect conservation of other species, habitats, or key areas, this may be deemed an adequate response to the unforeseen circumstance. If the proposed modifications or redirected conservation actions could affect the conservation of other Covered Species or its habitat, the procedure outlined below will be followed.

### 2.10.3.3 Submission of Information by Others

Each Applicant and Participant shall have a meaningful opportunity to submit information to the USFWS, the other Applicants, and the Participants and shall submit such information to the USFWS and the I & M Committee within 60 days of the written notice as provided in Section 2.10.4.1. Upon the written request of any Applicant or Participant, the time for submission of said information may be extended by the USFWS, which request will not be unreasonably denied.

### 2.10.3.4 Hearings of I & M Committee

Within 30 days after the close of the period for submission of additional information, the I & M Committee shall conduct a public hearing or hearings for the purpose of a public discussion of (a) the alleged unforeseen circumstances, (b) the proposed additional conservation measure(s), (c) its effects upon the species and its habitat and the economy and lifestyles of the residents of Clark County, and (d) possible alternatives to the proposed additional conservation measures which would result in the least adverse impacts upon the economy and lifestyles of the residents of Clark County while at the same time leading to the survival and recovery of the affected species.

### 2.10.3.5 Findings

The USFWS shall have the burden of demonstrating that an unforeseen circumstance has occurred and that such unforeseen circumstance is having or is likely to have a significant adverse impact on the Covered Species or its habitat. The findings of the USFWS must be clearly documented and be based upon the best scientific and commercial data available regarding the status and habitat requirements of the species. In addition, based on the results of an expedited AMP analysis of the changed or unforeseen circumstance and the information provided by the Applicants and Participants, the USFWS shall provide the justification and approval for any reallocation of funds or resources necessary to respond to the unforeseen circumstance within the existing commitments of the Applicants and Participants under the MSHCP.

## 2.10.4 Changed Circumstances

For the purposes of this MSHCP, "changed circumstances" include:

- Listing of a new species not covered by this MSHCP;

- Vandalism or other intentional, destructive illegal human activities;

- Natural catastrophic events such as fire, drought, severe wind or water erosion, floods, and landslides (also landslides associated with earthquakes) of a magnitude expected to occur during the term of the permit. The magnitude of natural catastrophic events should be evaluated on the basis of historical records of the frequency and magnitude of such events. Events with a magnitude likely to occur during an average 30-year period would be considered changed circumstances. Events expected to occur less frequently than once during an average 30-year period would be unforeseen circumstances;

- Invasion by exotic species or habitat or species-specific disease or any other circumstance that significantly threatens Covered Species or their habitats (e.g., fire ants, Africanized honey bees, upper respiratory disease in tortoises, brown-headed cowbirds, tamarisk, irruptive insect outbreaks) and that affects populations of Covered Species throughout a substantial portion of their distribution in Clark County or that threatens the continued existence of endemic populations or populations with limited distributions in Clark County; and

- Redesignation of WSAs or portions of WSAs or other mandated land management changes by Congress resulting in reversion of areas identified in the MSHCP as IMA, LIMA, or MUMA to previous management policies potentially affecting their value for conservation of habitats and species.

## 2.10.5 Response to Occurrence of Changed Circumstances—Adaptive Management

While the I & M Committee believes that the initial measures to be funded by the MSHCP (during the period commencing in the July of 1999, through June of 2001) will be effective to conserve both habitats and the Covered Species, it is anticipated that conditions within Clark County, the status of habitats, and the overall conditions of individual species over time will change (changed circumstances). In addition, it is quite likely that additional and different conservation measures, not contained within the MSHCP, will be suggested and be proven to be effective during the term of the MSHCP. Finally, it may be found that measures currently funded by the MSHCP or undertaken by the land managers may prove to be ineffective to conserve either species or the habitats in which they dwell. Therefore, the Applicants and the I & M Committee, with the cooperation of USFWS and NDOW, are proposing an Adaptive Management Process to gauge the effectiveness of existing conservation measures and to propose additional or alternatives conservation measures, as the need arises and to deal with changed circumstances.

The wildlife agencies (USFWS and NDOW) shall immediately notify Clark County upon becoming aware that a species that is associated with habitat found in Clark County and which is not a Covered Species (Uncovered Species) may be or has been proposed for listing. Upon notice of the potential listing of an Uncovered Species, Clark County may, but is not required to, enter into negotiation with the wildlife agencies regarding necessary modifications to the MSHCP, if any, required to amend the incidental take permit to cover the Uncovered Species. If Clark County elects to pursue amendment of the incidental take permit, the wildlife agencies will provide technical assistance in identifying any modifications to the MSHCP that may be necessary to the incidental take permit. In determining whether any further conservation or mitigation measures are required in order to amend the MSHCP to authorize incidental take of such Uncovered Species, the wildlife agencies shall take into account the conservation and mitigation measures already provided in the MSHCP and cooperate with Clark County to minimize the adverse effects of the listing of such Uncovered Species on the covered activities consistent with Section 10 of the ESA and the Implementation Agreement. Once a petition is found to be warranted or a species is proposed to be listed or an equivalent finding is made by the State of Nevada, the applicable agency shall use its best efforts to identify any measures to avoid the likelihood of jeopardy to or take of the Uncovered Species ("no take/no jeopardy" measures). The measures shall be developed in consultation with Clark County.

If the Federal permit has not been amended to include the Uncovered Species at the time the species is listed, Clark County shall implement the "no take/no jeopardy" measures identified by the USFWS until the permit is amended to include the Uncovered Species

or the USFWS notifies Clark County that such measures are no longer needed to avoid the likelihood of jeopardy to, take of, or adverse modification of the designated critical habitat, if any, of the Uncovered Species.

In order to mitigate the impact of changed circumstances defined above requiring immediate response, including vandalism, natural catastrophic events, and invasion by exotic species or habitat or species-specific disease which occur at any time during the term plan (including the first year during which thresholds are being developed pursuant to Section 2.10.2), Clark County and the appropriate state and Federal agencies will conduct an expedited analysis for the purposes of development of appropriate management responses for the species, habitats, or key areas impacted by any changed circumstance. This expedited analysis will be a function of the AMP.

Clark County and the appropriate state and Federal agencies also will conduct an expedited analysis of the potential effects that WSA redesignation or other Congressionally mandated changes in land status would have on Covered Species, habitats, or key areas and recommend appropriate management responses to mitigate any significant effects.

The analysis will be commenced as soon as the requisite personnel from Clark County and the Federal and state agencies can be made available. If specific AMP management analysis has been performed previously for such species, habitat, or key areas, then the management for these affected species, habitats, or key areas will be reviewed in light of the changed circumstances. If management protocols for the species, habitats, or key areas have not been previously developed as part of the AMP established by this plan, then the affected species, habitats, or key areas will be made a priority for analysis and development of appropriate management protocols.

If multiple changed circumstances occur sufficiently close to each other in time such that the response will be significantly delayed due to lack of available personnel, Clark County will meet and confer with the applicable agencies in order to prioritize the analyses which need to be done. The purpose of the prioritizing will be to consider first those species, habitats, or key areas which are most at risk of further impacts.

If WSAs are redesignated, Clark County, in consultation with the USFWS, will conduct an expedited review of the effects of redesignation on Covered Species and develop recommendations for appropriate management responses.

The outcome of the analysis will be the development of appropriate measures to minimize to the extent practicable the occurrence of adverse effects resulting from the changed circumstances on species, habitats, or key areas. The measures developed will be implemented. Ongoing management activities may continue until new measures resulting from the analyses are developed. However, as the agencies deem necessary, in

consultation with Clark County, measures will be promptly implemented to minimize adverse effects prior to completion of the analysis to the extent feasible.

The new listing of a species not covered by this MSHCP may constitute a changed circumstance. The USFWS shall immediately notify Clark County upon becoming aware that a species which is associated with the habitats found in Clark County and which is not a Covered Species (an "Uncovered Species") may or has been proposed for listing.

Upon receipt of notice of the potential listing of an Uncovered Species, Clark County may, but is not required to, enter into negotiations with the USFWS regarding necessary modifications, if any, to the MSHCP required to amend the applicable Federal permit to cover the Uncovered Species. If Clark County elects to pursue amendment of the applicable permit, the USFWS will provide technical assistance to the County in identifying any modifications to the MSHCP that may be necessary to amend the applicable Federal permit.

In determining whether any further conservation or mitigation measures are required in order to amend the affected permit to authorize incidental take of such Uncovered Species, the USFWS shall take into account the conservation and mitigation measures already provided in the MSHCP and cooperate with the County to minimize the adverse effects of the listing of such Uncovered Species on the covered activities consistent with Section 10 of ESA, as required by the Implementation Agreement.

Once a species is proposed or petition is found to be warranted, the USFWS shall use its best efforts to identify any necessary measures to avoid the likelihood of jeopardy to or take of the Uncovered Species ("no take/no jeopardy" measures).

## 2.10.6 Unforeseen Circumstances

For the purposes of this MSHCP, "unforeseen circumstances" are any events not identified as a changed circumstance and specifically includes:

- Natural catastrophic events such as fire, drought, severe wind or water erosion, floods, and landslides (also landslides associated with earthquakes) of a magnitude exceeding that expected to occur during the term of the permit.

- Invasion by exotic species or habitat or species-specific disease that threaten Covered Species or their habitats which cannot be effectively controlled by currently available methods or technologies or which cannot be effectively controlled without resulting in greater harm to other Covered Species than to the affected Covered Species.

In making the determination that such an event constitutes an unforeseen circumstance, the USFWS will consider, but not be limited to, the following factors:

- Percentage of the range adversely affected by the HCP,
- Percentage of the range conserved by the HCP,
- Ecological significance of that portion of the range affected by the HCP, and
- Level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

## 2.10.7 Response to Occurrence of Unforeseen Circumstances—No Surprises

If, after the conclusion of the process outlined above, the USFWS determines that an unforeseen circumstance has occurred and that additional conservation measures are required to address such circumstance which are not contemplated or capable of implementation by the AMP and procedures of the MSHCP, and provided that the Applicants have fully complied with the terms of the MSHCP, any proposed additional conservation measures shall fit, to the maximum extent possible, within the terms of the MSHCP and its AMP. Additional conservation measures shall not involve the payment of additional compensation by the Applicants or private landowners or apply to parcels of land where incidental take is permitted pursuant to the provisions of the Section 10(a) Permit(s). If additional expenditures are required, the USFWS or any other Federal agency shall take additional actions that might lead to the conservation or enhancement of a species that is being adversely affected by an unforeseen circumstance. The costs of these additional actions shall be borne by the USFWS or any other Federal agency and may include the purchase or exchange of land. However, the USFWS agrees that, prior to undertaking or attempting to impose any action or conservation measure, it shall consider all practical alternatives to the proposed conservation measures, including but not limited to those set forth in Section 3.e) of the DCP, and adapt only that action or conservation measure which would have the least effect upon the economy and lifestyle of the residents of Clark County while at the same time addressing the unforeseen circumstance and the survival and recovery of the affected species and its habitat. The purpose of this provision is to recognize that Congress intended, even in the event of unforeseen, extraordinary, or changed circumstances, that additional mitigation requirements not be imposed upon a Section 10 permittee which has fully implemented the requirements undertaken by it pursuant to an approved habitat conservation plan.

## 2.10.8 Response to Occurrence of Unforeseen Circumstances—Adaptive Management

The I & M Committee believes that the initial measures to be funded by the MSHCP (during the period commencing in July of 1999 through June of 2001) will be effective to conserve both habitats and the Covered Species for that period. However, over time, unforeseen circumstances may affect the status of habitats and the condition of individual species within Clark County. Therefore, the Applicants and the I & M Committee, with the cooperation of USFWS, NDOW, and its Adaptive Management contractors, are proposing an Adaptive Management Process to gauge the effectiveness of existing conservation measures and to propose alternative conservation measures as the need arises, to deal with unforeseen circumstances, within the budget and scope of the AMP. If existing or additional conservation measures within the budget and scope of the approved MSHCP AMP do not adequately respond to unforeseen circumstances, the MSHCP will assist and coordinate with any additional conservation efforts undertaken by the USFWS.

## 2.10.9 Additional Federal Commitments

### 2.10.9.1 Augmentation, not Replacement or Substitution, of Federal Budgets

Each Federal agency that is a Participant in the MSHCP process and signatory to the required implementation agreement will agree that it shall annually include in its agency budget requests adequate dedicated and earmarked funding to allow the agency to fully operate, manage, maintain, and monitor its lands pursuant to the terms of this MSHCP and to fulfill its obligations to protect the species and ecosystems consistent with statutory obligations imposed by Congress and to actively cooperate with and provide technical assistance to the I & M Committee. In addition, each Federal agency will agree that it shall not use funds received from the MSHCP to be substituted for funds which it would otherwise receive from the Federal budget process and instead will use MSHCP funds to augment, and not replace, its appropriated funds. Nor will any Federal agency receiving funds from the MSHCP move or redirect its own funds from categories currently established to implement conservation measures, plans, or policies to other budget categories. Finally, no state or regional office of any Federal agency will take into account any MSHCP funds paid or expected to be paid in allocating available funds among its various offices and departments. Each Federal agency will provide annual reports of its allocation of Federal funds to conservation measures and personnel, and the I & M Committee shall review such reports to the I & M Committee and the USFWS to determine whether such Federal agency is in compliance with this section.

### 2.10.9.2 Section 7 Consultations and Conferences

Except as may be specifically provided elsewhere in this MSHCP, nothing in the MSHCP is intended to apply to any activity on Federal lands or Federally funded projects which are governed by Section 7 of the ESA. The USFWS shall cause and does intend for any minimization measures that result from the authorization of incidental take pursuant to Section 7 and contained within any biological opinion or conference report to be generally consistent with the minimization measures required by the MSHCP. However, nothing contained in this MSHCP is intended to prohibit or proscribe the USFWS from requiring minimization in excess of that provided for in the MSHCP, should the circumstances so warrant. For example only, in the event NDOT through a Federal agency proposes new or expanded roads within any IMAs and LIMAs or critical habitat or any significant activity or construction is proposed within those areas, it is anticipated that Section 7 avoidance and minimization requirements may increase substantially from those required herein, because the IMAs and LIMAs and critical habitat are intended to provide the primary areas for the conservation and preservation of Covered Species and their habitat over the long term.

### 2.10.9.3 Consideration of the MSHCP in Section 4 Findings

The USFWS will specifically inform the I & M Committee of any listing proposal under Section 4 of the ESA for species in Clark County in writing. To the extent permitted by law, the USFWS will consider actions undertaken by this committee in making their determination.

# 2.11 Clarifications, Minor Administrative Amendments, and Amendments

## 2.11.1 Clarifications and Minor Administrative Amendments

Experience with the DCP has shown that from time to time it is necessary for the USFWS and Clark County, as Administrator of the DCP, to clarify provisions of the DCP, the Implementation Agreement, or the Permit (together, the Plan Documents) to deal with issues that arise with respect to the administration of the process or to be more specific regarding the precise meaning and intent of the language contained within those documents. Clarifications do not change the provisions of any of the documents in any way but merely clarify and make more precise the provisions as they exist.

In addition, it is contemplated that from time to time it may be necessary to make Minor Administrative Amendments to the documents that do not make substantive changes to any of the provisions of the documents but which may be necessary or convenient, over time, to more fully represent the overall intent of the Applicants and the USFWS. Clarifications and Minor Administrative Amendments to the documents may be approved by the Field Supervisor of the Nevada Fish and Wildlife Office of the USFWS and the Administrator of the Clark County MSHCP after review and approval by the I & M Committee and shall be memorialized by letter agreement or by substituted Plan Documents which are modified to contain only the Clarification or Minor Administrative Amendment. It is proposed that any request for Clarification or any proposed Minor Administrative Amendment will be processed and a response provided within 30 days after receipt by the USFWS or the I & M Committee, as the case may be.

The MSHCP may, under certain circumstances, be amended without amending its associated permit, provided such amendments are of a minor or technical nature and that the effect on the species involved and the levels of take resulting from the amendment are not significantly different from those described in the original HCP. Examples of minor amendments to the MSHCP that would not require a permit amendment include, but are not limited to, (a) minor revisions to survey, monitoring, or reporting protocols and (b) minor revisions in accounting procedures.

To amend the conservation plan without amending the permit, the Permittees must submit to the USFWS, in writing, a description of (a) the proposed amendment; (b) an explanation of why the amendment is necessary or desirable; and (c) an explanation of why the permittee believes the effects of the proposal are not significantly different from those described in the original conservation plan. If the USFWS concurs with the proposal, then they shall authorize the conservation plan amendment in writing and the

amendment shall be considered effective upon the date of the written authorization from the USFWS.

## 2.11.2 Adaptive Management Changes and Subsequent Listing of Covered Species

It is also anticipated that, over time, the AMP will recommend modifications and changes to conservation measures undertaken and/or financed by the MSHCP. Such future conservation measures may or may not be proposed in this first phase of the MSHCP but may be developed by the I & M Committee, the Federal and state land managers, and the USFWS over time. Conservation measures undertaken pursuant to the AMP shall not require formal amendment of any of the Plan Documents but shall be processed and approved by the USFWS and the Board of County Commissioners in connection with the review and approval of the biennial IPB, as hereinafter described.

In the event Covered Species which are currently not listed as threatened or endangered become listed, no amendments to the plan documents are anticipated because the measures set forth in the MSHCP are designed to provide adequate protection for all such Covered Species. Therefore, upon the listing of any Covered Species, the USFWS shall notify the permittees of coverage of such Covered Species under the provisions of Section 10 of the ESA. The Covered Species will be named on the permit, with a delayed effective date.

## 2.11.3 Amendments

Except as provided in Sections 2.11.l and 2.11.2, neither the MSHCP, the Permit, nor the Implementation Agreement may be amended or modified in any way without the written approval of the Board of County Commissioners of Clark County, as Administrator of the MSHCP; all signatories, including the land managers; and the USFWS. All proposed material changes or amendments (that is, all changes or amendments not covered by Sections 2.11.1 and 2.11.2) shall be reviewed by the I & M Committee, which shall make its recommendation to the Board of County Commissioners. Material changes shall be processed as an amendment to the permit in accordance with the provisions of the ESA and regulations at 50 CFR Parts 13 and 17 and shall be subject to appropriate environmental review under the provisions of NEPA.

Any proposal to move a species from the Evaluation Species category to the Covered Species category shall require an amendment to the permit and shall be supported by sufficient data and evidence to meet the requirements of Section 10 of the ESA. Appropriate NEPA documentation shall be required, although it is anticipated that because of the extensive public participation in the I & M Committee process and the

significant review of conditions contained in this MSHCP/EIS, additional NEPA review may be limited to Environmental Assessments.

Amendments of the MSHCP Section 10(a) Permit would be required for any change in the following: (a) the listing under the ESA of a new species not currently addressed in the plan that may be taken by project actions; (b) the modification of any project action or mitigation component under the plan, including funding, that may significantly affect authorized take levels, effects of the project, or the nature or scope of the mitigation program with the exception of those plan modifications specifically addressed in the original MSHCP and Permit application; and (c) any other modification of the project likely to result in significant adverse effects to the Covered Species not addressed in the original MSHCP and Permit application.

Amendment of a Section 10(a) Permit must be treated in the same manner as an original permit application. Permit applications typically require a revised conservation plan, a permit application form, an implementing agreement, a NEPA document, and a 30-day public comment period. However, the specific documentation needed in support of a permit amendment may vary depending on the nature of the amendment.

# 2.12 Implementation of the MSHCP

## 2.12.1 Progress Report Implementation Plan and Budget

### 2.12.1.1 Adaptive Management Process Reporting

It is expected that the entity or entities contracted to prepare the Adaptive Management Process shall regularly report to the Plan Administrator and the I & M Committee according to the time frame and format mutually agreed upon and enumerated in the contract for consulting services. On March 15 of each even-numbered year, the contracted entity will provide a full report on AMP activities and significant findings to the Plan Administrator, who shall distribute the report to the I & M Committee members for review by April 15 of the same year.

### 2.12.1.2 AMP Recommendations and Available Funding

A letter regarding proposals and budgets, including suggestions from the AMP, USFWS, and the I & M Committee, shall be sent from the Plan Administrator to the I & M Committee on May 15 of each even-numbered year. The letter is intended to generate early discussions among agencies concerning the ensuing biennium proposals. This letter will also outline the general constraints, implicit and explicit, in the DCP and MSHCP,

On July 15 of each even-numbered year, the Plan Administrator shall submit to the USFWS and the I & M Committee an accounting report addressing available funding for the upcoming biennium, including cost of living projections and credit status. A current revenue and projected land disturbance report shall also be submitted to the USFWS and I & M Committee at this time.

### 2.12.1.3 Ensuing Biennium Proposals

On August 1 of each even-numbered year, all contractors, agencies, and organizations seeking funding under the next biennium cycle shall submit to the Plan Administrator complete proposals for proposed activities. Proposals shall be submitted in a consistent format designed by the Plan Administrator and agreed upon by the I & M Committee. Copies of proposals shall be mailed to I & M Committee members for review upon receipt by Clark County.

### 2.12.1.4 Budget Session

From the period of September 1 through December 31 of even-numbered years, budget discussion will be in session. The I & M Committee shall meet at least once per month

(but likely two or three times per month) during this period to discuss proposals. The USFWS will participate in these discussions and provide input into the proposed budget items.

### 2.12.1.5 Submittal of Implementation Plan and Budget

On February 15 of odd-numbered years, the Plan Administrator shall submit to the USFWS a final proposed Implementation Plan and Budget, including proposed credits. The I & M Committee shall have reached consensus regarding the budget package prior to its submittal to the USFWS. This proposed budget should include an explanation of the proposed budget with respect to the commitments, implicit and explicit, in the DCP and MSHCP. The County, in consultation with NDOT, will also prepare a joint budget for road barrier construction.

### 2.12.1.6 USFWS Review of Implementation Plan and Budget Package

Within 60 days of receipt of the proposed budget package from Clark County, and prior to submittal to the Board of County Commissioners, the USFWS will review and provide a written report to the Plan Administrator concerning the implementation and budget package, including requests for credit. The report will evaluate the consistency of each element of the proposed implementation plan with the ESA, recovery plans, recommendations of the AMP, and the MSHCP. The written report to the County shall recommend approval or disapproval of the complete package

### 2.12.1.7 Approval of Implementation Plan and Budget by County Commission

After review, analysis, and approval of the implementation plan and budget, and concurrence by the USFWS, a complete budget shall be presented to the Board of County Commissioners for approval.

The Board of County Commissioners may approve or disapprove the budget, in whole or in part; however, disapproval of the budget or any portion thereof deemed essential by the USFWS may be grounds to suspend or terminate the Section 10(a) Permit(s), in whole or in part.

The County shall disburse funds pursuant to the budget finally approved by the Board of County Commissioners.

## 2.12.2 Reporting

For all projects in the permit area and prior to authorizing any land disturbance which requires a permit, or, in the case of NDOT, prior to disturbing land within its permit area,

a project land disturbance report must be completed by the permittee (the County, the Cities, or NDOT), which will set forth the location of the land disturbed, the number of acres disturbed, and the amount of the fee collected. The forms and the fees collected will be sent to the County each month, and the County will summarize the information thus received in its monthly as well as the IPB report to the USFWS. The Plan Administrator will be responsible for the administration of this requirement.

### 2.12.2.1 Cities, County, NDOT, and Other Participating Agencies

It is the responsibility of the Cities, the County, NDOT, and other participating agencies to complete the land disturbance report and send it to the Plan Administrator. These reports must be provided in electronic data format appropriate for data base files based on assessor's parcel number or such other basis which may be approved by the Plan Administrator.

Monitoring of NDOT maintenance and construction activities will be coordinated through NDOT's Environmental Services Division and will include reports of any incidental take that occurs from such activities. Four quarterly reports and an annual report will be supplied to the County and USFWS.

The annual report will be submitted by NDOT by August 1 of each year to the County and USFWS and will include all activities regarding takes of Covered Species, land disturbances, and fees paid that occurred from the period of July 1–June 30 of the previous year. The NDOT report will be included in the biennial IPB prepared and submitted by the Plan Administrator.

### 2.12.2.2 Monthly and Biennial Disturbance and Fee Reports

Reports sent to the Plan Administrator will be used to compile and complete monthly reports and be compiled on a biennial basis as part of the IPB which will summarize the amount of private land disturbance, development fees collected, and expenditures made. All reports shall be provided to the USFWS.

### 2.12.2.3 Audits

All reports submitted by the Cities, County, and NDOT, as well as monies received, invested, and expended, will be subject to audit by USFWS and the County. Clark County will initiate these audits. All audits shall follow generally accepted accounting principles conducted by professional auditors. All audits will be available to the public and, to the extent to that such audits are public documents, are subject to public review and comment.

### 2.12.2.4 Failure to Accurately Report

If any permittee fails to accurately report permitted land disturbances within its jurisdiction and to collect and report an accurate amount of development fees collected, USFWS may suspend or revoke the 10(a) Permit within the jurisdiction of the defaulting permittee.

### 2.12.2.5 Monthly Reports

Clark County shall provide a brief monthly report to the I & M Committee and the USFWS setting forth the numbers of acres disturbed within the permit area, disposition of tortoises which it has collected, expenditures paid during the previous month, the amount of mitigation fees it has collected during the previous month and the principal of and income earned from the endowment fund.

### 2.12.2.6 Progress Reports

On September 1 of each odd-numbered year, all contractors, agencies, or organizations that have received funds from the MSHCP for the previous biennium shall submit a progress report concerning activities undertaken during that period to the Plan Administrator. The progress report shall address each activity for which MSHCP funds were received, including an accounting of appropriated funds, recommendations, and evaluations. In addition, and if applicable, progress reports should address conservation activities undertaken during this period for which MSHCP funds were not received, but which contribute to overall conservation planning and management in Clark County. In addition, supplemental or additional reports periodically may be requested of entities receiving funds from the MSHCP outside of the scheduled reporting cycle.

### 2.12.2.7 Final Biennium Reporting

On October 15 of each odd-numbered year, the Plan Administrator shall submit to the USFWS a composite final biennium report. The report shall include contractor and agency progress reports, updated financial reports and projections, final biennial expense reports, land disturbance reports, and tortoise disposition reports.

### 2.12.2.8 Report Calendar

The following calendar (Table 2-14) shall be adhered to with respect to the MSHCP budget cycle and reporting. Should it be necessary, the calendar and/or the reporting process may be modified as a Minor Administrative Amendment. In addition, supplemental or additional reports periodically may be requested of entities receiving funds from the MSHCP outside of the scheduled reporting cycle.

**TABLE 2-14**
**MSHCP BIENNIUM CALENDAR**

| Date | Year | Action | Responsible Entity |
|---|---|---|---|
| March 15 | Even | AMP report | Contractor(s) |
| April 15 | Even | AMP review | I & M Committee |
| May 1 | Even | Proposed MSHCP development projects described and delivered to County and USFWS | Federal agencies |
| May 1 | Even | Proposed AMP projects described and delivered to County, Federal agencies, and USFWS | AMP contractor |
| May–Aug 1 | Even | USFWS, County, Federal agencies, AMP contractor agree on MSHCP development projects and AMP for ensuing two years for proposed PLMA funding | USFWS, County, Federal agencies, AMP contractor |
| May 15 | Even | Letter to agencies re proposals/budgets with suggestions from AMP, USFWS, I & M | Clark County |
| July 15 | Even | Accounting report on money available including COLA and credits<br>MSHCP performance projections | Clark County |
| August 1 | Even | Proposals/budgets for MSHCP implementation projects | Contractors/agencies |
| Sept 1–Dec 31 | Even | Budget sessions re implementation matters, AMP, and non-agency development projects | I & M Committee |
| Dec–Jan | Even | Budget and biennial plans to USFWS | I & M Committee |
| Dec–Jan | Even | Review and approval/rejection of budget and biennial plans | USFWS |
| Jan 31 | Odd | Joint submittal to PLMA executive committee to fund development actions | Federal agencies and I & M Committee |
| February 15 | Odd | Budget and proposed credit to USFWS | I & M Committee |
| April 15 | Odd | Approval of budget and credits | USFWS |
| July 1 | Odd | Approval by BCC | BCC |
| September 1 | Odd | Progress reports | Contractors and agencies receiving funds |
| October 15 | Odd | Composite report of accounting and progress reports, including contractors progress reports, updated financial projections, final biennial expense report, land disturbance report, and tortoise disposition report | Clark County |
| December 15 | Odd | Approval by USFWS | USFWS |
| Quarterly | All | Financial land disturbance and tortoise disposition reports | Clark County |

1. All contracts will become effective on the date of the first commission meeting in July of odd-numbered years.

2. Proposals must be complete and include a completed biennium budget request form.

3. Proposals not in any current budget (i.e., that not mandated by permit conditions of the MSHCP) will be submitted to the I & M Committee members on an as-needed basis for review and comment.

4. Funding requests made by agencies, organizations, or individuals outside the standard request cycle must also complete the biennium request form prior to presenting the proposal to the I & M Committee.

## 2.12.3 Implementation Agreement

Section 10(a)(2)(iv) of the ESA states that a conservation plan must specify "such other measures that the Secretary may require as being necessary or appropriate for the purposes of the plan." Region 1 of the USFWS (the West Coast region) believes it is generally necessary and appropriate to prepare an Implementing Agreement for conservation plans. The purpose of an Implementing Agreement is to ensure that each party understands its obligations under the HCP and Section 10(a) Permit and to provide remedies should any party fail to fulfill its obligations. Therefore, an Implementing Agreement has been prepared for this MSHCP and is attached as Appendix J. At the time of this writing, no other measures have been identified by the USFWS.

Each entity that has committed to participate in and contribute to the implementation of the plan, in obligations set forth in Section 2.8 of the MSHCP, will enter into an agreement with the USFWS. This agreement will specify the responsibilities of each agency; the minimization, conservation, and mitigation measures to be implemented; reporting and enforcement procedures; and any other permit conditions USFWS may require.