*On BLM lands, mitigation and restoration project plans will be coordinated between DCP and BLM as specified in the Cooperative Management Agreements (CMAs) for each Reserve System Unit.*

Objective 4B. Educate the public about the desert ecosystem and in Clark County and promote responsible recreation and development to avoid and minimize impacts to the environment.

*This objective is intended to inform the general public, recreational users, and developers about the importance and sensitivity of the desert ecosystem and of restrictions and enforcement measures to avoid, or deter, inappropriate use of the land that may disturb Covered Species or damage their habitat. Education is provided through the DCP's Mojave Max program and through signage at major entrances and junctions of the BLM SMA Reserve System lands.*

Objective 4C. Deter unauthorized land use by patrolling at least 3,120 hours of the Reserve System Units each year. DCP planning documents shall include activities to deter unauthorized use. *[This objective may be updated following further discussion with the BLM on a CMA]*

*While the number of incidents is difficult to control because it is influenced by a variety of factors, the DCP will commit to implementing a certain number of patrol hours for law enforcement to increase the likelihood of detecting unauthorized use, as well as deterring unauthorized use, on Reserve System lands. The number of hours within each Reserve System Unit will not be equal as there are differences in size and public use. The number of hours that DCP will commit on public Reserve System lands (SMAs) will be collaboratively managed and implemented between DCP and BLM as described in the CMAs. The number of patrol hours this objective commits to is in addition to BLM patrols on public Reserve System lands.*

Objective 4D. Project proponents and construction personnel follow best management practices (BMPs) for Covered Species and associated reporting procedures.

*This objective relates to the general construction and species-specific avoidance and minimization measures (Sections 6.2.2 and 6.2.3 below). Its purpose is to ensure that project proponents are adequately trained and potential impacts to Covered Species are reduced. Ten percent of randomly selected projects will be monitored on an annual basis to ensure implementation of the avoidance and minimization measures.*

## 6.2 Conservation Measures – Avoidance and Minimization

In compliance with federal ESA Section 10[a][2][A][ii], measures to avoid and minimize take of Covered Species are provided in this section. Project design measures are intended to reduce stressors that can result in indirect impacts to or take of Covered Species. These measures function under Objective 2B to meet Biological Goal 2 of maintaining habitat quality for Covered Species within the Plan Area. Construction measures are general measures for all construction projects to minimize impacts to habitats of and temporary stressors to Covered Species. These measures function under Objective 2B but also Objective 4D to meet Biological Goal 4 to foster community and stakeholder engagement.

Two zones, Zone A and Zone B, within the Plan Area have been designated (Figure 6-2) to guide how AMMs will be implemented. Zone A includes areas within highly urbanized and developed

boundaries and are generally infill locations or vacant land adjacent to these locations with minimal potential to encounter most Covered Species including desert tortoise. The boundaries of Zone A are based upon areas with a high degree of fragmentation, substantial barriers of hazards to movement for desert tortoise, and findings from an internal 2009 analysis (DCP 2009) that 98% of desert tortoises collected in these areas between 1996 and 2009 were pet or stray animals. The Zone A boundary was revised in 2022 in consultation with the USFWS to reflect current development and disturbance areas. Zone A includes measures to minimize indirect effects through project design and construction measures, but clearance surveys are not required for most species because of the low potential to directly encounter Covered Species. The remaining portions of the Plan Area are designated as Zone B and additional species clearance surveys and measures are required.

The following definitions pertain to the AMMs discussed in the following sections:

> MSHCP Lead Species Biologist. A person with demonstrated experience working with target species and their habitat including conducting protocol surveys. For desert tortoise, Lead Species Biologists must also have demonstrated experience locating tortoise sign, burrow excavation, and oversight of tortoise fence installation. Resumes will be submitted to the DCP for approval prior to implementing the measures. Qualifications for desert tortoise lead biologists must meet the current USFWS standards. The DCP will also develop a Species Clearance class approved by the USFWS for biologists on desert tortoise biology, clearance protocols. All MSHCP Lead Species Biologists must attend this class prior to conducting activities that may result in take covered under the MSHCP Amendment.
>
> MSHCP Assistant Species Biologist. A person with demonstrated experience working with target species and their habitat including conducting protocol surveys. MSHCP Assistant Species Biologists are generally less experienced than MSHCP Lead Species Biologists and must be overseen by a MSHCP Lead Species Biologist when conducting clearance surveys or other activities approved under the MSHCP Amendment. Resumes will be submitted to the DCP for approval prior to implementing the measures. Attendance at the Species Clearance class is also required prior to conducting activities that may result in take covered under the MSHCP Amendment.

### *6.2.1 Project Design Measures*

Project design measures will reduce indirect effects to species and as a result of project implementation. These measures are intended to limit edge effects in adjacent habitats and provide corridors for species movements with buffers from sensitive habitats. Implementation of these measures will meet Objective 2B. The following measures apply to both Zone A and Zone B unless specified otherwise in the measure.

PDM-1. Development standards at urban-wildland interface. Provisions will be included for the management of pets, illegal dumping, illegal OHV activity, and other unauthorized uses. The urban-wildland interface is defined as the area where human development is within 700 feet of undisturbed natural areas as delineated by the maximum limits of potential development in each of the Permittee's jurisdictions (Figure 6-3). These standards shall apply to all non-residential developments and residential developments of two units per acre or more.

a. Barriers and buffers will include fence installation along the interface, which is buried a foot deep, restrictions on the allowance of private gates into wildlands,

buffers between the urban zone and natural land cover to enhance the transition to protected natural areas, and installation of interpretive signs along recreational trails to inform the public about the adjacent wildlands.

b. Developments adjacent to undisturbed land that may be developed in the future, or undisturbed land designated for multiple public uses, will be required to provide signage to indicate that the adjacent natural area may include sensitive habitat and that dumping and unauthorized access outside of designated areas is prohibited.
    i. All outdoor lighting adjacent to undeveloped lands will be designed to minimize light pollution into adjacent habitats, except where a Permittee determines lighting is necessary for public safety or security. Minimization measures may include light fixture placement (e.g., as low to the ground as possible), lamp designs (e.g., shielding, low glare, or no lighting), directing light away from undeveloped land, or other means to avoid or minimize light pollution. The Project Proponent will use the best information available at the time of project design to minimize effects of light pollution on target Covered Species. The DCP shall make guidelines available for outdoor lighting use adjacent to undeveloped lands.

c. For commercial and residential developments adjacent to publicly-owned undisturbed land that will not be developed in the future, and are designated with additional environmental protections, such as SMAs, NCAs, Reserve lands, Refuge, etc., design guidelines and/or restrictions shall include more stringent requirements and design specifications, including:
    i. Reduction of the shared boundary between urban areas and adjacent wildlands.
    ii. Strong emphasis on the use of native and/or drought tolerant species for activities such as restoration and landscaping.
    iii. Requirements that roads not terminate at the boundary of wildlands unless there is a planned access point.
    iv. Restrictions on the placement of roads to reduce incidence of domestic pets entering adjacent wildlands, to insulate wildlife that might enter urban areas from risk of vehicular mortality, to discourage desert dumping, and to prevent unauthorized vehicular access to wildlands.
        1. If roads must be placed adjacent to natural areas, the following additional measures to minimize unauthorized access, illegal OHV use, dumping, wildlife incursions, and minimization of human-caused fire ignition will be implemented:
            a. Fencing, including potential for tortoise fencing.
            b. Reduced speed limits.
            c. Warning signage.
            d. Minimum 15-foot setback as measured from back of curb.
    v. Permanent tortoise-proof barriers will be constructed on the perimeter of development areas. Perimeter block walls are considered effective tortoise barriers. Other barriers to tortoise movement may include block walls, decorative walls and fences at least 24 inches high that do not have openings larger than 0.5 inch below 2 feet from ground surface. Desert tortoise shade structures will be placed on the exterior (in the wildlands) of these barriers. The DCP shall make guidelines available for tortoise-proof fences, barriers and shade structures.
    vi. Signage to indicate that the adjacent wildlands include sensitive habitat and that unauthorized access outside of designated areas is prohibited.

vii. Specifications for drainage prescribing that drainage infrastructure and roadway construction ensure urban runoff be directed away from adjacent wildland boundaries or, in the event that topography renders such an approach infeasible, that appropriate filtration provisions are incorporated into project designs to prevent excessive contaminant transport into adjacent wildlands.

viii. Specifications for outdoor lighting, including placement away from wildland boundaries and encouragement of low intensity, focused, and directional lighting to reduce night illumination.

PDM-2. Road structure design - New public roads under the jurisdiction of Permittees and located in unincorporated areas and that are not privately owned or controlled that traverse undeveloped habitats are designed and constructed to reduce potential for injury or mortality of animals, like the desert tortoise, from road crossings. Roadside fencing or other structures, such as under-road culverts, may be utilized. If under-road culverts are determined to pose a trapping problem, it will be ameliorated.

PDM-3. Utility. Installation of new, or relocation of existing, utility poles, lines, and cell towers located within lands that are designated with additional environmental protections, such as SMAs, NCAs, Reserve lands, Refuge, etc. or within 1,000 feet of such lands will install utility poles, lines, and cell towers in conformance with Avian Powerline Interaction Committee (APLIC) standards for collision-reducing techniques, as outlined in Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC 2012), or any superseding document issued by the APLIC. All new/relocated poles, lines and cell towers shall be installed with anti-perching devices to avoid/minimize their use by predatory avian species.

### *6.2.2 General Construction Measures*

GCM-1. Confine and delineate work area. For projects that require a Dust Control Operating Permit the following will be required: a site map showing the project limits will be added to the Dust Control Operating Permit, signs at the boundaries of the construction site to inform workers that the area beyond the sign is not covered by their grading permit and should not be disturbed, and signs informing workers what they need to do if they find a desert tortoise on the site, are required. Travel routes outside fenced and cleared areas within undisturbed habitat should be established and clearly marked prior to construction. Signage can be incorporated with Dust Control Permit signage as required.

GCM-2. Conduct worker education.

a. The program will provide training and/or outreach to construction workers to increase their awareness of desert tortoises and other Covered Species potentially encountered at the project site, and what to do if they find these species on their site. This effort will cover what to do when a desert tortoise or other Covered Species is encountered on a construction site anywhere in Clark County. This includes stopping work when a tortoise is spotted and calling the Clark County Wild Tortoise Assistance Line (702-593-9027) to schedule a pick-up of the tortoise. Project personnel shall be notified that they are not authorized to handle or otherwise move Covered Species encountered on the site. The Construction Worker Training will be taught either in conjunction with the Air Quality “Dust” class which is required for construction supervisors and foremen or separately at the project site in a “tailgate session” by a MSHCP Lead Species Biologist[1] prior to the

[1] Refer to beginning of Section 6.2 for definition of a MSHCP Lead Species Biologist and Assistant Species Biologist.

start of construction activities. Tailgate training sessions may also be available for those construction personnel who are unable to attend the standard class. Training may also be made available in video, web or other format so that new supervisors and employees also receive desert tortoise and other Covered Species information at the start of their employment.

b. Take reporting. If accidental injury or death of any potential Covered Species occurs, workers will immediately inform the MSHCP Lead or Assistant Species Biologist (if present), site supervisor, and the DCP.

GCM-3. Within Zone B, avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction workday.

GCM-4. Control erosion and fugitive dust. Implement Stormwater Pollution Prevention Plans (SWPPP), Clark County Dust Control Operating Permits, or other Nevada Division of Environmental Protections (NDEP) and National Pollution Discharge Elimination System (NPDES) permits as required and applicable.

GCM-5. Weed management. BMPs for weed management (including noxious weeds) shall be employed to minimize the potential to introduce weeds into the project area. Weed management will be conducted in accordance with all applicable State and County regulations and guidelines, the Weed Management Plan, and Early Detection Rapid Response Program.

GCM-6. Speed limit. During construction and within the construction site limits, a speed limit of 15 mph shall be maintained in Zone B and a speed limit of 25 mph shall be maintained in Zone A.

GCM-7. Control night-time lighting at construction sites. All temporary construction lighting (e.g., lighting used for security or nighttime equipment maintenance) will be directed away from adjacent natural habitats.

GCM-8. All trash and food items will be properly disposed of in predator-proof containers with resealing lids and removed regularly to reduce attractiveness to opportunistic predators such as ravens, coyotes, and feral dogs. This trash, including but not limited to cigarettes, cigars, gum wrappers, tissue, cans, paper, and bags, shall be disposed of properly.

GCM-9. Upon completion of individual structure or activities in an area, all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes, shall be removed from the site and disposed of properly.

GCM-10. If desert tortoise, Gila monster, or burrowing owl are observed on-site during project implementation, all observances will be reported to the DCP as described in the worker education program (GCM-2).

### *6.2.3 Species-Specific Measures*

Additional AMMs for Covered Species will be implemented when disturbance-related project activities (construction or maintenance) are conducted in areas designated as potential to be occupied by the species. A MSHCP Lead Species Biologist may be necessary to implement some of the minimization measures described below. A MSHCP Lead Species Biologist is someone with a background and experience with the target species, its habitat, and knowledgeable on survey protocols.

### 6.2.3.1 Plant Species

Some covered activities may occur in areas that support occurrences of Covered Plant Species. To minimize loss of genetic diversity within these rare plant taxa, seed collection will be attempted, as practicable, or if determined suitable for certain species or sites, transplantation or vegetative propagation. Seed collection protocols are described in Appendix B, and transplantation and vegetative propagation protocols will be amended to Appendix B, if these techniques are developed and approved for use. Collection locations will be prioritized based on the habitat suitability models and known occurrences for Covered Species. Clark County will coordinate species searches and seed collection by qualified personnel. Collected seeds will be stored in an appropriate facility and made available for restoration activities within the Reserve System or other restoration, propagation, or research efforts. Collected seeds will also be integrated into the Rare Plant Propagation efforts to facilitate use in responding to landscape scale disturbances such as invasive species infestations and altered fire regimes. Voucher specimens of plants from occurrences where seed has been collected will be obtained, where practicable, prior to disturbance and deposited in an appropriate facility.

PLANT-1. In Zone A, 100% of the available mature seed will be collected during seed collection efforts from all covered plant species found on lands accessible to the DCP that may be disturbed by Covered Activities during construction. For private property, the DCP will be notified of planned disturbance upon submittal of project plans to a Permittee for review and approval. Based on the species accounts and habitat suitability models, if a project is proposed in areas likely to support occurrences of Covered Plant Species, the DCP will request landowner permission to access the property for seed collection prior to disturbance. Seeds will be collected and stored for use in restoration and/or research projects. Seed collection and storage protocols are described in Appendix B.

PLANT-2. In Zone B, DCP will coordinate with BLM to require seed collection before parcels go to auction for BLM disposal. One hundred percent of the available mature seed will be collected within the disposal boundary, as practicable due to season and climate factors such as drought years. Seeds will be collected and stored for use in restoration and/or research projects. Seed collection and storage protocols are described in Appendix B.

Covered Activities on Reserve System lands are predominantly focused on restoration and habitat management. However, these activities may still result in impacts to Covered Species, therefore, in addition to the seed collection protocols, Covered Activities on Reserve lands or in BLM SMAs shall implement the following measures. Additional measures may be described in the CMAs.

PLANT-3. Baseline monitoring of vegetation shall be performed by the project proponent, their qualified consultant, or a MSHCP Lead Species Biologist prior to any project disturbance in order to document the pre-project conditions.

a. Photo points shall be established to document the pre-construction and post-construction restoration state of the vegetation and soil.
    i. Pre-construction photos shall take place prior to any project disturbance.
    ii. Post-construction photos shall take place within 30 days following completion of all project activities including demobilization.

PLANT-4. Covered Plant Species Survey.

a. If a project site is within 25 feet of or within known or modeled low, medium, or high suitable habitat for Covered Plant Species, a Covered Plant Species survey shall be conducted within the appropriate survey period based on target species by a MSHCP Lead Species Biologist.

b. Within the project site (including all areas of potential disturbance), and in a buffer zone of a minimum of 25 feet around the project site, all known and modeled habitat for covered plants shall be surveyed.
c. Surveys shall consist of transect lines that cover 100% of known or modeled habitat.
d. Transect lines walked and encountered plant individuals shall be recorded as GPS point features and delivered to the DCP in ESRI ArcGIS compatible files.
e. A summary of findings shall be provided to the DCP.

PLANT-5. If necessary, updated project site survey maps to change or add Covered Plant Species avoidance areas based upon Covered Plant Species survey results shall be produced and provided to the DCP.

PLANT-6. Project crew shall have a copy of the final project site survey maps at all times.

PLANT-7. If Covered Plant Species are detected during the surveys, these areas shall be fenced by a 25-foot buffer and signed.
a. Signage shall indicate that no disturbance may take place within the fenced avoidance area.
b. Avoidance area fencing shall remain in place until all project and restoration activities are completed.

PLANT-8. If avoidance is not feasible, all available mature seeds of Covered Plant Species to be impacted shall be collected following protocols in Appendix B. Seed collection should be timed appropriately based on target species. Exceptions to seed collection may be made by the DCP for projects such as emergency maintenance on a case-by-case basis.
a. For locations that have minor disturbance such as driving or crushing and no soil removal, following completion of all project activities including fence removal, the disturbed areas shall be reseeded with Covered Plant Species seeds collected prior to the disturbance. Seeded areas shall be raked or dragged to cover the seeds with approximately 1 inch (2.54 centimeter) of surface soil material.
b. For locations that require soil disturbance, these additional measures will be implemented:
i. Vertical mulch scraping and salvage prior to disturbance: Live and dead above ground vegetation materials shall be scraped and stored within the project site for future use as vertical mulch.
ii. Soil layer(s) salvage prior to disturbance: (a) the top 4 inches (10.16 centimeters) of surface soil shall be scraped and stored in uncompacted piles no more than 4 feet (1.22 meters) high within the project site and (b) to the extent practical, root crowns and roots of perennial vegetation shall be left in place to assist recovery of the area post-construction.
1. If a depth greater than 4 inches of soil is to be disturbed, each subsurface soil layer shall be salvaged and stored separately. The salvaged top soil shall not be mixed with deeper soils as this decreases the viability of seeds found in the top soil (Scoles-Sciulla and DeFalco 2009).
iii. Following completion of project activities, (a) salvaged soil shall be replaced in proper order, mixing slightly with the top 1 inch (2.54 centimeters) of the lower layer, (b) decompact soils by ripping and/or harrowing soils in areas that were impacted and/or compacted by the project, unless that compaction is part of the approved project design, and (c) recontour soils to restore natural drainage patterns, or recontour to conform to approved project design.
iv. Replace vertical mulch and reseed: Position vertical mulch to mimic the density and vertical structure of vegetation prior to construction, burying each dead shrub or cactus partially to reduce loss to wind, and then reseed as described in PLANT-8a.

### 6.2.3.2 Desert Tortoise

The following measures apply in Zone B to minimize impacts to desert tortoise during ground disturbance:

DT-1. Clearance surveys. Clearance activities are described in Appendix C and are based upon USFWS clearance survey protocol.
   a. If desert tortoises are found and must be handled to relocate from the project site, handling will adhere to the protocols described in Appendix C.
   b. If tortoises are found after the clearance survey has been conducted, construction workers will be trained on what to do in the worker education session described in General Construction Measure 2.

DT-2. Desert tortoise temporary exclusion fence. Tortoise exclusion fence and barrier construction would be overseen by a MSHCP Lead Species Biologist. The fence will be constructed prior to any land disturbance activities and removed following completion of all disturbance activities.
   a. If fence construction occurs during periods of higher desert tortoise activity (generally March 1 – October 31), a MSHCP Lead or Assistant Species Biologist shall be on-site during construction of the tortoise-proof fence to ensure that tortoises are not harmed.
   b. If the fence is constructed during periods of lower desert tortoise activity (generally November 1 – end of February), a MSHCP Lead or Assistant Species Biologist will thoroughly examine the proposed fence line and burrows for the presence of tortoises no more than five (5) days before construction.

DT-3. Temporary fence specifications. Fences should be constructed with durable materials suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Specifications for desert tortoise exclusion fencing include 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches in width, and meet all other standards established in coordination with the USFWS.

DT-4. Temporary fence maintenance. All fence damage shall be repaired within 72 hours after discovery during periods of higher desert tortoise activity and within 10 days during periods of lower desert tortoise activity to ensure that tortoises do not travel through damaged sections. If fence repair needs were such that a tortoise could have re-entered the excluded area, the project site shall be surveyed following repairs to ensure no tortoises are present.

DT-5. Post-fence installation survey. Following fence installation, a survey within the enclosed area shall be conducted by a MSHCP Lead Species Biologist to locate and remove desert tortoises prior to grading or actions which might result in harm to desert tortoises.
   a. Survey coverage - Unless superseded by a USFWS protocol, two complete passes of 100% coverage will be accomplished.

DT-6. Burrows. Tortoise burrows shall be cleared of tortoises and eggs by a MSHCP Lead Species Biologist and then collapsed. Burrow excavation protocols are described in Appendix C.
   a. Tortoise eggs. Any desert tortoise eggs found in the fence line will be relocated by a MSHCP Lead Species Biologist in accordance with approved protocols described in Appendix C.
   b. Tortoise burrows that occur immediately outside of the fence alignment that can be avoided by fence construction activities shall be clearly marked to prevent crushing.

DT-7. Vehicle inspection. Any time a vehicle is parked, whether the engine is engaged or not, the ground around and under the vehicle shall be inspected for desert tortoise.

#### 6.2.3.3 Banded Gila Monster

If banded Gila monsters are spotted on a construction site, construction workers shall temporarily cease construction activities and contact the DCP and Nevada Department of Wildlife (NDOW) at (702) 486-5127 for the handling and/or determination of the final disposition of the animal. Construction workers will be advised not to attempt to pick-up or otherwise make contact with banded Gila monsters if encountered on construction sites. If a DCP biologist arrives to the site prior to NDOW biologists, current NDOW guidance will be followed such as capture and detainment of the Gila monster in a cool, shaded environment (<85 F) until NDOW biologist can arrive for documentation, marking, and measurements. The DCP shall make available any updates to this protocol, if needed, and include updated information as part of construction worker education (GCM-2).

#### 6.2.3.4 Riparian Birds

To avoid or minimize direct impacts (i.e., take of individuals) from Covered Activities on Arizona Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail (collectively, riparian birds), developers will be required to implement the procedures discussed below within potential suitable riparian habitat and surrounding 100 feet. Potential suitable riparian habitat is defined by the species habitat suitability models along the Virgin River, Muddy River, Overton Arm, and Las Vegas Wash.

RB-1. Avoid construction activities in the riparian zone during the breeding seasons for Yuma Ridgway's rail (February to early July), Arizona Bell's vireo (March 15 through August), southwestern willow flycatcher (May to mid-August), and yellow-billed cuckoo (June through August). Project applicants will be notified of this restriction by the permitting agency during the grading or other permit approval process.

a. If construction cannot avoid the nesting season, the project proponent may have a qualified biologist conduct surveys to detect nesting of Covered Species. If active nests of Covered Species are detected, a nest buffer will be implemented in consultation with the DCP and USFWS. If no active nests of Covered Species are detected, project activities may be conducted within the breeding season.

b. Biologist qualifications will be submitted to the DCP for approval and USFWS survey guidelines and protocols will be followed. Survey results will be submitted to the DCP within 10 days of survey completion.

RB-2. If construction related to emergency maintenance including those of public safety cannot avoid the breeding season, a MSHCP Lead Species Biologist will conduct surveys to detect nesting of Covered Species. If active nests are observed, the DCP will coordinate any additional minimization measures recommended in consultation with the USFWS.

RB-3. Avoid known nesting areas of Yuma Ridgway's rail, southwestern willow flycatcher, and yellow-billed cuckoo during construction activities regardless of time of year. DCP will maintain maps of nest locations to be updated annually.

RB-4. Prior to mass grading, demarcate or fence all riparian and wetland habitats to be avoided to prevent disturbance of these areas by earth-moving or construction equipment. Install or incorporate silt fencing as an engineering control for soil erosion and run-off, when appropriate. During worker education (GCM-2), examples and guidance to implement this measure and GCM-1 will be provided.

RB-5. Project design and general conservation measures and BMPs will be implemented during construction or maintenance activities to avoid and minimize effects from possible erosion, pollution, and sedimentation to downstream riparian habitat.

### 6.2.3.5 Golden Eagle

The Plan Area is outside of most areas identified as suitable nesting habitat (Figure 3-16); however, there are recorded nest sites within the Plan Area. DCP will maintain maps of nest locations to be updated annually through data coordination with other agencies such as NDOW. To minimize impacts to potential nest locations that are within the Plan Area, the following shall be implemented:

GOEA-1. If Covered Activities are to occur within 0.25-mile of documented golden eagle nest and activities must occur during the nesting season, surveys will be conducted following standard methods by a MSHCP Lead Species Biologist to determine if a golden eagle nest is active within 0.25 mile.

a. If a nest is detected and determined to be active, a 0.25-mile buffer will be established, and Covered Activities will not occur within the buffer until a MSHCP Lead Species Biologist determines the chicks have fledged or the nest is otherwise inactive.

### 6.2.3.6 Burrowing owl

The following measures shall be implemented in areas of potential burrowing owl suitable habitat (Figure 6-4):

BUOW-1. Within Zone A, a pre-construction assessment shall be conducted by a MSHCP Lead Species Biologist with experience in burrowing owl habitat and identification. If burrowing owl habitat is identified, measures BUOW-2 will apply. If no burrowing owl habitat is identified, no further measures are required. For private property, the DCP will be notified of planned disturbance upon submittal of project plans to a Permittee for review and approval. Notification will allow appropriate timing of the pre-construction assessment.

BUOW-2. This measure applies within Zone B and areas identified as potential habitat in the Zone A assessment (BUOW-1).

a. Burrowing owl clearance surveys will be performed concurrent with desert tortoise clearance surveys in Zone B or within 30 days prior to initial ground disturbance within Zone A. Survey and burrow clearance protocols are described in Appendix D. Coordination for surveys and exclusion may begin prior to the breeding season (February 1 – August 31) and ahead of the required surveys in order to allow more time for owl removal and burrow excavation or closure ahead of the breeding season and to avoid construction delays.

b. If burrowing owl is determined to occupy the project site and is confirmed to not be a breeding owl (outside the nesting season or determined to be a non-breeding owl), passive relocation of the burrowing owl(s) and burrow excavation may be conducted as described in Appendix D.

c. If burrowing owls are determined to occupy the project site and are confirmed to be breeding, a 330-foot (100 meter) nest buffer will be established. Appendix D describes monitoring methods to confirm when a nest is no longer active. Once the nest is inactive, passive exclusion and burrow excavation may be conducted as described in Appendix D.

d. If owls are to be avoided but found within 165 feet (50 meters) of the project site, it is recommended that visual screens or other measures are implemented to limit disturbance of the owls without evicting them from the occupied burrows.

BUOW-3. Rodent control. Rodent control will be allowed only in developed portions of a Covered Activity project site within western burrowing owl modeled low, medium and high suitability habitat (Figure 6-4).

#### 6.2.3.7 Bats

Avoidance of riparian habitat will reduce impacts on water and foraging sources for Townsend's big-eared bat and spotted bat. Although typical roost habitat for Townsend's big-eared bat is predominantly outside the Plan Area, spotted bat may roost in buildings or other human structures impacted by Covered Activities. If Townsend's big-eared bat or spotted bat are detected in buildings or structures to be disturbed by Covered Activities the following will be implemented:

BAT-1. In areas modeled as roost habitat (Figure 6-5), a pre-construction survey conducted by a MSHCP Lead Species Biologist will be conducted to determine if potential roost habitat is present in areas to be impacted. If potential roosts are detected, the roost type will be determined: maternity, hibernation, or day/night roost not associated with maternity or hibernation. Roost information including location and roost structure type will be collected and used in updates to species habitat suitability models.

a. If a maternity or winter hibernaculum roost site is detected, and Covered Activities will occur during the maternity or hibernation season, a follow-up survey may be necessary to determine if the roost site is occupied.
b. If an occupied maternity or winter hibernaculum site is present, Covered Activities will not occur until the roost is vacated, or outside of the maternity or hibernation periods and bats are safely evicted as described in the following measure.

BAT-2. Eviction methods. If the roost has been determined to be a non-maternity and non-hibernaculum day or night roost, or it is outside of the maternity and hibernation seasons, eviction methods can be utilized to remove bats from the impact area. A MSHCP Lead Species Biologist will use safe eviction methods to remove bats if direct impacts cannot be avoided. A Bat Eviction Plan will be prepared for approval by the DCP prior to implementation. Following eviction of the bats and clearance of the roosts, Covered Activities may proceed.

### *6.2.4 Outreach*

To minimize impacts under the MSHCP and to achieve objectives under Biological Goal 4, Clark County will raise awareness of required AMMs through various outreach efforts to various stakeholders such as Permittee planning departments, developers, construction workers, and the general public.

#### 6.2.4.1 Developer Outreach

Clark County will provide outreach related to required AMMs directly to developers and homebuilders, which may include activities such as targeted media campaigns and printed materials for distribution. Outreach will cover topics such as desert tortoise clearance requirements, other Covered Species measures, riparian construction seasonal restrictions, urban-wildlife design guidelines, and other topics as deemed necessary by the DCP.

#### 6.2.4.2 Wild Desert Tortoise Outreach

It is important that citizens of Clark County know what to do when they see a desert tortoise in the wild. To help raise this awareness, the program will provide outreach related to wild desert tortoise, which may include the Mojave Max program, mass media campaigns, printed materials, school programs, community science engagements, and other items as deemed necessary by DCP. Educational material and signage will also be posted in the Reserve System to inform recreational users.

## Chapter 6 References


Anderson, D. R., Burnham, K.P., Lubow, B.C., Thomas, L., Corn, P.S., Medica, P.A., and Marlow, R.W., 2001. Field trials of line transect methods applied to estimation of desert tortoise abundance. Journal of Wildlife Management 65:583-597.

Averill-Murray, R. C., and Averill-Murray, A., 2005. Regional-scale estimation of density and habitat use of the Desert Tortoise (*Gopherus agassizii*) in Arizona. Journal of Herpetology 39:65-72.

Bellamy, C., C. Scott, and J. Altringham. 2013. Multiscale, presence-only habitat suitability models: fine-resolution maps for eight bat species. Journal of Applied Ecology 50:892-901.

Benito Garzon, M., R. Blazek, M. Neteler, R. Sanchez de dios, H. Sainz Ollero, and C. Furlanello. 2006. Predicting habitat suitability with machine learning models: The potential area of *Pinus sylvestris* L. in the Iberian Peninsula. Ecological Modelling 197:383-393.

Bossard, C.C., J.M. Randall, and M.C. Hoshovsky. 2000. Invasive Plants of California's Wildlands. Berkeley, California: University of California Press.

Cariveau, A. B., H. L. Holt, J. P. Ward, L. Lukens, K. Kasten, J. Thieme, W. Caldwell, K. Tuerk, K.A. Baum, P. Drobney, R. G. Drum, R. Grundel, K. Hamilton, C. Hoang, K. Kinkead, J. McIntyre, W. E. Thogmartin, T. Turner, E. L. Weiser, and K. Oberhauser. 2019. The integrated monarch monitoring program: from design to implementation. Frontiers in Ecology and Evolution 7: 167. 8pp. Doi: 1-.3389/fevo.2019.00167.

Clark County, 2000. Final Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada.

Conway, C. J. 2009. Standardized North American Marsh Bird Monitoring Protocols, version 2009-2. Wildlife Research Report #2009-02. U.S. Geological Survey, Arizona Cooperative Fish and Wildlife Research Unit, Tucson, AZ.

Danforth, B. N., 1999. Emergence dynamics and bet hedging in a desert bee, *Perdita portalis*. Proceedings of the Royal Society of London. Series B: Biological Sciences, 266(1432), pp. 1985-1994.Desert Conservation Program [DCP]. 2009. Clark County Desert Tortoise Pick Up Transition Plan.

DCP. 2021.a. Clark County Multiple Species Habitat Conservation Plan: Boulder City Conservation Easement Management Plan. Version 3.5.

DCP. 2021.b. Clark County Multiple Species Habitat Conservation Plan: Riparian Reserves Management Plan. Version 1.3 – Draft.

Dilts. T.E., M. O. Steele, J. D. Engler, E. M. Pelton, S. J. Jepsen, S. J. McKnight, A. R. Taylor, C. E. Fallon, S. H. Black, E. E. Cruz, D. R. Craver, and M. L. Forister. 2019. Host plants and climate structure habitat associations of the western monarch butterfly. Frontiers in Ecology and Evolution 7:188. 17 pp. doi: 10.3389/fevo.2019.00188.

Dingle, H., M. P. Zalucki, W. A. Rochester, and T. Armijo-Prewitt. 2005. Distribution of the monarch butterfly, *Danaus plexippus* (L.) (Lepidoptera: Nymphalidae), in western North America. Biological Journal of the Linnean Society 85: 491–500.

Erb, L. A., Willey, L.L., Johnson, L.M., Hines, J.E., and Cook R.P., 2015. Detecting Long-Term Population Trends for an Elusive Reptile Species. Journal of Wildlife Management 79:1062-1071.

Fourcade, Y., J.O. Engler, D. Rodder, and J. Secondi. 2014. Mapping species distributions with MAXENT using a geographically biased sample of presence data: A performance assessment of methods for correcting sampling bias. PLOS ONE 9:e97122.

Fusco, E.J., J.T. Finn, J.K. Balch, R.C. Nagy, and B.A. Bradley. 2019. Invasive grasses increase fire occurrence and frequency across US ecoregions. Proceedings of the National Academy of Sciences 116(47):23594-23599. Available online at: www.pnas.org/cgi/doi/10.1073/pnas.1908253116. Accessed February 2, 2021.

Gilliland, K. D., Huntly, N. J., & Anderson, J. E., 2006. Age and population structure of Joshua trees (*Yucca brevifolia*) in the northwestern Mojave Desert. Western North American Naturalist, 66(2), pp. 202-208.

Hall, Frederick C. 2002. General Technical Report PNW-GTR-526, US Forest Service https://www.fs.usda.gov/pnw/pubs/pnw_gtr526.pdf

Halterman, M. D., Johnson, M. J., Holmes, J. A., and Laymon, S. A., 2016. A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo: US Fish and Wildlife Techniques and Methods. Sacramento, California.

Harju, Seth. 2019. Desert tortoise occupancy sampling plan: Simulations, sampling design, and power to detect trends. Report prepared for Clark County Desert Conservation Program. June 26.

Harju, S.M. and Cambrin, S.M. 2019. Identifying habitat correlates of latent occupancy when apparent annual occupancy is confounded with availability for detection.

Heller, N. and E. Zavaleta. 2009. Biodiversity management in the face of climate change: A review of 22 years of recommendations. Biological Conservation 142:14-32.

Keith, K., Berry, K. H., and Weigand, J. F., 2008. When desert tortoises are rare: Testing a new protocol for assessing status. California Fish and Game 94:75-97.

Kinkead, K. E., T. M. Harms, S. J. Dinsmore, P. W. Frese, and K. T. Murphy. 2019. Design implications for surveys to monitor monarch butterfly population trends. Frontiers in Ecology and Evolution. 7:195. 11pp. doi: 10.3389/fevo.2019.00195.

Las Vegas Wash Project Coordination Team. 2009. Invasive Weed Field Guide for the Las Vegas Wash. December. Southern Nevada Water Authority, 92 pages.

Loeb, S. C., Rodhouse, T. J., Ellison, L. E., et al., 2015. A plan for the North American Bat Monitoring Program (NABat). U. S. Forest Service Southern Research Station, General Technical Report SRS-208. http://www.srs.fs.usda.gov/pubs/gtr/gtr_srs208.pdf.

MacKenzie, D.I., Nichols, J.D., Lachman, G.B., Droege, S., Royle, J.A., and Langtimm C.A., 2002. Estimating site occupancy rates when detection probabilities are less than one. Ecology 83:2248-2255.

MacKenzie, D.I., Nichols, James D., Royle, J. Andrew, Pollock, Kenneth H., Bailey, Larissa L., and Hines, James E. 2018. Occupancy estimation and modeling: inferring patterns and dynamics of species occurrence. Academic Press.

Margules, C. R. and Pressey, R. L. 2000. Systematic conservation planning. Nature 405: 243-253

Orr, B., G. Leverich, and T. L. Dudley. 2013. Mormon Mesa Ecohydrology Assessment Final Report

Piaggio, A. 2005. Updated species account for the Townsend's Big-eared Bat (*Corynorhinus townsendii*). Western Bat Working Group. Updated for the Portland Biennial Meeting.

Pollard, E. 1977. A method for assessing changes in the abundance of butterflies. Biological Conservation 12: 115-134.

Portman, Z. M., Tepedino, V. J., Tripodi, A. D., Szalanski, A. L., & Durham, S. L., 2018. Local extinction of a rare plant pollinator in Southern Utah (USA) associated with invasion by Africanized honey bees. Biological invasions, 20(3), pp. 593-606.

Powell, E. 1999. Report on 1997 and 1998 Surveys for *Astragalus geyeri* var. *triquetrus* in Lake Mead National Recreation Area. Unpublished Report.

Ralph, C. J., Sauer, J.R., and Droege, S., 1995. Monitoring bird populations by point count. US Department of Agriculture, Forest Service, General Technical Report PSW-149.

RECON Environmental Inc. 2022. Clark County Connectivity Management Plan. Prepared for Clark County Desert Conservation Program. May.

Rosenstock, S.S., Anderson, D.R., Giesen, K.M., Leukering, T. and Carter, M.F., 2002. Landbird counting techniques: current practices and an alternative. The Auk, 119(1), pp.46-53.

Royle, J. A., 2004. N-mixture models for estimating population size from spatially replicated counts. Biometrics 60, pp. 108–105.

Science Advisor Panel for the Desert Conservation Program. 2016. Biological Goals and Objectives for the Clark County, NV Multiple Species Habitat Conservation Plan - Final. Prepared by TerraGraphics Environmental Engineering. June 22.

Science Advisor Panel for the Desert Conservation Program. 2020. Draft BGO Revisions Memorandum. Prepared by Alta Science & Engineering, Inc., for the Desert Conservation Program. September 30.

Scoles-Sciulla, S. J. and DeFalco, L. A. 2009. Seed reserves diluted during surface soil reclamation in eastern Mojave Desert. Arid Land Research and Management vol 23(1) pp1-13.

Sogge, M.K., Ahlers, D., and Sferra, S.J., 2010. A natural history summary and survey protocol for the southwestern willow flycatcher. US Department of the Interior, US Geological Survey.

Skalak, S.L., Sherwin, R.E., and Brigham, R.M., 2012. Sampling period, size and duration influence measures of bat species richness from acoustic surveys. Methods in Ecology and Evolution 3:490-502.

Stahlschmidt, P., and Brühl, C.A., 2012. Bats as bioindicators – the need of a standardized method for acoustic bat activity surveys. Methods in Ecology and Evolution 3:503-508.

The Nature Conservancy [TNC]. 2007. A conservation management strategy for nine low elevation rare plants in Clark County, Nevada. The Nature Conservancy, Nevada Field Office. Reno, Nevada. 289 pp. plus appendices.

U.S. Fish and Wildlife Service (USFWS). 2001. Clark County Desert Conservation Plan Permit PRT 801045.

USFWS, 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, NM. i-ix. + 210 p.p., Appendices A-O.

USFWS and NMFS. 2016. Habitat Conservation Plan and Incidental Take Permit Processing Handbook.

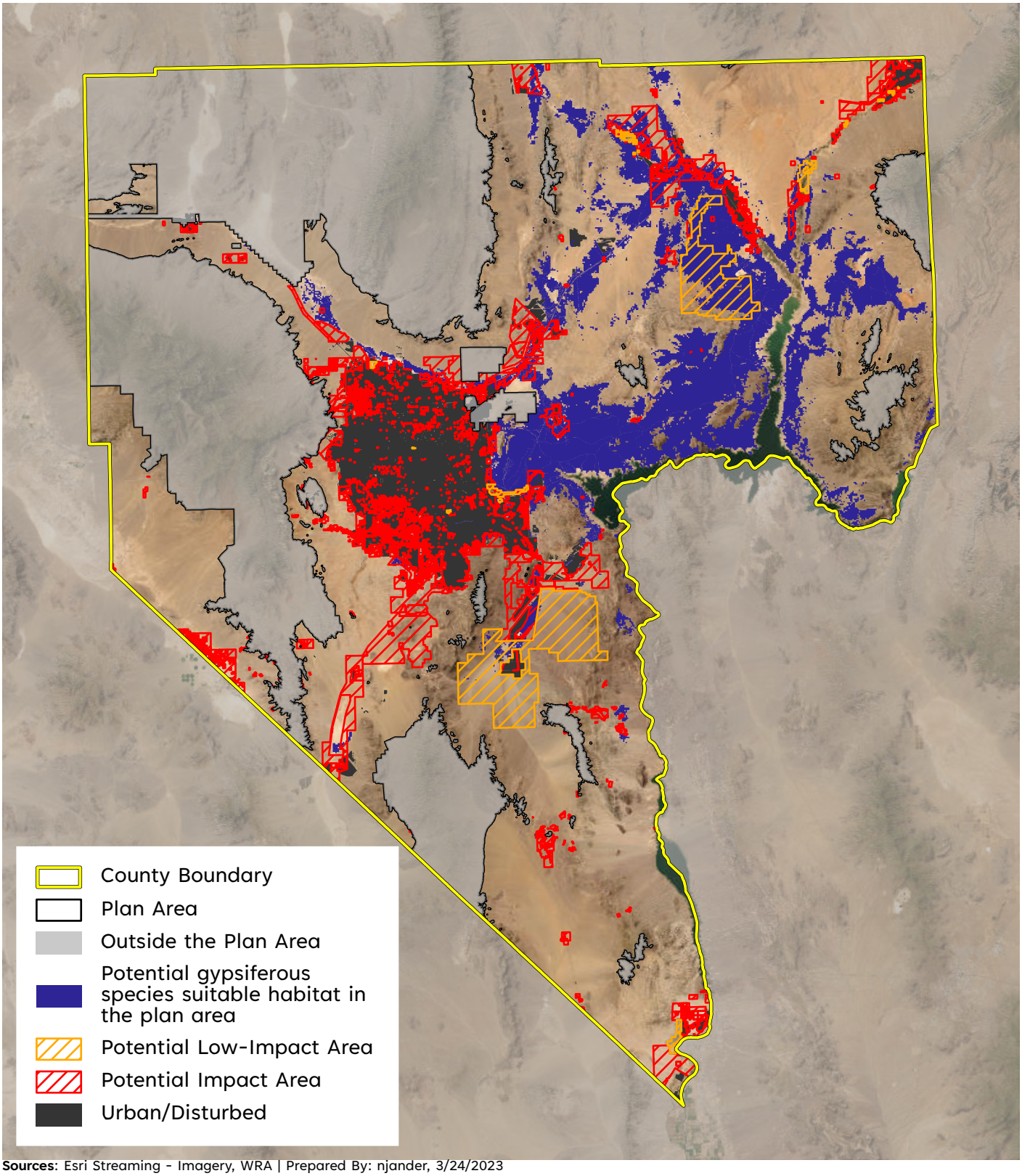
Weller, T.J., 2008. Using occupancy estimation to assess the effectiveness of a regional multiple-species conservation plan: bats in the Pacific Northwest. Biological Conservation 141:2279-2289.

Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC. Available at: https://www.usgs.gov/publications/adaptive-management-us-department-interior-technical-guide. Most recently accessed: September 29, 2022.

Zalucki, M. P. and R. L. Kitching. 1982. Dynamics of oviposition in *Danaus plexippus* (Insecta: Lepidoptera) on milkweed, *Asclepias* spp. Journal of the Zoological Society of London 198: 103-116.

Zylstra, E. R., and Steidl, R. J., 2009. Habitat Use by Sonoran Desert Tortoises. Journal of Wildlife Management 73:747-754.

Zylstra, E. R., Steidl, R. J., and Swann, D. E., 2010. Evaluating Survey Methods for Monitoring a Rare Vertebrate, the Sonoran Desert Tortoise. Journal of Wildlife Management 74:1311-1318.

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**Sources**: Esri Streaming - Imagery, WRA | Prepared By: njander, 3/24/2023

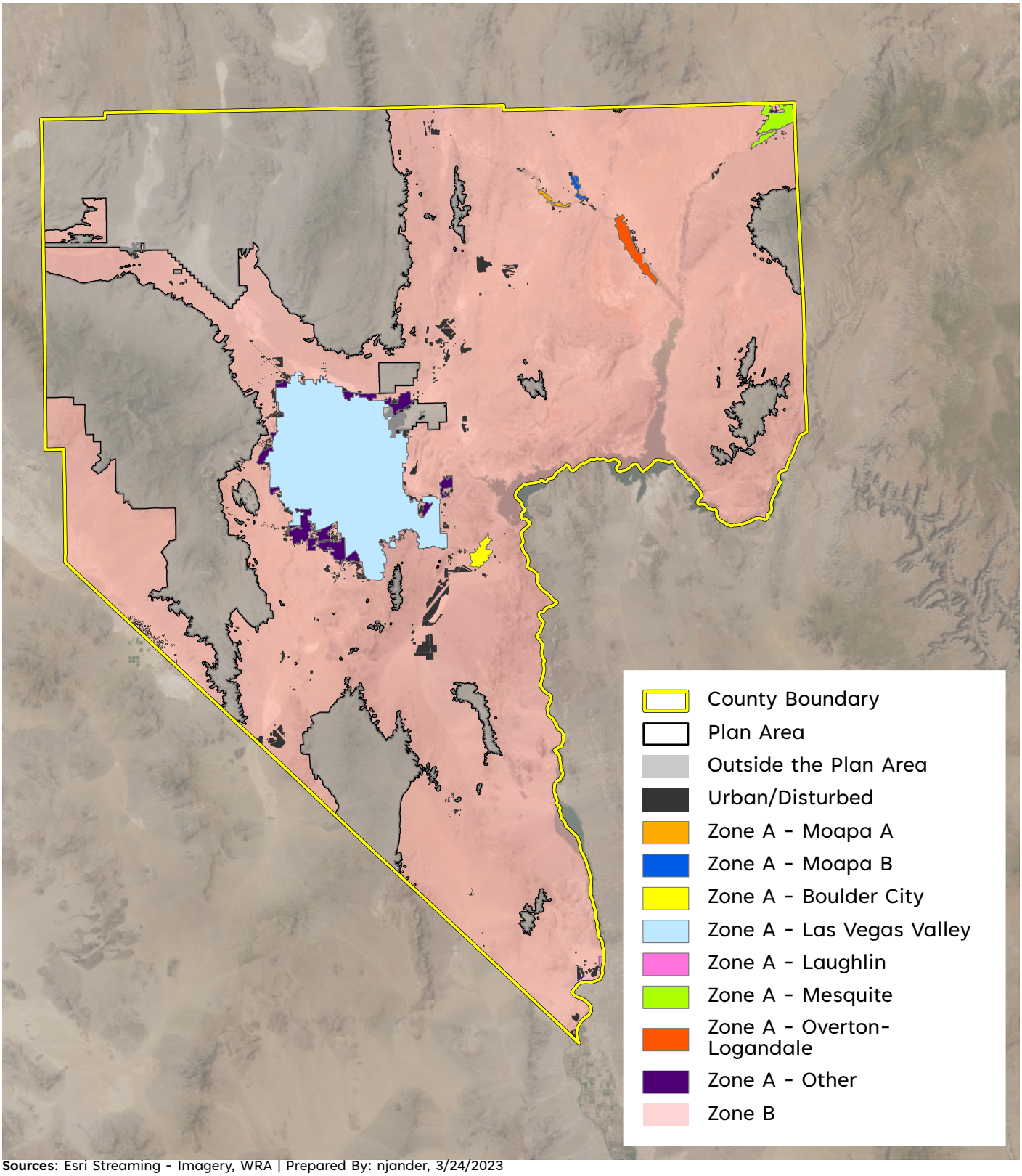
## Figure 6-1. Gypsiferous Species Habitat Baseline within the Plan Area

Clark County MSHCP Amendment
Clark County, Nevada

0 10 20 Miles

N

wra Environmental Consultants

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**Sources**: Esri Streaming - Imagery, WRA | Prepared By: njander, 3/24/2023

## Figure 6-2. Zones A and B within the Plan Area

Clark County MSHCP Amendment
Clark County, Nevada

0 10 20 Miles

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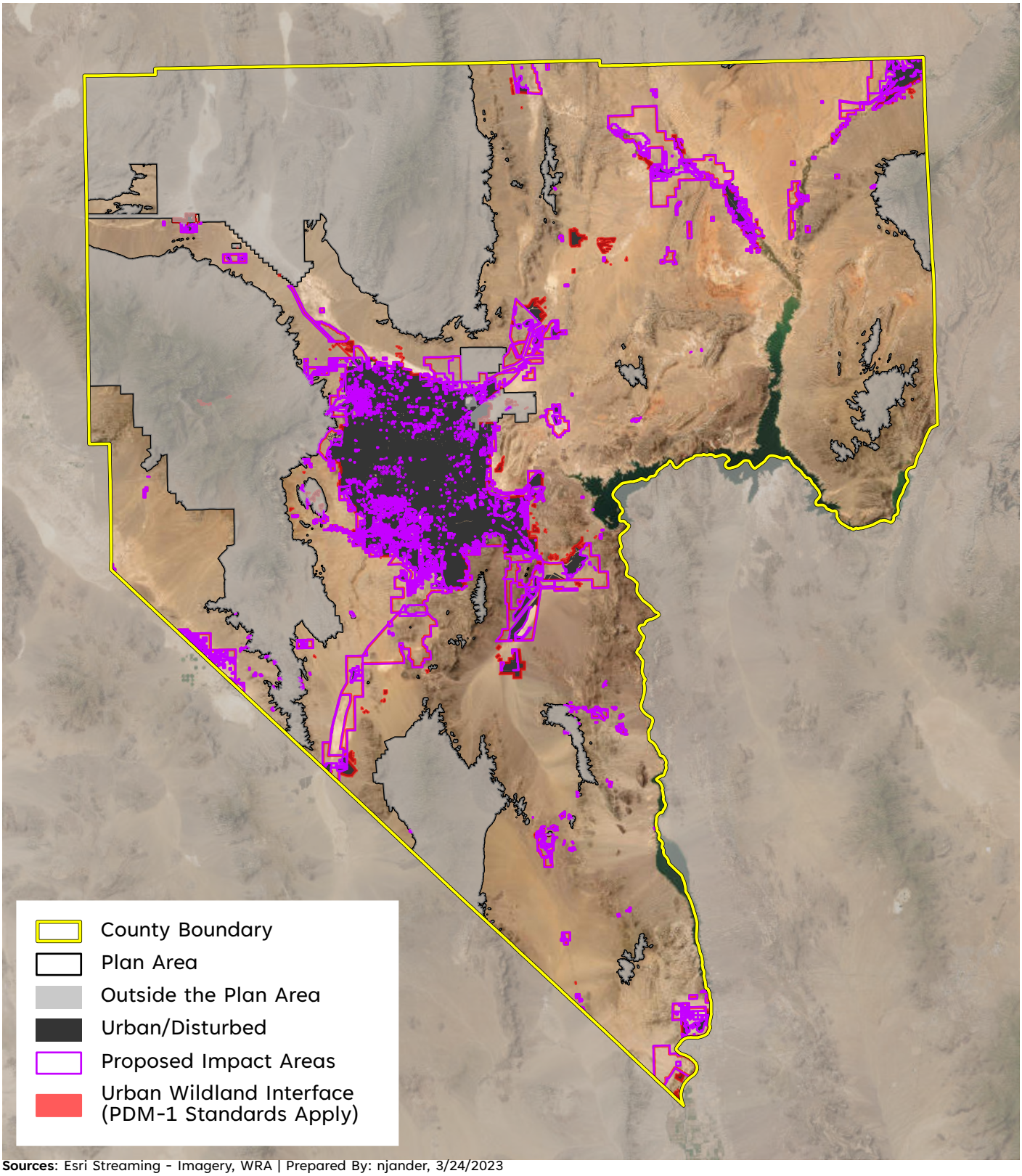


**Figure 6-3. PDM-1 Urban-Wildland Interface Development Standards Area**

Clark County MSHCP Amendment
Clark County, Nevada

0 10 20 Miles

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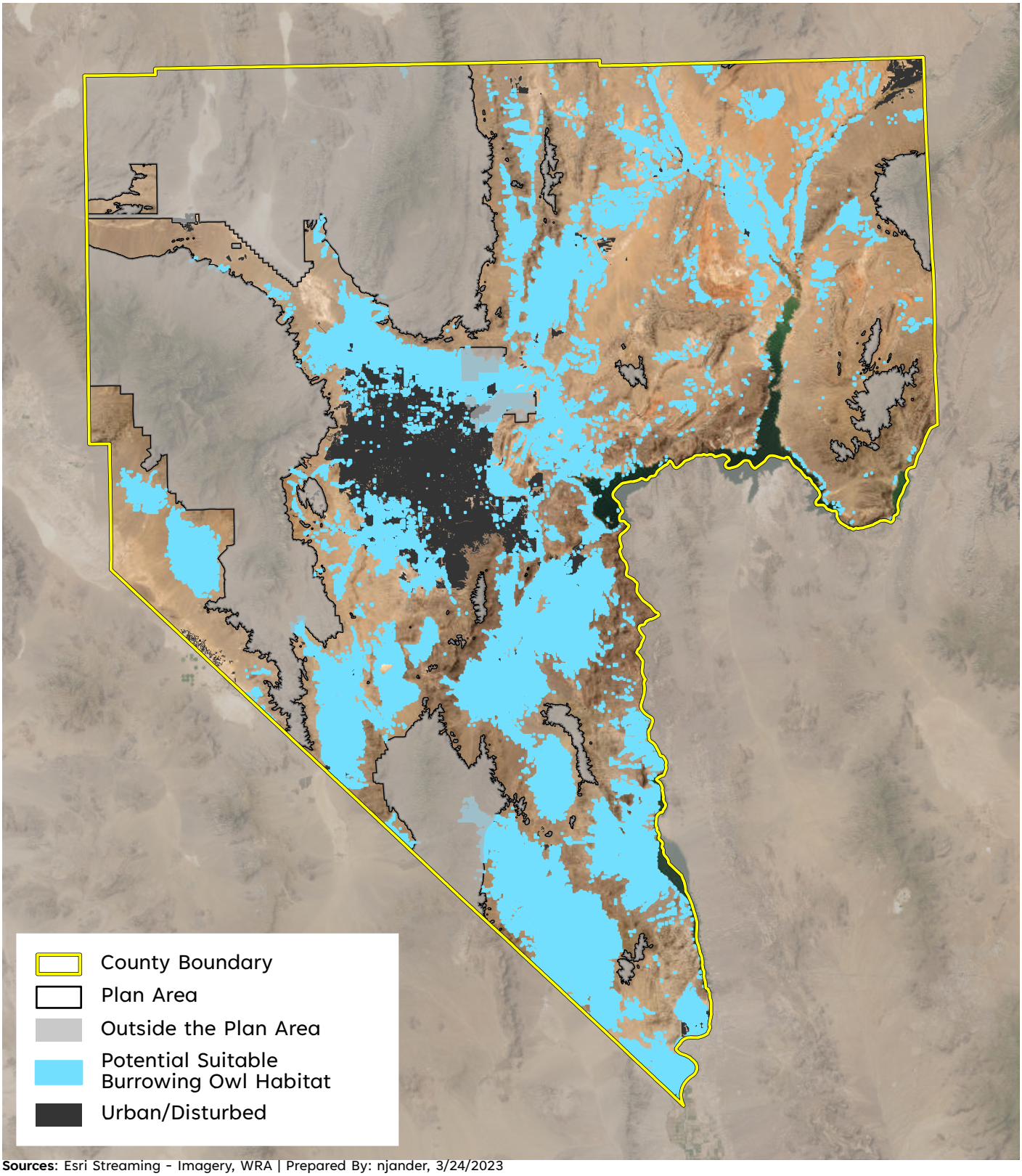


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**Sources**: Esri Streaming - Imagery, WRA | Prepared By: njander, 3/24/2023

## Figure 6-4. Potential Suitable Burrowing Owl Habitat

Clark County MSHCP Amendment
Clark County, Nevada

0 10 20 Miles

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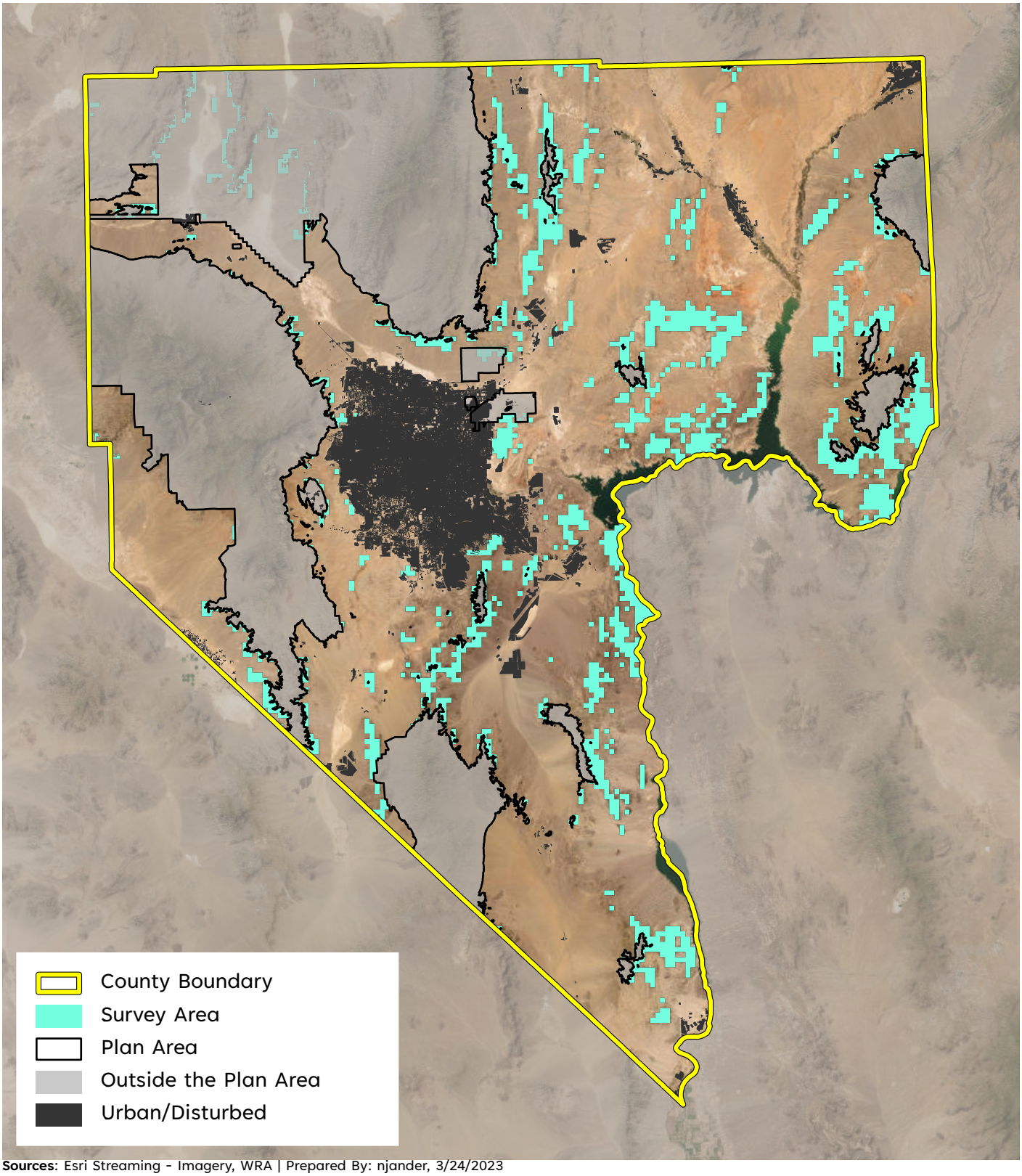
wra Environmental Consultants

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**Sources**: Esri Streaming - Imagery, WRA | Prepared By: njander, 3/24/2023

## Figure 6-5. Spotted Bat Roost Survey Area

Clark County MSHCP Amendment
Clark County, Nevada

0 10 20 Miles

N

wra Environmental Consultants