

APPENDIX N

BIOLOGY SUMMARY REPORT

TECHNICAL MEMORANDUM

- TO* • Tom Barnes, Environmental Science Associates
Palmdale Water Reclamation Plant 2025 Plan EIR Project File
- FROM* • Mark Fogiel and Christine Gaber, Environmental Science Associates
- DATE* • January 25, 2005
- SUBJECT* • Biological Reconnaissance Survey Report
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The following technical report outlines Environmental Science Associates' (ESA) survey to determine vegetation communities and habitat quality within the Preliminary Study Area proposed for development under Phase II of the Palmdale Water Reclamation Plant 2025 Plan (PWRP 2025 Plan). This report also identifies areas with higher biological constraints to development that should be avoided by project activities and recommends areas for potential development based on habitat quality.

BACKGROUND AND PURPOSE

Los Angeles County Sanitation District Number 20 (District) currently occupies sufficient land and facilities to satisfy projected wastewater management demands on the District until the year 2014. After 2014, lands owned by the Los Angeles World Airport (LAWA) may be no longer available for lease by the District. Therefore, the District is in the process of preparing the PWRP 2025 Plan to identify the long-term wastewater treatment and effluent management facilities needed to accommodate projected wastewater flow in the District planning area through the year 2025. In addition to facility improvements at the location of the Palmdale WRP, an area of approximately 64 square miles was chosen for evaluation as a potential site for additional effluent management (Preliminary Study Area). This Preliminary Study Area is located east of the cities of Lancaster and Palmdale roughly between Avenue H and Avenue R, and between 60th Street East and 160th Street East.

ESA was asked to conduct biological reconnaissance surveys of the potential Preliminary Study Area of the PWRP 2025 Plan in support of an Environmental Impact Report currently in preparation by ESA. The purpose of these surveys was to characterize vegetation communities and general habitat quality in the proposed Preliminary Study Area. Survey results would aid the District in determining which portions of the Preliminary Study Area presented the highest biological constraints to development (i.e., areas with potential for sensitive species and habitats, washes and other aquatic features) and should be prioritized for avoidance. In addition, this report provides recommendations for potential development within the Preliminary Study Area.

METHODOLOGY

REVIEW OF EXISTING DATA

In December, 2004 and January, 2005, ESA reviewed the following data to obtain general information on vegetation communities and land use within the Preliminary Study Area:

- land use maps (Los Angeles County, 2005)
- recent (2004) aerial photos
- California GAP Analysis Project GIS vegetation data (CA-GAP, 1998)
- Los Angeles County General Plan Significant Ecological Area maps (PCR, 2000)

A review of these sources provided a preliminary description of habitats within the Preliminary Study Area. This area encompasses a variety of rural and agricultural land uses including open space, cropland, and low-density, single-family residences. GAP vegetation data identified agricultural land, desert saltbush scrub and Mojave creosote bush scrub as the vegetation communities present in the Preliminary Study Area¹. The Preliminary Study Area generally is surrounded by Little Rock Wash and agricultural development to the west; open space and residential and light commercial development associated with the town of Little Rock to the southwest; Big Rock Wash, Bureau of Land Management (BLM) such as Piute Butte and the Antelope Valley Indian Museum, and designated open space areas such as Alpine Butte, Saddleback Buttes State Park, Butte Valley Wildflower Sanctuary, Desert Butte Wilderness, Alpine Butte Wildlife Sanctuary, and Littlerock Wildlife Sanctuary to the southeast and east; and primarily agricultural development to the north.

As part of the General Plan Conservation/Open Space and Land Use elements, Los Angeles County has identified and adopted policies for Significant Ecological Areas (SEAs). The purpose of establishing a SEA is to maintain biological diversity by establishing boundaries which follow natural biological parameters, include habitats, linkages, and corridors, and have self-sustaining populations of their component species contained within each area. The County General Plan includes recommended management practices for each SEA. Agricultural uses compatible with the resource values present are acceptable management practices within SEAs. Currently no SEAs are located within the Preliminary Study Area; however, there are four SEAs adjacent to the eastern boundary of the assessment area: Saddleback Butte State Park (SEA #51), Alpine Butte (SEA #52), Lovejoy Butte (SEA #53), and Piute Butte (SEA #54). South of the boundary of the City of Palmdale, Little Rock Wash is designated as SEA # 49.

The entire Preliminary Study Area is located within the proposed Antelope Valley Significant Ecological Area (SEA) under consideration by the County Department of Regional Planning. SEAs are recognized for supporting sensitive or biologically significant habitats and/or plant and wildlife species. The proposed Antelope Valley SEA #7 stretches across the south-central portion of the Antelope Valley, extending from Littlerock and Big Rock Washes downstream to the valley floor and northward, encompassing Rogers, Rosamond, and Buckhorn Dry Lakes.² The proposed assessment area would be

¹ The California GAP (CA-GAP) Analysis Project (CA-GAP, 1998) data includes the qualification that Joshua Tree Woodland could not be adequately evaluated or mapped by the project, hence it was not mapped as a distinct plant community.

² PCR Services Incorporation. *Biological Resources Assessment of the Proposed Antelope Valley Significant Ecological Area*. Prepared for Los Angeles County Department of Regional Planning. November 2000.

within the boundaries of SEA #7 as currently proposed by the County.

In addition to searches for available vegetation and land use information, a search of the California Department of Fish and Game (CDFG) California Natural Diversity DataBase (CNDDDB) was conducted to identify locations of known occurrences of special-status plant and wildlife species in the vicinity of the Preliminary Study Area (CNDDDB, 2004). The CNDDDB identified two occurrences of Mohave ground squirrel (*Spermophilus mohavensis*) and two occurrences of Swainson's hawk (*Buteo swainsonii*) within the Preliminary Study Area. These two species are listed as Threatened by the State of California. The Mohave ground squirrel occurrences were recorded in the central portion of the Preliminary Study Area between 1973 and 1977 and in the northeastern portion of the Preliminary Study Area in 1987. Swainson's hawks were observed in the Preliminary Study Area nesting in a Joshua tree in 1979 and within agricultural fields in 1999. Additional CNDDDB species occurrences recorded within several miles of the Preliminary Study Area include Mohave ground squirrel, Swainson's hawk, desert tortoise (*Gopherus agassizii*), mountain plover (*Charadrius montanus*), Parish's popcorn flower (*Plagiobothrys parishii*), and Parry's spineflower (*Chorizanthe parryi* var. *parryi*). Numerous occurrences of LeConte's thrasher (*Toxostoma lecontei*) also are located east of the Preliminary Study Area.

FIELD RECONNAISSANCE SURVEYS AND MAPPING

On January 5, 2005, Dr. Phil Leitner and ESA Biologists Tom Roberts, Certified Wildlife Biologist, and Christine Gaber visited the four locations of CNDDDB occurrences of Mohave ground squirrel and Swainson's hawk in the Preliminary Study Area to evaluate the habitat present at these sites. Mark Fogiel, botanist, and Christine Gaber, wildlife biologist, conducted biological reconnaissance surveys of the Preliminary Study Area on January 6 and 7, 2005. The purpose of the field reconnaissance surveys was to map vegetation communities and general habitat quality in the Preliminary Study Area. Because access to private property was not available, the field surveys consisted of driving all accessible paved and unpaved public roads along topographic section lines within the Preliminary Study Area (total linear route surveyed was approximately 125 miles).

Vegetation community type, relative density of Joshua trees, and general habitat quality were assessed in the areas observable from each road. Community types were identified and recorded along the linear survey routes on aerial photographs of the study area (photos taken in April, 2004 [GlobeExplorer, 2004]). Habitat quality of each vegetation community area was graded as low, moderate, or high. The relative density of Joshua trees was assessed in the observed parcels (absent, sparse, or moderately dense).

During and following the field survey, vegetation and habitat quality was mapped over the entire Preliminary Study Area, using photo interpretation to extend the boundaries observed along the linear survey routes.

PRELIMINARY STUDY AREA SURVEY RESULTS

Habitats found in the study area fall into two basic categories: 1) highly disturbed habitats resulting from intensive land use, primarily agricultural, and 2) less disturbed habitats with established, or re-establishing, plant communities. Highly disturbed habitats include agricultural areas currently in cultivation ("agricultural"), areas cultivated in the recent past but presently with vegetative growth mostly in the form of herbaceous cover ("cleared"), and areas primarily occupied by structures or other

intensive human use (“built”).

The majority of areas included in the second category are occupied by one of two plant community types, desert saltbush scrub or Mojave creosote bush scrub (following Holland, 1986)³. Joshua trees (*Yucca brevifolia*) occur in many portions of the study area, on parcels where they have not been cleared for agriculture or other uses. In a few areas these trees reach sufficient density in order for the plant community type to be considered as Joshua tree woodland, although the predominant vegetation is usually either of the two scrub communities. Branches of Big Rock Wash in the southeast portion of the study area, and a few small washes in the northeastern portion of the study area are occupied by Mojave wash scrub.

In the evaluation of habitat quality, saltbush scrub and creosote bush scrub were each divided into two categories, based on quality grading (low quality or moderate to high quality). Another habitat category was created for cleared or low quality scrub habitat with Joshua trees present. Thus a total of ten habitat types were defined and mapped on an aerial photograph base map. Table 1 provides a description of these ten habitat types present in the Preliminary Study Area. The habitat types are arranged in generally increasing quality and grouped into three quality classes, pertinent to the potential for special status species to occur in them as will be addressed in the following discussion.

**TABLE 1
HABITAT TYPES PRESENT IN THE PRELIMINARY STUDY AREA**

Habitat Type	Description
<i>Very Low Quality Habitats</i>	
Agricultural	Alfalfa crops and other intensive use agriculture.
Built	Clustered residential/commercial development.
Cleared	Barren, ruderal, and areas previously cleared that exhibit initial shrub re-establishment. Initial shrub establishment primarily included patches of tumbleweed (<i>Salsola tragus</i>), rabbitbush (<i>Chrysothamnus</i> sp.) and/or saltbush (<i>Atriplex</i> spp.).

³ While more recent and finer scale classification systems are available and applicable to vegetation types in the study area, principally those of *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995) and the *List of California Terrestrial Communities Recognized by the California Natural Diversity Database* (CDFG, 2003), Holland’s classification system is particularly well suited for describing the vegetation types at the scale of this survey (*i.e.* a broader vegetation classification inclusive of finer scale series and associations inherent in the other systems). Further detail concerning plant communities will be provided in the biology section of the 2025 Plan EIR.

**TABLE 1 (CONT.)
HABITAT TYPES PRESENT IN THE PRELIMINARY STUDY AREA**

<i>Low Quality Habitats</i>	
Desert Saltbush Scrub- low quality	Saltbush species dominant with very little shrub or annual plant diversity, potentially cleared for agricultural or other purposes in the past based on topography and absence of creosote bush (<i>Larrea tridentata</i>) or Joshua trees (<i>Yucca brevifolia</i>).
Cleared areas or low quality saltbush scrub with Joshua trees present	As above except with Joshua Trees present. The presence of Joshua trees may indicate a lower level of disturbance than the corresponding habitats without Joshua trees.
Mojave Creosote Bush Scrub- low quality	Creosote bush (<i>Larrea tridentata</i>) dominant with very little other shrub species present. Presence of creosote bush also indicative of lack of clearing for cultivation, at least for an extended time period. These areas mostly appeared to be heavily grazed.

<i>Moderate to High Quality Habitats</i>	
Mojave Wash Scrub	Saltbush species usually dominant, but widely scattered with scarce herbs or other vegetative cover.
Desert Saltbush Scrub- moderate to high quality	Saltbush species dominant with moderate to relatively high shrub and annual cover and diversity. In the small sample of areas regarded in more detail, fourwing saltbush (<i>Atriplex canescens</i>) and allscale (<i>A. polycarpa</i>) were the more common dominants.
Mojave Creosote Bush Scrub- moderate to high quality	Creosote bush species dominant with moderate to relatively high shrub and annual cover and diversity.
Joshua Tree Woodland	Areas with moderate density of Joshua trees. For the most part, areas identified as Joshua tree woodland are moderate to high quality desert saltbush scrub or Mojave creosote bush scrub with Joshua trees present.

Figure 1 shows the location of the ten general habitat types present within the Preliminary Study Area. Agricultural, cleared and built habitats represent the lowest quality habitat in the area. Special-status species may occasionally use these areas (i.e. raptor foraging), however, use is likely to be restricted due to ongoing disturbance and the limited presence of undeveloped habitat within these areas. Other built habitats not mapped in Figure 1 include roads and road right-of-ways, generally found along the USGS Section lines, and scattered single residential or commercial buildings.

Low quality saltbush scrub, cleared areas with Joshua trees, and low quality creosote bush scrub habitats are slightly better in quality and have a low potential to support special-status plant and

wildlife species.

The highest quality habitats in the study area are Mojave wash scrub, moderate to high quality saltbush scrub, moderate to high quality creosote bush scrub, and Joshua tree woodland. These habitats have a greater potential to support special-status plant and wildlife species. Except for Mojave wash scrub, the mapping of these habitat types in [Figure 1](#) is not direct, primarily because the scrub and woodland communities are not mutually exclusive and because differentiation between moderate and high quality scrub habitats in areas not directly observed in the field was not possible. While it was generally possible to determine boundaries between low and moderate quality habitats within parcels through field observations and photointerpretation, the same was not possible between moderate and high quality habitats.

The solution chosen to address these complications was to map these areas primarily as moderate quality desert saltbush scrub and Mojave creosote bush scrub. All scrub communities mapped as moderate quality contain or have potential to contain areas of high quality habitat. Field observations of high quality habitat are denoted by point symbols, hence the association of these points with the survey roads. High quality habitat designations were based a variety of factors including high shrub diversity, presence of food sources for special-status wildlife species, such as winterfat (*Krascheninnikovia lanata*) and spiny hopsage (*Grayia spinosa*), and relatively high density of Joshua trees. Clusters of high quality habitat point symbols are indicative of areas with a relatively large amount of high quality habitat.

Joshua tree woodland was not mapped directly, instead relative density of Joshua trees was mapped. Areas mapped as having a moderate density of Joshua trees are considered here as Joshua tree woodland.

While the habitat quality determinations defined in this analysis were restricted to three levels for utility and accuracy, it should be noted that [Figure 1](#) contains further information indicative of habitat quality. For example, Joshua tree woodland overlaying high quality creosote bush scrub represents the highest quality habitats in the study area. Presence of sparse Joshua trees potentially indicates an elevated quality of scrub habitat that the trees are found in.

Special-status species observed during the reconnaissance surveys includes northern harrier (*Circus cyaneus*) and loggerhead shrike (*Lanius ludovicianus*), both of which were observed within saltbush scrub and creosote bush scrub habitats. The locations of the four CNDDDB occurrences of special-status species within the area are shown on [Figure 1](#). Both the Mohave ground squirrel occurrences were located in moderate to high quality creosote bush scrub with evidence of past livestock grazing. Winterfat (*Krascheninnikovia lanata*), an important food source for Mohave ground squirrels, was abundant at both of these sites. Spiny hopsage (*Grayia spinosa*), another Mohave ground squirrel food source, was present at the site in the central portion of the Preliminary Study Area. The more recent Swainson's hawk occurrence was located in agricultural fields adjacent to undeveloped salt bush scrub of moderate to high quality with moderate density Joshua trees. The older occurrence of this species was located within agricultural fields within a quarter mile of moderate quality saltbush scrub, creosote bush scrub and Joshua trees.

RECOMMENDATIONS

The field reconnaissance survey results provide a cursory map of the locations and quality of habitats in

the Preliminary Study Area because access to habitat within the topographic sections was not available. Surveyors were restricted to conducting surveys along topographic section lines for the most part and were not able to fully examine habitat within the topographic sections. Survey coverage was good for agricultural areas and often for cleared areas. However, the habitat quality determinations for undeveloped habitats should be interpreted conservatively due to the peripheral nature of the surveys. Areas of higher habitat quality within saltbush scrub and creosote bush scrub (i.e., increased shrub diversity, presence of winterfat – an important food source for Mohave ground squirrels), observed along topographic section line survey routes, extend into parcels to an extent not determined by this analysis. These patches of higher quality habitat also may be present within the interior of sections supporting low to moderate quality salt bush scrub and creosote bush scrub. Further field surveys would be required prior to development of these areas. In addition, focused surveys for special-status plant and wildlife species or their habitat were not conducted as part of this analysis and would be required prior to development of the Preliminary Study Area.

To reduce potential impacts to biological resources, project facilities should be located within agricultural areas or other pre-graded parcels (habitat types: Agricultural, Cleared, and Built), to the extent feasible. Potential impacts to areas mapped as low quality saltbush scrub would also be minimal, although further field surveys as noted above would be necessary because of the potential inclusion of higher quality habitat within these areas. In addition, project facilities should avoid the following potentially sensitive habitats: washes and other aquatic features, habitat with known occurrences of the Threatened Mohave ground squirrel or Swainson's hawk, and moderate quality saltbush scrub and creosote bush scrub habitats, especially polygons where better habitat is noted (See [Figure 1](#)). If project activities are proposed within saltbush scrub or creosote bush scrub habitats, biological surveys should be conducted to identify potential for special-status species and applicable mitigation measures to prevent significant impacts to biological resources. Biological surveys also should include focused habitat evaluations for Mohave ground squirrel and desert tortoise within all habitat types with scrub vegetation or Joshua trees present. Potential habitat for these species should be avoided to the extent feasible.

REFERENCES

- California Department of Fish and Game (CDFG), Mohave Ground Squirrel Survey Guidelines, January 2003.
- California Natural Diversity Database (CNDDDB), CDFG Natural Heritage Division, Sacramento, California, Species occurrences for Palmdale, Littlerock, Lovejoy Buttes, Hi Vista, Alpine Butte, Lancaster East, Rosamond Lake, Redman, and Rogers Lake South USGS 7.5 minute quadrangles, Accessed December 28, 2004, Information expires January 3, 2005.
- California GAP Analysis Project (CA-GAP). 1998. Gap Analysis of Mainland California: An Interactive Atlas of Terrestrial Biodiversity and Land Management, University of California, Santa Barbara.
- Los Angeles County, 2005
- PCR Services Corporation, *Significant Ecological Area Update Study*, prepared for Los Angeles County Department of Regional Planning, November, 2000.

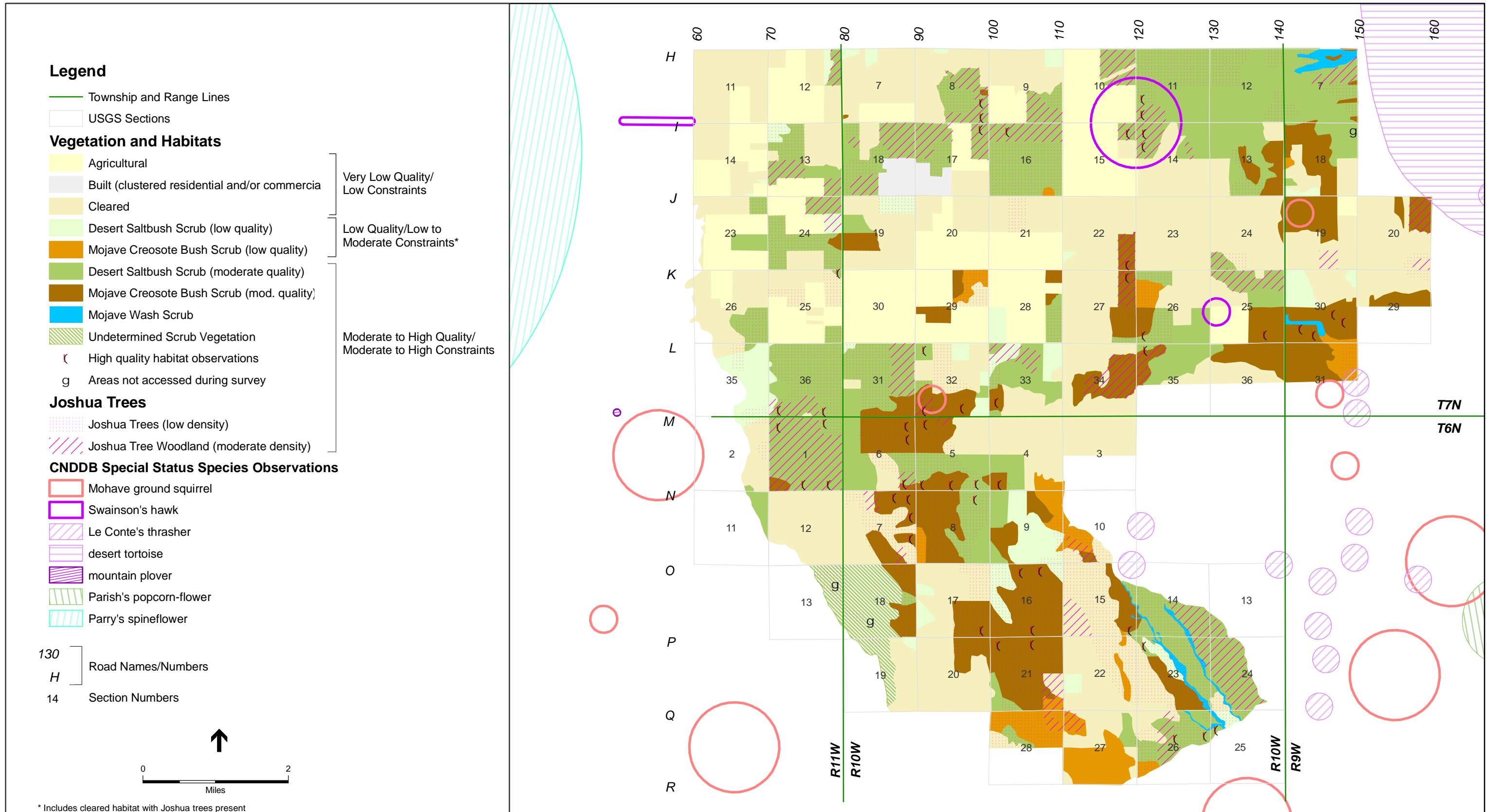


Figure 1
Vegetation Communities, Habitat Quality, and Special Status Species Observations in the Preliminary Study Area