Draft Biological Technical Memorandum

Tule Wind Project
San Diego County, California

February 2011

Prepared for

U.S. Bureau of Land Management
California Desert District Office
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ACRONYMS

BLM	Bureau of Land Management
BTM	Biological Technical Memorandum
BTR	Biological Technical Report
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CNDDB	California Natural Diversity Database
CPUC	California Public Utilities Commission
CSLC	California State Lands Commission
DPLU	Department of Planning and Land Use
°F	Degrees Fahrenheit
GPS	Global Positioning System
HF	High-frequency
I-8	Interstate 8
IRI	Iberdrola Renewables, Inc.
kV	Kilovolt
MET	Meteorological
MF	Mid-frequency
OHV	Off-highway Vehicle
MSCP	Multiple Species Conservation Program
N/A	Not Applicable
NEPA	National Environmental Policy Act
QCB	Quino Checkerspot Butterfly
ROW	Right-of-Way
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VLF	Very low-frequency

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EXECUTIVE SUMMARY

Iberdrola Renewables, Inc. (IRI) has proposed to construct and operate the Tule Wind Project located near Boulevard, San Diego County, California. The project footprint, wind turbine complex, access roads, and facilities, will result in temporary and permanent impacts to natural resources. IRI is proposing modifications to portions of the Tule Wind Project facilities. These changes are necessitated by several circumstances, primarily updated information regarding sensitive resources or conditions on the ground. Modifications have been made to the original project design and new areas have been surveyed for the project.

A biological assessment and impacts analyses for the original proposed project are presented in the Tule Wind Project Biological Technical Report (BTR; IRI 2010a). As part of the habitat assessment for the original proposed project, a 4,581-acre survey corridor was established and surveyed for biological resources; an additional 374 acres could not be fully assessed due to access restrictions.

In anticipation of project design modifications, IRI conducted additional biological resources surveys on lands that may be impacted by relocated wind turbines, access roads, and resource avoidance. Surveys of additional areas beyond the original survey corridor were required to accommodate the project's grading and resources avoidance requirements. Taking a conservative approach, IRI surveyed a larger area than is needed in an effort to encompass all land area that could potentially be affected by project modifications (e.g., wind turbine and/or access roads).

This Biological Technical Memorandum (BTM) presents the survey results from a general biological assessment and jurisdictional delineation on areas not assessed in the 2010 BTR. Surveys were conducted by HDR on 354 acres of previously restricted land and an additional 1,541 acres added to the original BTR assessment area. Previously restricted access areas included approximately 304 acres of Native American tribal land. Approximately 20.5 acres of land remain unsurveyed; however these lands do not coincide with the proposed modified layout. In addition, an update of bat acoustic surveys that were conducted for the Tule Wind Project has also been incorporated. The BTM references the Tule Wind Project BTR where feasible and incorporates new baseline field data where necessary. Project effects analysis presented in this BTM includes impacts from the modified project design along with corresponding mitigation measures. Project effects to biological resources from the modified project layout do not differ significantly from the effects from the original proposed project layout.

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1.0 BACKGROUND

Tule Wind, Limited Liability Corporation, a wholly-owned subsidiary of Iberdrola Renewables, Inc. (IRI), is proposing to construct and operate the Tule Wind Project located near Boulevard, California. The original proposed Tule Wind Project biological resource assessment included approximately 4,581 acres, plus an additional 374.5 acres that could not be fully assessed due to access restrictions. The biological assessment and impacts analyses for the original proposed project are presented in the Tule Wind Project Biological Technical Report (BTR; IRI 2010a). The original survey corridor that could not be assessed due to restricted access consists of approximately 374.5 acres including 304 acres on Native American tribal lands. Due to proposed modifications to portions of the Tule Wind Project facilities, IRI determined an additional assessment of 1,541 acres beyond the original survey corridor is required to accommodate the project's grading and resources avoidance requirements.

HDR, Inc. (HDR) conducted a general biological assessment and jurisdictional delineation on 354 acres of previously restricted areas and the additional 1,541 acres that have been added to areas previously assessed in the BTR. Approximately 20.5 acres of land remain unsurveyed; however these lands do not coincide with the proposed modified layout. In addition, an update to bat acoustic surveys conducted within the survey corridor and throughout select areas within the Tule Wind Project vicinity has also been incorporated. This Biological Technical Memorandum (BTM) presents survey results from a general biological assessment conducted for additional areas of the Tule Wind Project, and presents the anticipated impacts from the modified project design. This BTM has been prepared for the Bureau of Land Management (BLM), as the lead agency for the project under the National Environmental Policy Act (NEPA), and the California Public Utilities Commission (CPUC), as the lead agency under the California Environmental Quality Act (CEQA).

1.1 PROJECT LOCATION AND DESCRIPTION

The Tule Wind Project is located in the eastern portion of San Diego County, California, approximately 50 miles east of the city of San Diego and 90 miles west of the California/Arizona state line. The project area extends north from the community of Boulevard, California and is accessed via Interstate 8 (I-8) exit 65 to State Route 94 (SR-94)/Ribbonwood Road, and via Old Highway 80 to McCain Valley Road. The majority of the project area lies between the In-Ko-Pah Mountains to the east and the Tecate Divide to the west. The general location and project vicinity is shown in **Figure 1-1**.

IRI is proposing modifications to portions of the Tule Wind Project facilities. These changes are necessitated by several circumstances, primarily updated information regarding sensitive resources or conditions on the ground. The primary modifications to the original (proposed) project include:

- The total number of proposed turbines has been reduced from 134 to 128.
- The exact route of the primary transmission route for the Tule Wind Project has been refined, though the general route remains unchanged.

The modified project design is shown in **Figure 1-2**. The Tule Wind Project will consist of: (1) up to 128 wind turbines; (2) access roads between turbines, including improvements to existing roadways and new roadways; (3) a 138 kilovolt (kV) overhead transmission line; (4) a 34.5 kV overhead and underground electrical collector cable system; (5) a 5-acre collector substation site; (6) a 5-acre operation and maintenance site; (7) a temporary 5-acre concrete batch plant site; (8) a temporary 10-acre parking area; (9) 19 two-acre temporary laydown areas; (10) three permanent meteorological towers; and (11) a Sonic Detection and Ranging System unit or one light detecting and ranging unit. The majority of the project footprint lies within the McCain Valley Resource Conservation Area and Land Cooperative, and would be built on federal BLM lands; although turbines and other project components are also proposed on lands owned by the Ewiiaapaayp Reservation, Manzanita and Campo Reservation (access only), as well as lands owned by the California State Lands Commission (CSLC) and privately owned lands under the jurisdiction of the County of San Diego (County).

The modified project footprint includes 96 wind turbines located on BLM land, 18 turbines on tribal lands, 7 turbines on State lands, and 7 wind turbines on private parcels (Rough Acres Ranch). The wind turbine equipment will be located in “strings” along a series of north-to-south and northwest-to-southeast ridges. Temporary laydown areas will be located at one end of each turbine string during construction, and a temporary concrete batch plant area will be located in the vicinity of Rough Acres Ranch. A temporary parking area will be located in the area west of Rough Acres Ranch.

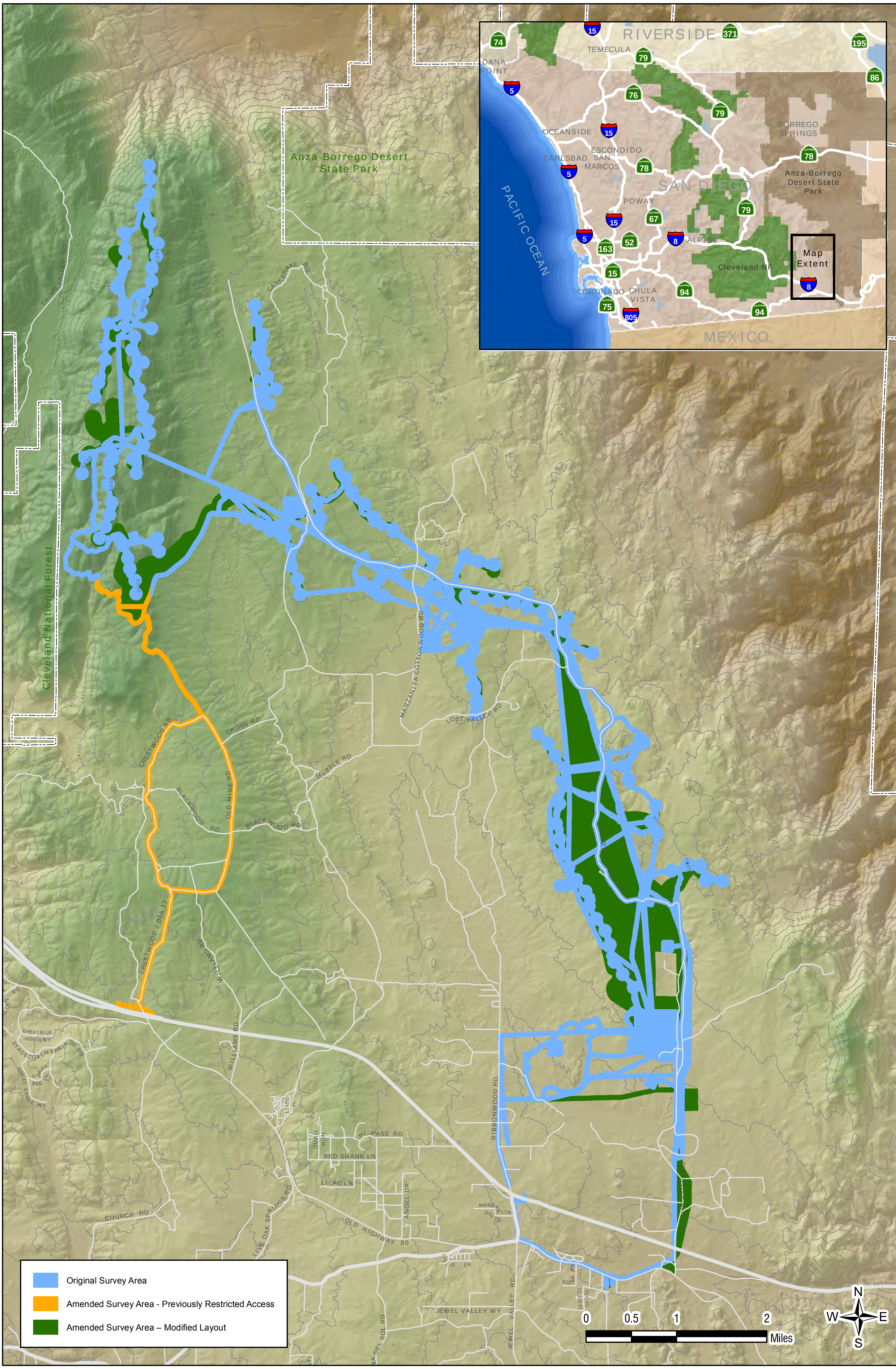
1.2 AMENDED SURVEY CORRIDOR

The amended survey corridor addressed in this BTM includes additional lands surveyed for biological resources, which include federal BLM lands within the McCain Valley Resource Conservation Area and Land Cooperative; lands owned by the Ewiiaapaayp and Manzanita Reservations; lands owned by the CSLC; and privately owned lands under County jurisdiction.

The amended survey corridor is comprised of extensions and inclusions within and adjacent to the original survey corridor. The majority of the added area occurs in McCain Valley where spaces and gaps between access corridors, transmission corridors, and turbine footprints have been included or expanded to accommodate the project’s grading and resources avoidance requirements. Additional areas have been added along project corridors and around turbine pads on the ridge west of McCain Valley. The amended survey corridor includes an additional 1,115 acres on BLM lands, 34 acres on Ewiiaapaayp lands, 9 acres on Manzanita lands, 108 acres on State lands, and 306 acres on privately owned lands. **Figure 1-1** identifies the additional land area surveyed for biological resources.

1.3 PREVIOUSLY RESTRICTED ACCESS

Previously restricted access areas addressed in this BTM include Native American tribal lands on the Campo and Manzanita Reservations, and privately owned lands under County jurisdiction. These areas include existing access routes (associated with Crestwood Road and Old Mine Road) through the Campo and Manzanita Indian Reservations, and access routes through private lands along southern McCain Valley Road. The locations of the previously restricted access areas are shown in **Figure 1-1**. Previously restricted access areas include approximately 117 acres on Campo Reservation lands, 185 acres on Manzanita Reservation lands, and 18 acres on privately owned lands. The previously restricted access areas are primarily existing rural development and access roads that may or may not require minimal improvements for use by the Tule Wind Project.



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Region and Vicinity

FIGURE 1-1

Tule, LLC | Tule Wind Project | BTA

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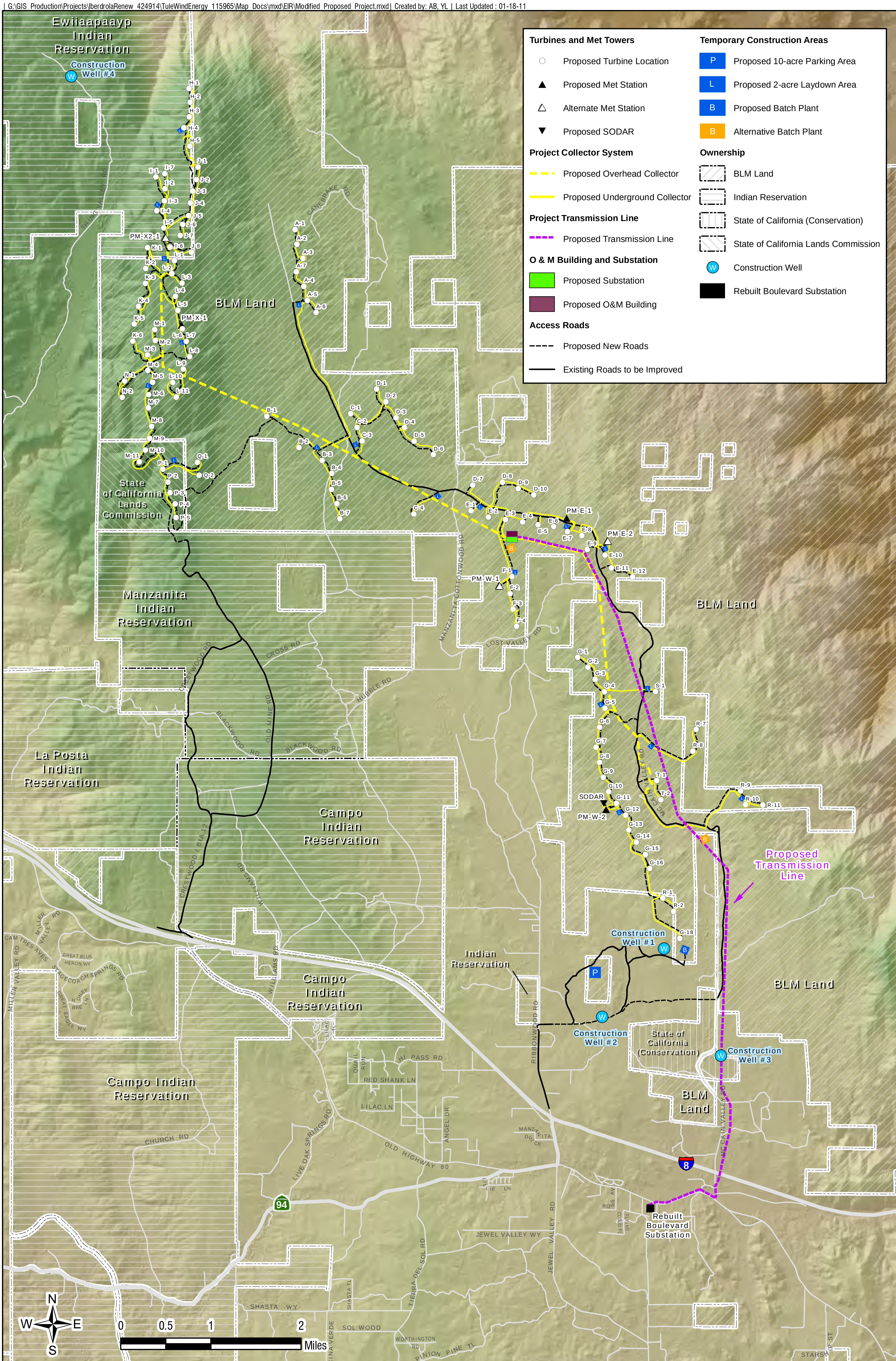

Modified Project Layout

FIGURE 1-2

Tule Wind, LLC | Tule Wind Project | BTA

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2.0 METHODOLOGY

Numerous biological surveys have been conducted in and around McCain Valley in association with the Tule Wind Project. Previous surveys included vegetation community classification and mapping, jurisdictional wetland and waterway delineation, sensitive species habitat assessments, focused rare plants survey, bat (chiropteran) and avian surveys, Quino checkerspot butterfly (QCB) (*Euphydryas editha quino*) survey, and a golden eagle (*Aquila chrysaetos*) survey. Surveys were undertaken based on consultation with regulatory agencies including United States Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), BLM, and U.S. Army Corps of Engineers (USACE), as well as consultation with various experts. The methods and results used for these studies are further discussed in the Tule Wind Project BTR. An updated California Natural Diversity Database (CNDDB) search was conducted for new areas and previously inaccessible areas.

HDR conducted a general biological assessment of additional survey areas consisting of portions of the original survey corridor that were not previously surveyed due to access restrictions, as well as the amended survey corridor which has been recently added. The general biological assessment included vegetation community classification and mapping, jurisdictional wetland and waterway delineation, and QCB habitat assessment. Any sensitive species encountered during the biological assessment were documented. The CNDDB was consulted for occurrences of sensitive species within the additional areas, and for newly documented occurrences of species previously unknown within the project vicinity. Methodology for additional bat acoustic surveys that were conducted by Western EcoSystems Technology, Inc. (WEST) for the Tule Wind Project has been included in Section 2.5 of this BTM.

2.1 VEGETATATION COMMUNITY CLASSIFICATION AND MAPPING

HDR conducted vegetation community classification and mapping within the survey area from October 4-8 and November 3-10, 2010. Survey methods were consistent with those identified in Section 1.3.1 of the BTR. Surveys were conducted in two-person teams by HDR biologists Summer Adleberg, Brent Eastty, Dustin Janeke, Jennifer LeClair, and Joseph Schroeder. Meandering transects were followed with special attention given to visible changes in vegetation species composition within and immediately surrounding the survey areas. Plant communities were identified and marked on maps using nomenclature provided by Holland (1986) and Oberbauer (1996). Additionally, the percentage of rock outcrops were classified as either low (0-20%), medium (21-50%), or high (greater than 50%) rock outcrop coverage. Vegetation and rock cover data was subsequently digitized and analyzed. In general, weather conditions were conducive for surveying and are summarized in **Table 2-1** below. Surveys were conducted during daylight hours, between 0800-1700 hours. Surveyors used Magellan® MobileMapper™ CX field units (with global positioning system [GPS] sub-meter accuracy) with the survey corridor uploaded, and aerial photograph-based field maps photographed in 2008, using 1-foot pixel resolution.

Table 2-1
Vegetation Survey Dates and Weather Conditions

Week	Weather Conditions	Approximate Maximum Temperature	Approximate Minimum Temperature
October 4, 2010	Sunny, light winds	69° F	56° F
October 5, 2010	Sunny, windy	59° F	49° F
October 6, 2010	Sunny, windy	60° F	47° F
October 7, 2010	Sunny, light winds	66° F	45° F
October 8, 2010	Sunny, light winds	79° F	47° F
November 3, 2010	Sunny, gusty	82° F	70° F
November 4, 2010	Sunny, windy	80° F	67° F
November 5, 2010	Sunny, calm	81° F	50° F
November 8, 2010	Rain/overcast, gusty	55° F	48° F
November 9, 2010	Sunny, windy	64° F	45° F
November 10, 2010	Sunny, windy	59° F	47° F

When feasible, areas of restricted or limited access were surveyed from the public right-of-way (ROW) or from adjacent parcels where access was granted. As access issues are resolved prior to implementation of the proposed project, additional vegetation, wetland and waters, floral, and faunal surveys may be completed. It is anticipated that some sensitive and common plant species may not have been identifiable or apparent during October and November surveys.

2.2 JURISDICTIONAL WETLAND AND WATERWAY DELINEATION

HDR conducted a jurisdictional wetland and waterway delineation within the survey areas between October 4, 2010 and November 18, 2010. The survey areas consisted of portions of the original survey corridor that were not previously surveyed due to access restrictions, as well as the amended survey corridor that has been recently added. The jurisdiction delineation was conducted by HDR biologists Scot Chandler, Ingrid Chlup, Brynne Mulrooney, and Allegra Simmons. Survey dates, times, and conditions are included in the Draft Amendment to the Jurisdictional Delineation Report (IRI 2011). Detailed survey methodology is discussed in the Draft Jurisdictional Wetland Delineation Report (IRI 2010b); a brief methods summary is provided below:

- USACE Waters of the U.S. and Regional Water Quality Control Board (RWQCB) Waters of the State were delineated according to the methods outlined in the USACE Wetland Delineation Manual (USACE 1987) and the CDFG guidelines, the 2008 Arid West Manual, and A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (USACE 2008).
- County of San Diego Resource Protection Ordinance (RPO) wetlands were delineated using a similar method as for Waters of the U.S. However, the County only requires one of the criteria required by USACE (hydrology, hydric soils, or hydrophytic vegetation) to classify a feature as wetlands.

- CDFG jurisdictional areas were also delineated in a similar manner as the USACE, while extending the regulated areas to the dripline of any riparian vegetation.

2.3 QUINO CHECKERSPOT BUTTERFLY SITE ASSESSMENT

The QCB is a federal endangered species with potential to occur in portions of the project area. The original and new survey corridors are not located within designated QCB critical habitat. A QCB site assessment was conducted in conjunction with the general biological assessment. Site assessment was confined to areas within the amended survey corridor and previously restricted access areas that fall within the designated QCB survey area as determined by the USFWS (USFWS 2002, 2003).

Tule Wind Project survey areas in the upper elevations of the ridge west of McCain Valley are excluded from the above mentioned USFWS-designated QCB survey area. Additional survey areas on BLM lands, State lands, Manzanita Reservation lands, and Rough Acres Ranch were included in the site assessment. The site assessment area also included portions of the original project survey corridor where access was previously restricted, such as Manzanita Reservation and Campo Reservation lands, and portions of previously restricted private parcels.

The QCB site assessment was conducted by HDR in two-person teams by biologists Summer Adleberg, Brent Eastty, Dustin Janeke, Jennifer LeClair, and Joseph Schroeder. The site assessment was conducted concurrently with vegetation classification and mapping, and follows the schedule outlined in **Table 2-1**. Meandering transects were followed along the length of the survey areas. The teams mapped vegetation communities, including QCB excluded habitat areas, on aerial photograph-based maps (1 inch = 300 feet [91 meters] scale) in the field. Within each vegetation community, the plant species have been recorded.

Areas that were considered to be excluded from QCB habitat included developed and disturbed areas, agricultural fields, close-canopied woodlands, and dense chaparral that is so thick it is inaccessible to humans except by destruction of woody vegetation for at least 100 meters. QCB site assessment methods were consistent with methods identified in Section 1.3.3.3 in the BTR.

2.4 SENSITIVE SPECIES OCCURRENCES

No focused species surveys were conducted within the BTM assessment area. However, sensitive species were documented when observed during the general biological assessment survey. An updated CNDDB search was consulted to determine the potential for various special status species to occur within the project area. All relevant special status species are discussed in detail in the Tule Wind Project BTR. No new sensitive species were determined to have potential to occur in the original or amended survey corridor.

Field maps, GIS data dictionaries, and synoptic field guides were utilized during field surveys to record observation of sensitive species. Each surveyor mapped the location of all observed special status species using a sub-meter GPS unit. A digital CNDDB Native Species Spreadsheet Survey Form was completed for special status plants encountered during the survey.

2.5 BAT ACOUSTIC SURVEYS

A survey designed to assess bat activity and use of the Tule Wind Project area was conducted by WEST in 2008 and 2009 and incorporated into the BTR. Additional surveys were conducted by WEST at nine fixed stations and nine roaming stations from March 11, 2010 to November 15, 2010. Bat activity was monitored at 8 meteorological (MET) tower sampling locations (2 heights at 4 towers) and at 10 bat feature and roaming sampling locations on a total of 250 nights during the 2010 study period. During the 2008/2009 study period, bat activity was monitored at four sampling locations (2 heights at 2 towers). However, for comparison with 2010, the 2008/2009 data set was truncated to include only the months of March through November. Within that date range, Anabat units recorded data on a total of 226 nights. The 2010 surveys included detectors placed at three new MET towers that were erected in the summer of 2010 (and one of the original MET towers used previously), as well as ground-based detectors that were strategically placed within the project area to increase spatial extent of monitoring bat activity. Detailed survey methodology for the 2010 study period is presented in the final bat acoustic survey report (Gruver et al. 2011). A brief methods summary is provided below.

Bat activity was monitored using Anabat™ bat detectors, which record bat echolocation calls (and other ultrasonic sounds) using a broadband microphone. Eight detectors were used at four MET towers; each station consisted of a set of paired detectors at ground-level and approximately 45 meters above ground. In addition, fixed and roaming Anabat stations were established throughout the project area at features suspected to be attractive for bats. One ground-based detector was set near an intermittent stream within a small grove of deciduous trees in the north end of McCain Valley, and temporary stations were established at small seeps and drainages and near large rocky boulder formations along McCain Valley Road. The locations of the permanent and temporary ground stations were chosen because they provide potential bat foraging and/or roosting habitat. Temporary stations were also established on the northwest side of the project (outside McCain Valley) and along Thing Valley Road (west of the project). Detectors were programmed to collect data continuously from 30 minutes before sunset to 30 min after sunrise. A technician checked the detector units every 2 weeks, collected the data, and swapped power supplies. For each station, bat calls were sorted into four groups, based on their minimum frequency, that correspond roughly to species groups of interest.

The objective of the bat acoustic surveys was to estimate the seasonal and spatial patterns of activity of bats for this site. The intent of monitoring at these additional 2010 locations was to increase spatial coverage and establish a probable upper bound on bat activity. Data collected in 2010 was compared with 2008/2009 data. Recorded bat echolocation calls were quantified and described, and statistical analysis was conducted.

3.0 ENVIRONMENTAL SETTING (EXISTING CONDITIONS)

The amended survey corridor is comprised of extensions and inclusions within and adjacent to the original survey corridor located within McCain Valley and on the ridges that comprise the valley's western border. Previously restricted access areas addressed in this BTM include project access corridors along existing roads through a variety of habitats on the Campo and Manzanita Reservations, and private parcels adjacent to the extreme southern segment of McCain Valley Road. Within the new areas addressed in this BTM (BTM assessed area), elevation ranges from about 3,251 feet (991 meters) above mean sea level along Old Highway 80 to about 5,807 feet (1,770 meters) along the ridge in the northwestern portion of the survey corridor. Existing conditions, regional context, and land use within the project area are described in Section 1.4 of the Tule Wind Project BTR.

3.1 TOPOGRAPHY AND SOILS

The topography and soils within the new portions of the project are similar to those within the original survey corridor. The San Diego Area Soil Survey (Bowman 1973) indicated 13 soil types occur within the original survey corridor; 12 of which occur within the amended survey corridor. Percent cover of soil types as they occur within the assessed area are identified in **Table 3-1**.

Table 3-1
Soil Types within the Project Area

Soil Type	Original Survey Corridor (acres)	Amended Survey Corridor (acres)	Total Acres	Percent Cover
Acid igneous rock	11.14	7.88	19.02	0.29
Calpine coarse sandy loam	13.17	0.00	13.17	0.20
Holland fine sandy loam	29.45	3.01	32.46	0.50
Holland stony fine sandy loam	184.25	52.93	237.19	3.66
Kitchen creek loamy coarse sand	312.34	163.63	475.96	7.35
La Posta loamy coarse sand	828.17	135.701	963.88	14.88
La Posta rocky loamy coarse sand	1406.75	541.05	1947.81	30.08
La Posta-sheephead complex	314.81	201.13	515.90	7.97
Loamy alluvial land	54.2	26.70	80.90	1.25
Mottsville loamy coarse sand	362.26	159.07	521.32	8.05
Rositas loamy coarse sand	16.51	12.94	29.45	0.46
Sheephead rocky fine sandy loam	412.97	120.84	533.80	8.24
Tollhouse rocky coarse sandy loam	635.15	469.81	1104.96	17.06
Total	**4581.1**	**1894.6**	**6475.8**	**100%**

3.2 HABITAT TYPES/VEGETATION COMMUNITIES

Plant communities and vegetation types within the BTM assessed areas include semi-desert chaparral, northern mixed chaparral, scrub oak chaparral, upper Sonoran manzanita chaparral, chamise chaparral, red shank chaparral, and southern north-slope chaparral. Scrub communities include upper Sonoran subshrub scrub, montane buckwheat scrub and big sagebrush scrub. Semi-desert chaparral is the dominant vegetation in McCain Valley and on the Manzanita and Campo Reservations, and is the most abundant community; upper Sonoran subshrub scrub is the second most abundant community. Northern mixed chaparral is the most common vegetation on the ridge in the western portion of the project. Along the existing access roads through the Campo and Manzanita Reservations, chaparral and scrub communities are maintained in a successional stage through ongoing land management and maintenance activities. Additional vegetation communities occurring in the project include open and dense coast live oak woodland, southern riparian woodland, southern willow scrub, and non-native grassland. Other land cover includes non-vegetated channels, pasture/agriculture, developed, and disturbed habitat.

Overall, the BTM assessed area supports 19 different types of vegetation communities. There are 20 communities within the entire surveyed area, but no mule fat scrub occurs within the amended survey corridor or previously restricted areas. With the exception of grazing in the grasslands and lowlands, and rural development along corridors in the southern portions and on the Campo and Manzanita Reservations, native vegetation communities within the project area experience little human disturbance and exhibit a limited presence of exotic species outside of disturbed areas. A biological resources map depicting the location of these communities is included as **Appendix A**. The map indicates natural vegetation that has been disturbed by grazing, off-road impacts, or other human activity and areas that have recently burned. **Table 3-2** identifies the existing vegetation communities and the total coverage, in acres, as it occurs within the original survey corridor, BTM assessed areas, and the entire surveyed area. The list below includes the element code assigned by the terrestrial natural communities of California (Holland 1986; Oberbauer et al. 2008). The closest corresponding vegetation alliance from the U.S. National Vegetation Classification (NatureServe 2010) has been incorporated as well.

Vegetation was classified using the R. F. Holland system of natural communities as described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and as modified by Oberbauer (Oberbauer 1996, Oberbauer et al. 2008). The communities are described in detail in the Tule Wind Project BTR. There is a high degree of overlap in terms of species in the common vegetation communities within the project. In many cases, variation in vegetation structure or species frequency is what defines the community. Most of the habitat is of good quality, with healthy native vegetation populations found throughout; exotic species are mostly concentrated in previously disturbed areas. Total acres of each vegetation community, by land ownership, located within the entire surveyed area are shown in **Table 3-3**.

3.3 FLORA

High floristic diversity is found within the survey areas due to the range of elevation and size of the project. A total of 295 species of plants were identified during field studies conducted for the project; 33 of these species are non-native or exotic. An updated list of floral species identified in the project area is presented in **Appendix B**. Species taxonomic data uses standard, locally accepted nomenclature (Rebman and Simpson 2006). The majority of exotic species observed during the general biological assessment are senescent mustards and bromes, primarily found in previously disturbed areas. Most of the BTM assessed area is of good quality, with healthy native vegetation populations found throughout.

Table 3-2
Existing Vegetation Communities/Habitat Types within the Project Area

Vegetation Community/ Habitat Type (Acronym and Holland Code)	Vegetation Alliance	Original Survey Corridor (acres)	BTM Assessed Areas (acres)	Total
Big Sagebrush Scrub (BSS, 35210)	Basin Big Sagebrush Shrubland	151.41	73.54	**224.95**
Chamise Chaparral (CC, 37200)	Chamise Shrubland	178.54	73.12	**251.66**
Dense Coast Live Oak Woodland (cCLOW, 71162)	Coast Live Oak Woodland	12.75	10.48	**23.23**
Developed (Dev, 12000)	N/A	46.63	20.13	**66.76**
Disturbed Habitat (D, 11300)	N/A	126.81	72.17	**198.98**
Field/Pasture, Agriculture (Ag, 18310)	N/A	46.91	3.52	**50.43**
Montane Buckwheat Scrub (MBS, 37K00)	Eastern Mojave Buckwheat Shrubland	173.58	142.85	**316.43**
Mule Fat Scrub (MFS, 63320)	Mule's-fat Intermittently Flooded Shrubland	0.28	0.00	**0.28**
Non-native Grassland (NNG, 42200)	(Brome species) Semi-natural Herbaceous	65.84	37.1	**102.94**
Non Vegetated Channel (UC, 64200)	N/A	3.92	0.81	**4.73**
Northern Mixed Chaparral (NMC, 37130)	California Scrub Oak Shrubland	477.34	249.98	**727.32**
Open Coast Live Oak Woodland (oCLOW, 71161)	Coast Live Oak Woodland	50.34	34.11	**84.45**
Redshank Chaparral (RS, 37300)	Redshank Shrubland	118.08	82.06	**200.14**
Scrub Oak Chaparral (SOC, 37900)	California Scrub Oak Shrubland	549.09	161.86	**710.95**
Semi Desert Chaparral (SDC, 37400)	California Scrub Oak Shrubland	1691.31	530.63	**2221.94**
Southern North Slope Chaparral (SNSC, 37E00)	California Scrub Oak Shrubland	56.66	26.43	**83.09**
Southern Riparian Woodland (SRW, 62500)	None	1.22	0.41	**1.63**
Southern Willow Scrub (SWS, 63320)	Arroyo Willow Temporarily Flooded Shrubland	1.79	0.98	**2.77**
Upper Sonoran Manzanita Chaparral (USMC, 37B00)	Bigberry Manzanita Shrubland	220.76	57.60	**278.36**
Upper Sonoran Subshrub Scrub (USSS, 39000)	Eastern Mojave Buckwheat Shrubland	607.89	316.84	**924.73**
Total		**4581.2**	**151.4**	**6475.8**

N/A = Not applicable

Table 3-3
Existing Vegetation Communities/Habitat Types by Land Ownership

Vegetation Community/ Habitat Type	BLM	State	Private/ County	Campo	Manzanita	Ewiiaapaayp	La Posta	Total
Big Sagebrush Scrub	89.24	7.60	117.93	1.74	4.85	3.59	0.00	**224.95**
Chamise Chaparral	175.59	25.31	31.52	9.03	5.19	5.03	0.00	**251.66**
Dense Coast Live Oak Woodland	3.11	0.00	10.12	0.22	8.50	0.00	1.29	**23.23**
Developed	0.56	0.88	55.44	3.84	6.03	0.00	0.00	**63.90**
Disturbed Habitat	88.81	6.56	69.38	16.04	18.19	0.00	0.00	**198.98**
Field/Pasture, Agriculture	2.40	11.38	36.65	0.00	0.00	0.00	0.00	**50.43**
Mule Fat Scrub	0.00	0.00	0.28	0.00	0.00	0.00	0.00	**0.28**
Montane Buckwheat Scrub	44.92	8.21	206.57	24.17	31.84	0.74	0.00	**316.43**
Non-native Grassland	3.60	11.48	75.70	7.23	4.93	0.00	0.00	**102.94**
Non Vegetated Channel	2.09	0.00	2.45	0.00	0.19	0.00	0.00	**4.73**
Northern Mixed Chaparral	347.90	186.63	0.00	0.00	47.41	145.38	0.00	**727.32**
Open Coast Live Oak Woodland	17.75	0.30	54.92	1.79	9.69	0.00	0.00	**84.45**
Redshank Chaparral	173.96	0.00	23.61	2.03	0.54	0.00	0.00	**200.14**
Scrub Oak Chaparral	504.19	12.47	107.18	0.40	1.62	85.09	0.00	**710.95**
Semi Desert Chaparral	1860.95	14.05	251.42	42.15	53.37	0.00	0.01	**2,221.93**
Southern North Slope Chaparral	64.96	0.00	18.12	0.00	0.00	0.00	0.00	**83.09**
Southern Riparian Woodland	0.00	0.00	1.63	0.00	0.00	0.00	0.00	**1.63**
Southern Willow Scrub	0.00	0.00	2.70	0.00	0.06	0.00	0.00	**2.77**
Upper Sonoran Manzanita Chaparral	192.99	38.50	0.00	1.94	0.00	44.92	0.00	**278.36**
Upper Sonoran Subshrub Scrub	762.86	4.98	148.48	6.22	2.21	0.00	0.00	**924.73**
Total	**4335.89**	**328.33**	**1214.09**	**116.79**	**194.62**	**284.76**	**1.30**	**6,475.77**

3.3.1 Special Status Plant Species

For purposes of this report, "special status" plant species are those listed as endangered, threatened, species of special concern, or otherwise noteworthy by CDFG, USFWS, BLM, the California Native Plant Society, the Draft East County Multiple Species Conservation Program (MSCP) Covered Species List, or the County of San Diego Guidelines for Determining Significance (Biological Resources) Sensitive Species List. No habitat that would support state or federally listed threatened or endangered plant species was observed during the general biological assessment, and no individuals were identified as having the potential to occur within the BTM assessed area. The potential presence of state and federally listed species was determined based on location, vegetation, and habitat analysis.

Six special status floral species were observed within the BTM assessed area: Jacumba milkvetch (*Astragalus douglasii* var. *perstrictus*), Tecate tarplant (*Deinandra floribunda*), oceanblue larkspur (*Delphinium parishii* ssp. *subglobosum*), sticky geraea (*Geraea viscida*), San Diego hulsea (*Hulsea californica*), and southern jewelflower (*Streptanthus campestris*). Due to proximity to the original survey corridor, several populations and individuals of sensitive plants were also documented in the BTM assessed area during rare plant surveys conducted earlier in 2010. All six special status plants mentioned above, as well as six other special status plant species, have been previously observed within the original survey corridor and have potential to occur within the amended survey corridor. Numbers of individual special status plants observed by ownership within the project survey corridor are presented in **Table 3-4** below.

Table 3-4
Numbers of Special Status Plants by Land Ownership

Species	BLM	State	Private/ County	Campo	Manzanita	Ewiiaapaayp	Total
Desert beauty	890,572	0	18,939	0	0	0	**909,511**
Jacumba milkvetch	9,519	155	5,373	828	611	0	**16,486**
Jacumba monkey flower	30	0	6	0	0	0	**36**
Laguna Mountain alumroot	0	0	0	0	0	401	**401**
Mountain Springs bush lupine	427	0	13	0	0	0	**440**
Oceanblue larkspur	13,028	527	646	0	0	9	**14,210**
Palomar monkey flower	8401	0	100	0	0	213	**8,714**
Payson's jewel flower	171,974	1971	14,028	0	400	6,302	**194,675**
San Diego hulsea	13,502	808	0	0	0	15,277	**29,587**
Southern jewel-flower	16	15	0	0	2	449	**482**
Sticky geraea	13,921	0	2,569	0	0	50	**16,540**
Tecate tarplant	61,702	0	1,994	0	0	0	**63,696**
Total	**1,183,092**	**3,476**	**43,668**	**828**	**1,013**	**22,701**	**1,254,778**

There is a high potential for additional Payson's jewel flower (*Caulanthus simulans*), desert beauty (*Linanthus bellus*), Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*), and Palomar monkey flower (*Mimulus palmeri*) to occur within the general biological assessment area; however, these species were not identifiable or apparent during October and November 2010 surveys. Vegetation community types known to provide habitat for these and other special status plant species in nearby areas were observed within the BTM assessed area. Additional species with potential to occur within the BTM assessed area include San Diego milkvetch (*Astragalus oocarpus*), California ayenia (*Ayenia compacta*), San Diego barberry (*Berberis higginsiae*), Wolf's cholla (*Cylindropuntia wolfii*), Laguna Mountain alumroot (*Heuchera brevistaminea*), Mexican hulsea (*Hulsea mexicana*), slender-leaved ipomopsis/scarlet gilia (*Ipomopsis tenuifolia*), spearleaf (*Matelea parvifolia*), Jacumba monkey flower (*Mimulus aurantiacus* var. *aridus*), Moreno currant (*Ribes canthariforme*), San Bernardino aster (*Symphyotrichum defoliatum*), and Parry's tetracoccus (*Tetracoccus dioicus*). Suitable habitat for these species exists within the BTM assessed area. A detailed discussion of all sensitive plant species that could occur in the project vicinity is included in Section 1.4.5 of the BTR.

Desert beauty occurs most frequently within McCain Valley north of I-8, becoming less common in the northern third of the project site. The species is abundant in sand or granitic gravel openings within semi-desert, chamise, and scrub oak chaparral (IRI 2010c).

Jacumba milkvetch was frequently observed in lightly disturbed habitats containing sandy substrates of granitic origin (IRI 2010c). Within the original survey corridor, this species was observed to occur in most vegetation communities, and is most abundant within semi-desert chaparral, big sagebrush scrub, pasture/agriculture, upper Sonoran subshrub scrub, and montane buckwheat scrub (IRI 2010c).

Palomar monkey flower was observed infrequently within the original survey corridor, primarily along ephemeral drainages and washes. Within these potentially jurisdictional features, this species was observed to occur most often within semi-desert chaparral, scrub oak chaparral, and redshank chaparral (IRI 2010c). Palomar monkey flower is limited to the moister and more persistent ephemeral drainage habitats.

Payson's jewelflower was observed within the original survey corridor to be abundant in McCain Valley and on the ridge west of McCain Valley. This species grows in vegetation gaps in a variety of scrub and chaparral communities, most commonly semi desert chaparral, red shank chaparral, upper Sonoran subshrub scrub, scrub oak chaparral, northern mixed chaparral, southern north slope chaparral, and chamise chaparral (IRI 2010c).

Sticky geraea was commonly observed within the original survey corridor growing in the McCain Valley area and on the ridge west of McCain Valley. This species grows in a wide variety of chaparral and scrub communities, but most commonly in semi desert chaparral; it is also relatively common in red shank chaparral, upper Sonoran subshrub scrub, big sagebrush scrub, montane buckwheat scrub, scrub oak chaparral, northern mixed chaparral (IRI 2010c).

Tecate tarplant was commonly observed within the original and amended survey corridors in drainages within the southern portion of project area, especially in the vicinity of Lark Canyon and Rough Acres Ranch. It is absent in the northern portion of the original survey corridor within McCain Valley and the ridge west of McCain Valley. This species is found within dry sandy washes with deep alluvial soil deposits, and in areas which contained similar topographic features. Populations of Tecate tarplant follow these potentially jurisdictional features through a number of vegetation types, especially semi desert chaparral, upper Sonoran subshrub scrub, big sagebrush scrub, southern north slope chaparral, open coast live oak woodland, and chamise (IRI 2010c).

Jacumba monkey flower was observed within the original survey corridor growing in granitic rock outcrops within several chaparral vegetation communities, including southern north slope chaparral, upper Sonoran subshrub scrub, and scrub oak chaparral. Since Jacumba monkey flower was primarily associated with crevices in rock outcrops, it is not associated with dominant species within a particular vegetation community. Typically shrub cover where this species is found is somewhat open due to the presence of large granitic boulders interspersed throughout the terrain. This conspicuous perennial shrub would likely have been observed during the general biological assessment of the amended survey corridor; however a focused rare plant survey in the unsurveyed portions of the modified project is recommended to fully assess potential for Jacumba monkey flower to occur within the construction footprint.

Southern jewelflower was only observed growing on the ridge west of McCain Valley during project related surveys. This species is found in several chaparral vegetation communities on the ridge, mostly within scrub oak chaparral, chamise chaparral, and northern mixed chaparral (IRI 2010c).

Laguna Mountain alumroot was observed within the project area during rare plant surveys. Determining the number of individual plants of this species was not possible due to its rhizomatous growth habit and its preference for steep, rocky, hard to access areas. Therefore, this species was quantified based on the number of blooming stalks and the number of distance occurrences or colonies. Of the 401 bloom spikes observed from three colonies, all are expected to be impacted from implementation of the modified project. This represents 100% of the observed individuals within the areas surveyed. This plant clings to steep rocky outcrops, wedged into crevices or perched on precarious exposed rock faces. Therefore, additional individuals may occur in inaccessible areas within the vicinity, and portions of the modified project that remain unsurveyed. Outside of the project boundary, several individuals were incidentally observed on the western slope of the ridge where the documented colonies are located. Laguna Mountain alumroot is not associated with dominant plant species within a particular vegetation community; rather, it is associated with a particular rock outcrop microhabitat. This perennial species would have been apparent during the general biological assessment of the amended survey corridor; however, potential for additional individuals to occur within the modified construction footprint cannot be determined without a focused rare plant survey of unsurveyed portions of the modified project.

San Diego hulsea was observed to be abundant within the original survey corridor on the ridge west of McCain Valley. The vast majority of the individuals observed were small seedlings that may experience high mortality before flowering. This species occurs primarily in northern mixed, scrub oak chaparral and upper Sonoran manzanita chaparral communities (IRI 2010c).

Oceanblue larkspur was observed to be abundant in the original survey corridor in McCain Valley and on the ridge west of McCain Valley. It grows in open scrub and chaparral habitats, and is most common in scrub oak chaparral, semi-desert chaparral, and upper Sonoran subshrub scrub (IRI 2010c).

Mountain Springs bush lupine had a limited distribution in the central portion of the original survey corridor in McCain Valley. Occurrences were recorded as far south as the Lark Canyon, and north to the Carrizo Gorge overlook. It was also not recorded from the ridge west of McCain Valley. It is most abundant in semi-desert chaparral (IRI 2010c).

3.4 FAUNA

An abundance of high-quality habitat for wildlife exists in the BTM assessed areas. Sensitive as well as common wildlife species of the Peninsular Range are expected to occur here. During the general biological assessment conducted for the BTM, commonly observed wildlife species observed include mule deer (*Odocoileus hemionus fuliginata*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), coast (Blainville's) horned lizard (*Phrynosoma blainvillii*), coyote (*Canis latrans*), northern flicker (*Colaptes auratus*), antelope ground squirrel (*Ammospermophilus leucurus leucurus*), western scrub-jay (*Aphelcoma californica*), common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), house finch (*Carpodacus mexicanus*), turkey vulture (*Cathartes aura*), and California towhee (*Melozone crissalis*). During previous field studies conducted for the project, 45 invertebrates, 16 reptiles/amphibians, 101 birds, and 18 mammal species were observed directly or documented by sign (scat, tracks, etc.) (IRI 2010a). All of these species would potentially occur in the BTM assessed areas. An updated list of faunal species identified during project field surveys is presented in **Appendix C**.

3.4.1 Special Status Wildlife Species

Southern California, and specifically San Diego County, hosts several unique and biologically diverse species. Several wildlife species with potential to occur within the BTM assessed area are protected under a variety of County, state and federal laws. For purposes of this report, “special status” wildlife species are those listed as endangered, threatened, species of special concern or otherwise noteworthy by CDFG, USFWS, BLM, the Draft East County MSCP Covered Species List, or the County of San Diego Guidelines for Determining Significance (Biological Resources) Sensitive Species List. No federal listed threatened or endangered animal species were observed during the general biological assessment. A detailed discussion of all sensitive wildlife species that could occur in the project vicinity is included in Section 1.4.6 of the BTR.

3.4.1.1 Federally Listed Species

Quino checkerspot butterfly is the only federally listed threatened or endangered species with potential to occur in the BTM assessed areas. A site assessment for QCB suitability was conducted in conjunction with the general biological assessment. Unsuitable habitat includes developed areas, or small in-fill parcels largely dominated by non-native vegetation, active/in-use agricultural fields, and closed-canopy riparian and woodland areas, dense chaparral, and small openings less than one acre. QCB site assessment was confined to areas within the amended survey corridor that fall within the designated QCB survey area as determined by the USFWS (USFWS 2002, 2003). This QCB assessed area includes approximately 1,692 acres of amended survey corridor and previously restricted access that are new to the project or had not been previously assessed for habitat suitability. A total of 254 acres (approximately 15%) were excluded as not being suitable habitat for QCB. The remaining 1,439 acres of the BTM assessed area are considered non-excluded habitat per USFWS criteria (2002).

Host plant species for QCB known to occur within the assessed areas include Coulter’s snapdragon (*Antirrhinum coulterianum*), thread-leaved bird’s beak (*Cordylanthus rigidus*), and Chinese houses (*Collinsia concolor*).

Golden eagle is a federally protected species under the Bald and Golden Eagle Protection Act. The BTM assessed areas include additional rocky, precipitous habitat and potential foraging habitat associated with the species. As with the original survey corridor, golden eagle is expected to potentially use the amended survey corridor where suitable foraging habitat exists. Suitable foraging habitat may include all vegetation communities and land cover on site (i.e., agriculture, big sagebrush scrub, chamise chaparral, coast live oak woodland, disturbed habitat, field/pasture, emergent wetland, montane buckwheat scrub mulefat scrub, non-native grassland, northern mixed chaparral, semi-desert chaparral, southern north slope chaparral, scrub oak chaparral, Peninsular juniper woodland and scrub, redshank chaparral, shadscale scrub, Sonoran mixed woody succulent scrub, southern riparian woodland, upper Sonoran manzanita chaparral, upper Sonoran subshrub scrub, and southern willow scrub). However, the denser forms of chaparral habitat are not typically suitable for foraging of golden eagle.

Federally listed species for which habitat assessments were conducted but no suitable habitat is present on-site include arroyo southwestern toad (*Bufo californicus*), California condor (*Gymnogyps californianus*), least Bell's vireo (*Vireo bellii pusillus*), Peninsular bighorn sheep (*Ovis canadensis nelsoni*), southwestern willow flycatcher (*Empidonax traillii extimus*), and willow flycatcher (*Empidonax traillii*). These species have little or no potential to occur within the assessed area.

3.4.1.2 Other Sensitive Species

Special status wildlife species observed during the general biological assessment of the amended survey corridor include San Diego black-tailed jackrabbit, mule deer, coast horned lizard, and granite spiny lizard (*Sceloporus orcutti*). Several special status avian species that were observed within the original survey corridor during previous project-related surveys would also be expected to occur in or use the BTM assessed area. These include Cooper's hawk (*Accipiter cooperii*), rufous-crowned sparrow (*Aimophila ruficeps*), long-eared owl (*Asio otus*), turkey vulture, Vaux's swift (*Chaetura vauxi*), northern harrier (*Circus cyaneus),* San Diego banded gecko (*Coleonyx variegates abotti*), olive-sided flycatcher (*Contopus cooperi*), yellow warbler (*Dendroica petechia*), red diamond rattlesnake (*Crotalus ruber*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), and western bluebird (*Sialia mexicana*). Other special status species observed during previous field studies of the original survey corridor for which habitat exists within the BTM assessed area include mountain lion (*Puma concolor*), coastal rosy boa (*Charina trivirgata*), western small-footed bat (*Myotis ciliolabrum*), coast patch nosed snake (*Salvadora hexalepis virgultea*), common chuckwalla (*Sauromalus ater*), and western spadefoot toad (*Spea hammondii*)**.**

Echolocation analysis completed the project determined that bat species including big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), California leaf-nosed bat (*Macrotus californicus*), fringed bat (*Myotis thysanodes*), pallid bat (*Antrozous pallidus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), silver-haired bat (*Lasionycteris noctivagans*), spotted bat (*Euderma maculatum*), Townsend's western big-eared bat (*Corynorhinus townsendii*), western long-eared bat (*Myotis evotis*), western mastiff bat (*Eumops perotis*), and Yuma bat (*Myotis yumanensis*) may also be present in or near the Tule Wind Project area. Foraging and potential roosting habitat for bats exists within much of the surveyed areas.

Habitat for sensitive faunal species that may occur within the Tule Wind Project area is defined and described in Section 1.4.6 of the BTR. Existing habitat for all of the species addressed in the BTR was identified within the BTM assessed areas. Acres of existing habitat for each potential special status wildlife species is presented for all of the surveyed areas by land ownership in **Table 3-5** below.

Several other special status species have a low potential to occur within the assessed area, including: tricolored blackbird (*Agelaius tricolor*), Bell's sage sparrow (*Amphispiza belli belli*), ringtail (*Bassariscus astutus*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), coastal western whiptail (*Cnemidophorus tigris multiscutartus*), Merriam's kangaroo rat (*Dipodomys merriami*), Coronado skink (*Eumeces skiltonianus interparietalis*), San Diego desert woodrat (*Neotoma lepida intermedia*), Southern grasshopper mouse (*Onychomys torridus ramona*), Los Angeles little pocket mouse (*Perognathus longimembris brevinasus*), purple martin (*Progne subis*), alkali skipper (*Pseudocopaeodes eunus eunus*), vermilion flycatcher (*Pyrocephalus rubinus flammeus*), American badger (*Taxidea taxus*), and granite night lizard (*Xantusia henshawi*).

Table 3-5
Acres of Special Status Wildlife Species Habitat by Land Ownership

Species	BLM	State	Private/ County	Campo	Manzanita	Ewiiaapaayp	Total
California leaf-nosed bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Coast horned lizard	4241.00	309.53	1037.90	96.70	161.84	284.75	**6,131.72**
Coast patch nosed snake	4241.00	309.53	1037.90	96.70	161.84	284.75	**6,131.72**
Coastal rosy boa	821.60	4.47	150.97	0.00	9.92	17.68	**1,004.64**
Common chuckwalla	821.60	4.47	150.97	0.00	9.92	17.68	**1,004.64**
Cooper's hawk	20.86	0.3	66.67	2.01	18.19	0	**108.03**
Fringed bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Golden eagle	4244.11	309.53	1052.35	96.92	167.70	284.75	**6155.36**
Gray vireo	4219.65	297.75	907.28	87.68	147.22	284.75	**5944.30**
Loggerhead shrike	4246.51	320.91	1089.00	96.92	167.70	284.75	**6,205.79**
Long-eared owl	3.11	0.00	10.12	0.22	8.5	0.00	**21.95**
Mountain lion	4246.51	320.91	1089.00	96.92	167.70	284.75	**6,205.79**
Mule deer	4246.51	320.91	1089.00	96.92	167.70	284.75	**6,205.79**
Northern harrier	903.02	43.65	585.33	39.36	43.83	4.33	**1,619.52**
Olive-sided flycatcher	20.86	0.3	66.67	2.01	18.19	0	**108.03**
Pallid bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Prairie falcon	903.02	43.65	585.33	39.36	43.83	4.33	**1,619.52**
Red diamond rattlesnake	4241.00	309.53	1037.90	96.70	161.84	284.75	**6,131.72**
Rufous-crowned sparrow	4217.56	297.75	907.53	87.68	147.09	284.75	**5,942.36**
San Diego banded gecko	821.60	4.47	150.97	0.00	9.92	17.68	**1,004.64**
San Diego black-tailed jackrabbit	4246.51	320.91	1089.00	96.92	167.70	284.75	**6,205.79**
Spotted bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Townsend's western big-eared bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Turkey vulture	4244.11	309.53	1052.35	96.92	167.70	284.75	**6,155.36**
Vaux's swift	4246.51	320.91	1089.00	96.92	167.70	284.75	**6,205.79**
Western bluebird	20.86	0.30	66.67	2.01	15.49	0.00	**105.33**
Western burrowing owl	6.00	22.86	112.35	7.23	4.93	0.00	**153.37**
Western mastiff bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Western small-footed bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Western long-eared bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**
Yellow warbler	0.00	0.00	4.33	0.00	0.06	0.00	**4.39**
Yuma bat	4335.88	328.35	1213.82	116.80	191.92	284.75	**6,471.52**

3.4.2 Avian and Bat Species

The terrain of the BTM assessed areas consists of rolling hills, granite outcrops, ephemeral washes, and a variety of vegetation types including chaparral and scrub communities, coast live oak and riparian woodland, non-native grassland, and agricultural land. All of the habitats within the assessed area have potential to support a variety of bird and bat species. The general biological survey identified one raptor nest located within coast live oak woodland habitat in an oak tree. The status of the nest (active/inactive) could not be determined at the time of the survey. Suitable breeding habitat for raptors and other species protected under the Migratory Bird Treaty Act is present within the assessed area.

Varied topographic and vegetative features combined with available water sources in close range (4.5 miles) of the project footprint provide the necessary roosting and foraging resources for the majority of bat species found in San Diego County. Common roosting structures in the assessed area such as foliage, tree hollows, exfoliating tree bark, buildings, rock crevices, and mines could potentially be used as day roosting, maternity, and hibernacula (hibernation) resources for several bat species. Approximately 201.6 acres of large granite boulders and outcroppings with >50% exposed rock cover were documented within the new survey corridor and previously restricted access areas. These features could potentially provide rock crevice roost sources for sensitive species such as western mastiff bat, pocketed free-tailed bat, pallid bat, and spotted bat. No additional open mine tunnels were observed within the assessed area. Previously assessed mine openings addressed in the BTR occur on a CSLC parcel in the northwest portion of the project area. Seven horizontal mine shafts and three vertical shafts present within or near the vicinity of the Tule Wind Project. Of these, two are located just outside the boundaries of the new survey corridor, and two are located within the boundaries of a previously restricted access corridor. Previous surveys and assessment for potential use by bats concluded that most of the mine shafts do not appear to be suitable for roosting; however, one horizontal shaft appeared suitable as a roost structure (WEST 2010a). None of the mine openings fall within the construction footprint of the modified project (see Biological Resource Impact Map, **Appendix D**).

3.4.2.1 2010 Bat Acoustic Survey Results

Bat acoustic surveys were conducted for the Tule Wind Project from September 2008 to August 2009; the preliminary results of these surveys are discussed in Section 1.4.6 of the BTR. As part of the ongoing survey effort, three additional MET towers, and one of the original MET towers were used for the acoustic surveys between March 2010 and November 2010. Additional bat echolocation activity was recorded during the study. Overall, activity by bats at the Tule Wind Project was higher during the 2010 study than the rates measured at two sampling points used in the previous study and discussed in the BTR. Comparison and analysis of bat echolocation data from the surveys is presented in the Bat Acoustic Studies for the Tule Wind Resource Area Final Report (Gruver et al. 2011); a summary is provided below. Locations of the bat detection stations and detailed results are provided in the final bat survey report.

Species Composition

Bat species composition can be inferred from the call frequency used by each species. **Table 3-6** identifies bat species likely to occur in the Tule Wind Project area and is sorted by call frequency.

Table 3-6
Bat Species with Potential to Occur in the Tule Wind Project Area
(Sorted by Call Frequency)

Common Name	Scientific Name
High-frequency (> 35 kHz)	
California leaf-nosed bat	*Macrotus californicus*
Western small-footed bat	*Myotis ciliolabrum*
Long-legged bat	*Myotis volans*
Yuma bat	*Myotis yumanensis*
Mid-frequency (30-40 kHz)	
Western yellow bat	*Lasiurus xanthinus*
Western long-eared bat	*Myotis evotis*
Low-frequency (15-30 kHz)	
Pallid bat	*Antrozous pallidus*
Townsend's big-eared bat	*Corynorhinus townsendii*
Big brown bat	*Eptesicus fuscus*
Silver-haired	*Lasionycteris noctivagan*
Hoary bat	*Lasiurus cinereus*
Fringed bat	*Myotis thysanodes*
Pocketed free-tailed bat	*Nyctinomops femorosaccus*
Brazilian free-tailed bat	*Tadarida brasiliensis*
Very low-frequency (< 15 kHz)	
Western mastiff bat	*Eumops perotis californicus*
Big free-tailed bat	*Nyctinomops macrotis*

From Gruver et al. 2011

In 2008/2009, the majority of bat passes were from high-frequency bats (HF; 72.6% of all passes) followed by low-frequency passes (LF; 17.4%), mid-frequency passes (MF; 5.3%), and very low-frequency passes (VLF; 4.7%), and this pattern was largely consistent among the two ground stations. The distribution of bat passes recorded by raised stations differed from the ground stations in 2008/2009, with passes by LF bats accounting for the highest percentage of passes (63.0%), followed by VLF bats (21.0%), HF bats (14.2%), and MF bats (1.8%). Weekly patterns of activity were varied among species groups. HF bats peaked first between August 9-15, 2008, followed by VLF bats (September 22-28, 2008), LF bats (May 4-10, 2009), and MF bats June 26-July 2, 2009.

At the MET towers in 2010, passes by HF bats (86.1% of all passes) greatly outnumbered passes by LF bats (9.7%), MF bats (3.4%), and VLF bats (0.8%), and this pattern was largely consistent among ground stations, suggesting that the species in the HF group are generally more abundant throughout the project area. Among raised stations, HF bats comprised about 68%, LF 27%, and MF and VLF bats each accounted for about 2.5% of passes. Weekly patterns of activity were similar among HF, MF, and LF species, with activity peaking in mid-August, while activity levels of VLF bats did not peak until late September/early October.

At roaming stations, passes by HF bats were the overwhelming majority, accounting for just over 90% of all activity. A notable exception to this pattern was at the only roaming station within the project boundary, where passes by LF bats accounted for 78.5% of overall bat activity. Bat activity at roaming stations peaked in June and July for HF, LF and VLF bats, and in early to mid-August for MF.

Spatial Variation

In 2008/2009, a total of four Anabat units recorded 4,592 bat passes on 842 detector-nights. Averaging bat passes per detector-night across all stations, approximately 5.53 bat passes per detector-night were recorded. At the MET tower stations in 2010, a total of eight Anabat units recorded 14,667 bat passes on 939 detector-nights. Averaging bat passes per detector-night across all MET stations, five roaming stations, and four Thing Valley stations, approximately 16.42 bat passes per detector-night were recorded.

At the five roaming bat feature stations, a total of 2,196 bat passes were recorded on 104 detector-nights, with an average of 21.11 passes per detector-night. The average across all bat feature stations was 64.59 bat passes per detector-night. Four roaming stations were established along Thing Valley Road in the northwest portion of the project area to increase spatial coverage. These detector stations recorded a total of 21,098 bat passes on 239 nights, an average of 88.28 passes per detector-night. Only one station (with approximately 51.2 passes per detector-night) was located within the project boundary. This station recorded more VLF passes than any other station, collecting 55.8% of all VLF passes recorded in 2010 and 34.9% of all VLF passes recorded during both years. Also unlike other stations, the number of LF passes at this station was much greater than the number of passes in the other frequency groups.

Among the 2010 bat feature stations, one location was expected to receive high use by foraging bats and recorded the most activity by far with 41,472 total bat passes recorded over 208 detector-nights, averaging approximately 199 bat passes per detector-night. Another station near an abandoned mine opening also had high bat activity (113 bat passes in one detector-night); however, this station was only operable for one detector-night and is therefore not comparable to the other stations. High levels of bat activity were recorded at one other station, averaging approximately 69 bat passes per detector-night. The remaining bat feature stations all had comparatively lower levels of bat activity, with each station averaging less than four bat passes per detector-night. The one station located within the project boundary recorded approximately 51 passes per detector-night. For all non-MET tower stations, a total of 64,766 bat passes were recorded on 551 detector-nights, with an average of approximately 69 bat passes per detector-night.

Temporal Variation

In 2010, overall bat activity at the MET towers increased during the study period, peaking during the week of August 12-18 (67.67 bat passes per detector-night). Activity decreased steadily through September to relatively low levels by mid-October. In 2008/2009, overall bat activity increased through late June, remaining at relatively high levels until mid-August, with peak activity occurring during the week of August 9. During both years, activity decreased in late September and October and few bats were detected in November. The activity in August and September likely represents bats migrating through the area toward hibernacula or wintering areas.

3.4.3 Wildlife Movement

The majority of BTM assessed areas occur within gaps and spaces of the original area assessed for the Tule Wind Project, and would be covered under the discussion of wildlife movement presented in Section 1.4.8 of the BTR. The BTM assessed area includes additional lands scattered at the southern, northern, eastern, and western extents of the original survey corridor. These lands contain natural features, such as drainages, ridgelines, and vegetation cover which provide corridors for wildlife travel. With the exception of the previously restricted access areas through the Campo Reservation and Manzanita Reservation lands, these areas only marginally extend the boundaries of the original assessed area. Potential obstacles to wildlife movement on the reservation lands include a network of unpaved roads and off-highway vehicle (OHV) trails; fences and paved roads associated with scattered residences; and the existing Kumeyaay Wind farm on the Campo Indian Reservation.

The majority of the project area and vicinity is undeveloped land which allows relatively unconstrained wildlife movement. McCain Valley and the surrounding mountains have roadways, campgrounds, fencing, OHV uses, grazing uses, and other scattered rural residential uses. However, the region in general is largely open space on public land. The Department of Planning and Land Use (DPLU) wildlife movement modeling of connectivity has shown The Tule Wind Project area to be an important wildlife linkage within East San Diego County. DPLU models do not consider tribal lands in their long-term habitat connectivity model. The additional assessment areas do not alter previous discussions of bighorn sheep movement relative to the project area, or stopover use by migratory birds (IRI 2010a, 2010c; Tetra Tech 2008, 2009). There are no new significant potential water sources for migrating or resident wildlife within the BTM assessed area.

3.5 WETLANDS/JURISDICTIONAL WATERS

The Tule Wind Project area supports Waters of the U.S., including wetlands, Waters of the State, and County RPO wetlands. The RWQCB jurisdiction is equivalent to that of the USACE since there are no isolated waters within the survey area. CDFG jurisdiction is similar to the USACE jurisdiction, but extends to the top of the bank and encompasses riparian vegetation when present. Waters of the U.S./Waters of the State subject to the jurisdiction of the USACE, RWQCB, CDFG and County of San Diego RPO occur within the project survey area and are summarized in **Table 3-7**. The table includes jurisdictional features identified in the original survey corridor, previously restricted access, and new survey corridor. A detailed discussion of findings is located in the Amendment to the Jurisdictional Wetland Delineation (IRI 2011).

Several USGS-designated blue line streams occur within the BTM assessed area. A majority of mapped jurisdictional areas consist of continuations of blue-line streams and their tributaries which were previously mapped in the original survey corridor for the project Jurisdictional Wetland Delineation Report (IRI 2010b). On-site drainages are primarily ephemeral, and discharge only during and immediately following storm events although several drainages did exhibit perennial flows. Evidence of ordinary high water mark was indicated by sediment deposits, shelving, destruction of terrestrial vegetation, and a change in substrate. Several soil test pits were examined within the BTM assessment area and were found to support federal wetlands.

Table 3-7
Jurisdictional Acres by Land Ownership

Land Ownership	USACE Wetlands	USACE Waters of the U.S. (including wetlands)	RWQCB Waters of the State	CDFG Jurisdictional Areas	County RPO Wetlands
BLM	-	6.52	6.52	12.10	-
State	-	0.35	0.35	0.82	-
County/Private	-	3.46	3.46	11.72	3.46
Campo Reservation	0.03	0.28	0.28	-	-
Manzanita Reservation	0.40	1.22	1.22	-	-
Ewiiaapaayp Reservation	-	0.16	0.16	-	-
Total*	**0.43**	**11.99**	**11.99**	**24.64**	**3.46**

*The various jurisdictional areas overlap with each other

Data recorded during the jurisdictional wetland delineation includes bank height and morphology, substrate type, and all vegetation within the streambed and riparian vegetation adjacent to the streambed. Drainage structure varies from broad channels (greater than 20 feet) with deep vertically incised banks, to narrow channels (less than 2 feet) with low gently sloping banks. In general, drainages are mostly unvegetated and the soils consist of sand or granitic gravel.

4.0 PROJECT EFFECTS

4.1 ORIGINAL PROPOSED PROJECT

To reflect the most accurate information available to date, anticipated project impacts to vegetation communities/habitat from the original proposed project design presented in the BTR have been updated to incorporate data collected in previously unsurveyed areas (previously restricted access and new survey corridor). Anticipated impacts to vegetation communities/habitat from the original proposed temporary and permanent construction footprints are presented in **Table 4-1** for comparison with anticipated impacts from the modified project construction footprint (**Table 4-2**). Anticipated impacts from the original proposed project can be used for comparison with the anticipated impacts of the modified project presented in Section 4.2.

Table 4-1
Summary of Impacts by Vegetation Community for the Original Proposed Project (Proposed Project with Proposed Transmission Line and Proposed O&M Building/Substation)

Vegetation Community/ Habitat Type	Existing Acres	Impact Type		Total Impacts (acres)
		Temporary	Permanent	
Big Sagebrush Scrub	224.95	7.17	2.58	9.75
Chamise Chaparral	251.67	13.17	22.79	35.96
Dense Coast Live Oak Woodland	19.25	0.39	0.15	0.54
Developed	66.75	0.42	8.27	8.69
Disturbed Habitat	198.98	7.85	60.32	68.17
Field/Pasture, Agriculture	50.43	0.82	1.14	1.96
Montane Buckwheat Scrub	316.45	7.36	4.54	11.90
Mule Fat Scrub	0.28	0.00	0.00	0.00
Non Native Grass	102.94	2.83	2.58	5.42
Non Vegetated Channel	4.73	0.09	0.47	0.56
Northern Mixed Chaparral	727.32	20.98	96.02	117.01
Open Coast Live Oak Woodland	84.45	0.93	1.26	2.18
Redshank Chaparral	200.14	3.86	5.31	9.17
Scrub Oak Chaparral	710.95	28.57	65.86	94.43
Semi Desert Chaparral	2221.94	82.72	159.46	242.18
Southern North Slope Chaparral	83.08	2.67	5.88	8.55
Southern Riparian Woodland	1.63	0.00	0.00	0.00
Southern Willow Scrub	2.76	0.07	0.00	0.07
Upper Sonoran Manzanita Chaparral	278.35	10.28	43.04	53.32
Upper Sonoran Subshrub Scrub	924.75	33.46	62.43	95.89
Grand Total	**6471.80**	**223.65**	**542.10**	**765.75**

Section 4.2.3.1 presents estimated impacts to special status plants from the original proposed project and from the modified project construction footprint. Impact determinations and specific impact analysis are discussed in Sections 3.0 through 8.0 of the BTR. Overall, the modified project will impact less acreage, less natural vegetation, less wildlife habitat, and possibly fewer special status species than the original proposed project. Suggested mitigation measures for the original proposed project are identified in Sections 3.0 through 8.0 of the BTR; however, mitigation measures have been modified from those presented in the BTR to be consistent with those presented in the DEIR/EIS. Current proposed mitigation measures are included in Section 5.1.

4.2 MODIFIED PROJECT

Impacts from the modified project construction footprint are used to present project effects in the BTM. The project extent comprises 24,500 acres of primarily undeveloped land on parcels associated with the construction footprint. Within the project extent, approximately 6,476 acres have been surveyed or assessed, and 725.3 acres within the assessed area will be impacted by the modified project construction footprint. Temporary and permanent impacts to vegetation communities from facilities construction, as well as potential direct and indirect impacts associated with site monitoring, testing activities, operation, and decommissioning are discussed in the BTR. Project effects presented below are the specific impacts that have changed due to modifications in project design.

4.2.1 Vegetation Communities

Approximate acreages of temporary impacts to vegetation communities within the modified project footprint are summarized in **Tables 4-2, 4-3**, and **4-4**. Locations of impacted vegetation communities are identified in the Biological Resource Impacts Maps (**Appendix D)**. Upon completion of construction, disturbances to soil and vegetation within temporary work areas will be revegetated. Impacts to natural communities will be mitigated according to the measures presented in Section 5.1.

4.2.2 Wildlife

Impacts anticipated during implementation of this project include habitat disturbances, introduction of invasive vegetation, direct injury and mortality, turbine noise and human activity, increased potential for fire, and lighting. The wildlife habitat within the proposed project footprint will experience some level of disturbance through direct or indirect impacts. Disturbance levels will range from permanent habitat removal to short-term, temporary impacts, such as increases in noise levels during construction. Some sources of disturbance will be temporary and others permanent. The amount of wildlife habitat that will be impacted is presented in **Tables 4-2, 4-3**, and **4-4**. Impacts to wildlife are discussed in detail in the BTR. The discussion on impacts to bats in Section 4.6.1.1 below is based on recent data from surveys completed in November 2010.

4.2.2.1 Bats

Among studies that combine Anabat surveys and fatality surveys, there is a general association between the timing of increased bat pass rates and timing of mortality, with both pass rates and fatalities peaking during the fall (Gruver et al. 2011). Based on the available data from the Tule Wind Project, it is expected that bat fatalities from project implementation may be highest in August and September. However, data from roaming stations indicate peak bat activity in May and June as well, which may result in higher fatality levels during spring and early summer.

Table 4-2
Summary of Impacts by Vegetation Community for the Modified Project

Vegetation Community/ Habitat Type	Existing Acres	Impact Type		Total Impacts (acres)
		Temporary	Permanent	
Big Sagebrush Scrub	224.95	6.76	2.98	9.74
Chamise Chaparral	251.67	14.61	21.39	36.00
Dense Coast Live Oak Woodland	19.25	0.35	0.12	0.47
Developed	66.75	0.25	7.39	7.64
Disturbed Habitat	198.98	7.51	48.90	56.42
Field/Pasture, Agriculture	50.43	0.49	1.01	1.50
Montane Buckwheat Scrub	316.45	6.23	3.33	9.56
Mule Fat Scrub	0.28	0.00	0.00	0.00
Non Native Grass	102.94	2.67	1.20	3.87
Non Vegetated Channel	4.73	0.09	0.49	0.59
Northern Mixed Chaparral	727.32	21.28	102.60	123.88
Open Coast Live Oak Woodland	84.45	1.19	1.04	2.23
Redshank Chaparral	200.14	4.66	5.76	10.42
Scrub Oak Chaparral	710.95	26.59	62.62	89.20
Semi Desert Chaparral	2221.94	76.29	144.20	220.49
Southern North Slope Chaparral	83.08	2.36	5.87	8.23
Southern Riparian Woodland	1.63	0.00	0.00	0.00
Southern Willow Scrub	2.76	0.14	0.00	0.14
Upper Sonoran Manzanita Chaparral	278.35	10.38	51.94	62.32
Upper Sonoran Subshrub Scrub	924.75	30.20	52.41	82.61
Grand Total	**6471.80**	**212.05**	**513.26**	**725.31**

Table 4-3
Temporary Impacts to Habitat Types/Vegetation Communities by Land Ownership

Vegetation Community/ Habitat Type	BLM	State	Private/ County	Campo	Manzanita	Ewiiaapaayp	Total
Big Sagebrush Scrub	4.93	0.00	1.39	0.00	0.00	0.45	**6.77**
Chamise Chaparral	13.67	0.74	0.0	0.00	0.00	0.20	**14.61**
Dense Coast Live Oak Woodland	0.35	0.00	<0.01	.0 0	0.00	0.0	**0.35**
Developed	0.01	0.07	0.17	0.0	0.00	0.0	**0.25**
Disturbed Habitat	6.50	0.16	0.86	0.0	0.00	0.0	**7.52**
Field/Pasture, Agriculture	0.00	0.49	0.00	0.0	0.00	0.0	**0.49**
Montane Buckwheat Scrub	1.72	0.15	4.36	0.0	0.00	0.0	**6.23**
Non-native Grassland	0.13	0.06	2.48	0.0	0.00	0.0	**2.67**
Non Vegetated Channel	0.10	0.00	0.00	0.0	0.00	0.0	**0.10**
Northern Mixed Chaparral	11.26	4.69	0.00	0.0	0.00	5.33	**21.28**
Open Coast Live Oak Woodland	0.79	0.00	0.40	0.0	0.00	0.0	**1.19**
Redshank Chaparral	4.66	0.00	0.00	0.0	0.00	0.0	**4.66**
Scrub Oak Chaparral	19.01	0.05	3.05	0.0	0.00	4.47	**26.58**
Semi Desert Chaparral	74.17	0.01	2.10	0.0	0.00	0.0	**76.28**
Southern North Slope Chaparral	2.14	0.00	0.22	0.0	0.00	0.0	**2.36**
Southern Willow Scrub	0.00	0.00	0.14	0.0	0.00	0.0	**0.14**
Upper Sonoran Manzanita Chaparral	5.80	1.72	0.00	0.0	0.00	2.86	**10.38**
Upper Sonoran Subshrub Scrub	28.68	0.31	1.20	0.0	0.00	0.0	**30.19**
Total	**173.92**	**8.45**	**16.37**	**0.00**	**0.00**	**13.31**	**212.05**

Table 4-4
Permanent Impacts to Habitat Types/Vegetation Communities by Land Ownership

Vegetation Community/ Habitat Type	BLM	State	Private/ County	Campo	Manzanita	Ewiiaapaayp	Total
Big Sagebrush Scrub	0.29	0.134	2.34	0.00	0.02	0.20	**2.98**
Chamise Chaparral	15.65	4.072	0.24	0.05	0.07	1.31	**21.39**
Dense Coast Live Oak Woodland	0.00	0.00	<0.01	0.01	0.12	0.00	**0.12**
Developed	0.028	0.00	4.56	0.12	2.68	0.00	**7.39**
Disturbed Habitat	27.64	0.01	6.82	7.54	6.91	0.00	**48.90**
Field/Pasture, Agriculture	0.00	<0.01	1.01	0.00	0.00	0.00	**1.01**
Montane Buckwheat Scrub	1.45	0.031	1.74	0.01	0.10	0.00	**3.33**
Non-native Grassland	0.00	0.21	0.96	0.01	0.03	0.00	**1.20**
Non Vegetated Channel	0.47	0.00	0.03	0.00	0.00	0.00	**0.50**
Northern Mixed Chaparral	47.32	17.81	0.00	0.00	1.56	35.92	**102.60**
Open Coast Live Oak Woodland	0.23	0.00	0.69	<0.01	0.13	0.00	**1.04**
Redshank Chaparral	5.46	0.00	0.30	<0.01	0.00	0.00	**5.76**
Scrub Oak Chaparral	45.51	0.06	4.33	0.00	0.00	12.71	**62.62**
Semi Desert Chaparral	130.83	0.09	12.94	0.10	0.23	0.00	**144.20**
Southern North Slope Chaparral	5.65	0.00	0.23	0.00	0.00	0.00	**5.87**
Southern Willow Scrub	0.00	0.00	<0.01	0.00	0.00	0.00	**0.00**
Upper Sonoran Manzanita Chaparral	39.27	4.09	0.00	0.00	0.00	8.58	**51.94**
Upper Sonoran Subshrub Scrub	42.11	0.58	9.70	0.02	<0.01	0.00	**52.41**
Total	**361.88**	**27.09**	**45.87**	**7.86**	**11.85**	**58.72**	**513.26**

Of the bat species likely to occur in the study area, long-legged bat (*Myotis volans*; HF), western yellow bat (*Lasiurus xanthinus*; MF), hoary bat (*Lasiurus cinereus*; LF), pocketed free-tailed (*Nyctinomops femorosaccus*; LF), big brown bat (LF), Brazilian free-tailed bat (LF), silver-haired bat (LF), and big free-tailed bat (*Nyctinomops macrotis*; VLF) are known fatalities at wind energy facilities. In both 2008/2009 and 2010, passes by HF species accounted for the majority of recorded bat activity. Based on data compiled by WEST from publicly available sources, bats with HF echolocation have comprised 16.8% of all fatalities in North America, whereas 61.9% of fatalities have been species with LF echolocation, especially hoary and silver-haired (*Lasionycteris noctivagans*) bats (Gruver et al. 2011). During the two seasons of acoustic monitoring in the Tule Wind Project area, passes by HF species far outnumbered those by other frequency groups.

Reported bat fatality rates from post-construction monitoring of existing wind farm sites shows a wide range of fatality rates, from 0 to nearly 40 bat fatalities/megawatt/year (Gruver et al. 2011). Based solely on the correlation between pre-project bat use and post-construction bat mortality, the Tule Wind Project has the potential to result in up to 2.5 bat fatalities/megawatt/year (Gruver et al. 2011). Of the anticipated fatalities, data indicate that LF bats (particularly the hoary bat, silver-haired bat, and pocketed free-tailed bat) may have a higher potential for mortality based on historical wind farm mortality in North America. However, HF bats (e.g., California leaf-nosed bat, western small-footed bat, long-legged bat, and Yuma bat), some of which have not been previously recorded during wind farm mortality studies, may have a higher potential for mortality based on their relative prevalence in the Tule Wind Project area.

4.2.3 Special Status Species

To determine project effects on sensitive species, known acreages of potential habitat (and the estimated numbers of individuals for most rare plants) within the surveyed areas were compared to the acres of available habitat (or numbers of individuals) within the modified project footprint. The comparison was used to determine the percent of habitat/individuals that would be impacted by the proposed project within the surveyed area. This analysis provides a ratio of anticipated permanently impacted habitat to the remaining available habitat located within the surveyed portion of the project area. The modified project footprint will permanently impact approximately 7.9% of the area surveyed and 2.1% of the 24,500-acre project extent; and temporarily impact approximately 3.3% of the area surveyed and 0.9% of the project extent.

4.2.3.1 Plant Species

A focused rare plant survey was not conducted within the new survey corridor or previously restricted access areas. However, special status plants that were visible and identifiable during the general biological assessment of both areas were recorded. Data from the general biological assessment and the focused rare plant survey (IRI 2010d) was used to estimate anticipated impacts to special status plants from the modified project. All impacts to rare plants in temporary impact areas are treated as permanent impacts for purposes of analysis and mitigation. Impacts to special status plant species identified within the project area are described below. An updated list of all plant species observed is located in **Appendix B.**

Table 4-5 presents anticipated impacts to special status plants from the original proposed construction footprint. Updated data has been used to estimate impacts to special status plants within the original proposed project. Impacts to individual special status plants within the modified project cannot be quantified because a focused rare plant survey has not been conducted for the entire modified project construction footprint. However, the modified project is anticipated to impact fewer special status plants than the original proposed project due to reduced area of impact, and because the modified project is designed to avoid sensitive biological features, such as drainages, to the maximum extent possible. Therefore, sensitive species such as Palomar monkeyflower and Tecate tarplant, which are more abundant in jurisdictional features, are anticipated to have fewer impacts.

Desert beauty was observed to be abundant during rare plant surveys. Within the focused rare plants survey area, desert beauty was observed to number in the hundreds of thousands of individuals. Numerous additional individuals of this species would be expected to occur in the unsurveyed surrounding habitat. Of the 3,185 acres of preferred habitat (semi-desert, chamise, and scrub oak chaparral) that occurs within the survey corridor, 346 acres are expected to be impacted by implementation of the modified project. This is less than the 373 acres that would be impacted by the original proposed project.

Table 4-5
Impacts to Individual Special Status Plants

Species	Estimated Plants	Original Proposed Project Impacts
Desert beauty	909,511	53,219
Jacumba milkvetch	16,486	515
Laguna Mountain alumroot	401	401
Mountain Springs bush lupine	440	98
Oceanblue larkspur	14,210	3,174
Palomar monkey flower	8,714	248
Payson's jewel flower	194,675	11,004
San Diego hulsea	29,587	6,410
Southern jewel-flower	482	214
Sticky geraea	16,540	743
Tecate tarplant	63,696	2,068
Total	**1,254,778**	**78,094**

Jacumba milkvetch is known to be abundant throughout the project area. This species has been observed within the assessed areas to number in the thousands of individuals. Numerous additional individuals of this species would be expected to occur in surrounding habitat. Of the 3,739 acres of preferred habitat (semi desert chaparral, big sagebrush scrub, pasture/agriculture, upper Sonoran subshrub scrub, and montane buckwheat scrub) that occurs within the survey corridor, 324 acres are expected to be impacted by implementation of the modified project. This is less than the 362 acres that would be impacted by the original proposed project. Additionally Jacumba milkvetch tends to be more abundant in somewhat disturbed habitat and is anticipated to quickly become reestablished in temporarily impacted areas.

Jacumba monkey flower was observed within the original project survey area in 2010 during project surveys. Jacumba monkey flower was not observed during the general biological assessment of the amended survey area, when it would have been apparent, and it is not expected to be impacted by the original proposed project or the modified project. However, its potential to be impacted by the modified project cannot be quantified without a focused rare plant survey of unsurveyed portions of the modified construction footprint.

Laguna Mountain alumroot was observed within the project area during rare plant surveys. It is associated with rock outcrop microhabitat that may occur within portions of the modified construction footprint where focused rare plants surveys have not been conducted. This species would have been apparent during the general biological assessment of the amended survey corridor, and it appears unlikely that it occurs where portions of the modified project deviate from the original proposed project. However, there is potential for additional individuals to be impacted by the modified project.

Mountain Springs bush lupine was observed within the original project survey area in 2010 during project surveys. It is most abundant in semi-desert chaparral within a limited portion of the project area. Of the 2,222 acres of preferred habitat (semi-desert chaparral) that occurs within the survey corridor, 220 acres are expected to be impacted by implementation of the modified project. This is less than the 242 acres that would be impacted by the original proposed project.

Oceanblue larkspur was observed within the original project survey area in 2010 during project surveys. This species has been observed within the assessed areas to number in the thousands of individuals. Numerous additional individuals of this species would be expected to occur in surrounding habitat. Of the 3,858 acres of preferred habitat (scrub oak chaparral, semi -desert chaparral, and upper Sonoran subshrub scrub) that occurs within the survey corridor, 392 acres are expected to be impacted by implementation of the modified project. This is less than the 433 acres that would be impacted by the original proposed project.

Palomar monkey flower was observed within the original project survey area during rare plant surveys. This species is limited to moister and more persistent ephemeral drainage habitats. Of the approximately 41 acres of jurisdictional features within the survey corridor, 1.13 acres will be impacted by implementation of the modified project. This is less than the 1.91 acres that would be impacted by the original proposed project.

Payson's jewelflower was observed to be abundant throughout the original project survey area during rare plant surveys. Within the focused rare plant survey area, Payson's jewelflower has been observed to number in the tens of thousands of individuals. Numerous additional individuals of this species would be expected to occur in the unsurveyed surrounding habitat. Of the 5,120 acres of preferred habitat (semi desert chaparral, red shank chaparral, upper Sonoran subshrub scrub, scrub oak chaparral, northern mixed chaparral, southern north slope chaparral, and chamise chaparral) that occurs within the survey corridor, 571 acres are expected to be impacted by implementation of the modified project. This is less than the 603 acres that would be impacted by the original proposed project.

San Diego hulsea was observed to be numerous in portions of the project area during surveys conducted in 2009 and 2010. Seedlings of this species have been observed within the assessed areas to number in the thousands of individuals. Numerous additional individuals of this species would be expected to occur in surrounding habitat. Of the 1,717 acres of preferred habitat (northern mixed chaparral, scrub oak chaparral, and upper Sonoran manzanita chaparral) that occurs within the survey corridor, 275 acres are expected to be impacted by implementation of the modified project. This is more than the 265 acres that would be impacted by the original proposed project.

Southern jewelflower was observed within the project area in 2010 during project surveys. This species is found in several chaparral vegetation communities, mostly within scrub oak chaparral, chamise chaparral, and northern mixed chaparral, within a limited portion of the project area. Of the 1,690 acres of preferred habitat that occurs within the survey corridor, 249 acres are expected to be impacted by implementation of the modified project. This is slightly more than the 247 acres that would be impacted by the original proposed project.

Sticky geraea was observed to be abundant throughout the survey corridor during surveys conducted in 2009 and 2010. Within the assessed areas, sticky geraea has been observed to number in the thousands of individuals. Numerous additional individuals of this species would be expected to occur in the surrounding habitat. Of the 5,327 acres of preferred habitat (semi desert chaparral, red shank chaparral, upper Sonoran subshrub scrub, big sagebrush scrub, montane buckwheat scrub, scrub oak chaparral, northern mixed chaparral) that occurs within the survey corridor, 546 acres are expected to be impacted by implementation of the modified project. This is less than the 580 acres that would be impacted by the original proposed project.

Tecate tarplant was observed within the survey corridor during surveys conducted in 2009 and 2010. Within the assessed areas, Tecate tarplant has been observed to number in the tens of thousands of individuals. Tecate tarplant is limited to ephemeral drainage/dry wash habitats. Of the approximately 41 acres of jurisdictional features within the survey corridor, 1.13 acres will be impacted by implementation of the modified project. This is less than the 1.91 acres that would be impacted by the original proposed project.

4.2.3.2 Animal Species

Project effects on animals that use the modified project area presented in this BTM would not be substantially different than those impacts presented for the proposed project presented in the BTR. Anticipated impacts to special status species are largely based on the impacts to each species' preferred habitat. Some reptile and bat species are strongly associated with rocky outcrops. Project effects for these species are based in part on anticipated impacts to their preferred rocky habitat, shown in **Table 4-6.** In general, species that would utilize medium rock cover would also use high rock cover.

Table 4-6
Summary of Habitat Impacts by Rock Cover

Rock Cover	Existing Acres	Impact Type: Temporary	Impact Type: Permanent	Total Impacts (acres)
Low (less than 20% cover)	5471.14	441.85	190.58	632.43
Medium (20% to 50% cover)	803.08	62.48	17.21	79.69
High (greater than 50% cover)	201.55	8.94	4.25	13.19

Impacts to special status animal species resulting from the modified project are presented below. Locations of these habitats and impacts are provided in the Biological Resources Impacts Map (**Appendix D**). An updated list of all wildlife observed within the project survey corridor is located in **Appendix B.**

Quino checkerspot butterfly potential larval host plants and a single adult have been documented within the project area during a USFWS protocol survey. Suitable (non-excluded) QCB habitat that occurs within 1 kilometer (0.62 mile) of the documented observation is presumed to be occupied by QCB. Within the presumed occupied area, 24.4 acres of suitable QCB habitat would be permanently impacted and 7.3 acres would be temporarily impacted.

To date, 1,600 acres within the project area have been identified as unsuitable as QCB habitat (including 1,042 acres that are outside USFWS the designated QCB survey area). Approximately 4,876 acres remain as suitable habitat (non-excluded) within the project area. Of the non-excluded habitat, 297 acres will be permanently impacted by the modified project and 157 acres will be temporarily impacted. Approximately 6.1% of non-excluded habitat available within the assessed areas will be permanently impacted and 3.2% will be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar non-excluded habitat.

Golden eagle may potentially use all natural vegetation communities, including non-native grasslands, as foraging habitat although, as previously noted, the denser forms of chaparral habitat are not typically suitable for foraging of golden eagle. Of the estimated 6,155 acres of potential foraging habitat within the assessed areas, 456 acres will be permanently impacted by the modified project and 204 acres will be temporarily impacted. Approximately 7.4% of potential foraging habitat available within the assessed areas would be permanently impacted and 3.3% will be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat. A Golden Eagle Aerial Survey identified a nest site used in 2010 approximately 480 feet (146 meters) from the modified project footprint on Ewiiaapaayp Reservation lands (WRI 2010). However, no nests are known to occur on or within 4,000 feet of any project development on County land parcels.

Coast horned lizard is common in the project area and is likely to occur in semi-arid chaparral and scrub (semi-arid shrubland), nonnative grassland, and open coast live oak woodland communities. There are an estimated 6,132 acres of suitable coast horned lizard habitat within the assessed area. Permanent impacts to 456 acres, or 7.4%, of the suitable habitat that has been assessed are expected to result from implementation of the modified project. Temporary impacts to 203 acres, or 3.3%, are expected. The remaining 24,500-acre project extent that has not been assessed and will not be impacted contains similar habitat.

Coast patch nosed snake is most likely to occur in semi-arid chaparral and scrub (semi-arid shrubland), non-native grassland, and open coast live oak woodland communities within the project area. There are an estimated 6,132 acres of suitable coast patch nosed snake habitat within the assessed areas. Permanent impacts to 456 acres and temporary impacts to 203 acres of potentially suitable habitat are expected to result from implementation of the modified project. Permanently impacted areas represent 7.4% of suitable habitat that has been assessed, and temporarily impacted areas represent 3.3%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Coastal rosy boa was observed within the project area. Incidental observations of this species occurred within the survey corridor during surveys conducted in spring 2010. Rosy boa is associated with granite rocks and crevices, which are prevalent in the region. Of the estimated 1,005 acres of potential rocky habitat (greater than 20% rock cover) within the survey corridor, 71 acres are expected to be permanently impacted by implementation of the proposed project and 21 acres are expected to be temporarily impacted. Permanent impacts represent 7.2% of this species' available preferred habitat in the assessed area and temporary impacts represent 2.1%. The 24,500-acre project extent that will not be impacted contains similar habitat.

Common chuckwalla is strongly associated with rocky outcrops and crevices, which are prevalent in the region. Of the estimated 1,005 acres of potential rocky habitat (greater than 20% rock cover) within the survey corridor, 71 acres are expected to be permanently impacted by implementation of the modified project and 21 acres are expected to be temporarily impacted. Permanent impacts represent 7.2% of this species' available preferred habitat in the assessed area and temporary impacts represent 2.1%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Cooper's hawk may use oak and riparian woodlands within the project area. There are an estimated 108 acres of suitable Cooper's hawk habitat within the assessed areas. Approximately 1 acre of permanent impacts and approximately 2 acres of temporary impacts to potentially suitable habitat are expected to result from implementation of the modified project. Permanently impacted areas represent 1.1% of suitable habitat that has been assessed and temporarily impacted areas represent 1.4%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat. Cooper's hawk was observed during surveys conducted in the autumn 2007 and spring 2008, and an occupied Cooper's hawk nest was found in an oak tree (Tetra Tech 2009). However, impacts to this nest site are not anticipated.

Fringed myotis may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

One night of acoustic surveys conducted at a horizontal mine shaft indicated the presence of HF bats (112 to 113 bat passes recorded). Fringed myotis are LF echolocators; it is therefore unlikely that this species was using this mine in April 2010. There remains a potential that this species may use the mine at other times of the year (e.g. during hibernation). No impacts to this mine shaft are expected from the modified project and no abandoned buildings are expected to be removed.

Gray vireo is most likely to occur in semi-arid chaparral and scrub (semi-arid shrubland), within the project area. There are an estimated 5,944 acres of preferred gray vireo habitat within the assessed areas. Permanent impacts to 454 acres and temporary impacts to 199 acres of potentially suitable habitat are expected to result from implementation of the modified project. Permanently impacted areas represent 7.6% of suitable habitat that has been assessed, and temporarily impacted areas represent 3.4%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Loggerhead shrike may potentially use all natural vegetation communities as well as non-native grasslands, open fields and agriculture within the project area. Of the estimated 6,206 acres of potential foraging habitat within the assessed areas, 457 acres will be permanently impacted by the modified project and 205 acres will be temporarily impacted. Approximately 7.4% of potential foraging habitat available within the assessed areas would be permanently impacted and 3.3 acres would be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Long-eared myotis may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

Long-eared owl nesting habitat found within the assessed areas is limited to dense coast live oak woodlands. There are 22 acres of potential nesting habitat within the survey corridor, of which 0.1 acre, or 0.5%, will be permanently impacted and 0.4 acres, or 1.8%, will be temporarily impacted.

Mountain lion may potentially use all natural vegetation communities, including non-native grasslands, open fields and agriculture within the project area. Of the estimated 6,206 acres of potential habitat within the assessed areas, 457 acres will be permanently impacted by the modified project and 205 acres will be temporarily impacted. Approximately 7.4% of potential habitat available within the assessed areas would be permanently impacted and 3.3 acres would be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Mule deer may potentially use all natural vegetation communities, including non-native grasslands, open fields and agriculture within the project area. Of the estimated 6,206 acres of potential habitat within the assessed areas, 457 acres will be permanently impacted by the modified project and 205 acres will be temporarily impacted. Approximately 7.4% of potential habitat available within the assessed areas would be permanently impacted and 3.3 acres would be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Northern harrier is most likely to use open habitats within the project area, and those with low herbaceous or subshrub vegetation such as open field and agriculture, non-native grassland, montane buckwheat scrub, upper Sonoran subshrub scrub, and big sagebrush scrub. Of the estimated 1,620 acres of potential habitat within the assessed areas, 61 acres will be permanently impacted by the modified project and 46.8 acres will be temporarily impacted. Permanently impacted areas represent 3.8% of suitable habitat that has been assessed and temporarily impacted areas represent 2.9%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Olive-sided flycatcher preferred habitat within the project area would most likely consist of the edges of woodlands and semi-open woodlands, including coast live oak woodland and southern riparian woodland, and the areas immediately adjacent. Of the estimated 108 acres of preferred habitat that occurs within the assessed areas, approximately 1 acre is expected to be permanently impacted by implementation of the modified project, and approximately 2 acres are expected to be temporarily impacted. The permanently impacted areas represent 1.1% of suitable habitat that has been assessed and temporarily impacted areas represent 1.4%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Pallid bat may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

One night of acoustic surveys conducted at a horizontal mine shaft indicated the presence of HF bats (112 of 113 bat passes recorded). The pallid bat is a LF echolocator; it is therefore unlikely that this species was using the mine in April of 2010. There remains a potential that this species may use the mine at other times of the year (e.g. during hibernation). No impacts to this mine shaft are expected from the modified project and no abandoned buildings are expected to be removed.

Pocketed free-tailed bat may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

Prairie falcon is most likely to use open habitats within the project area, and those with low herbaceous or subshrub vegetation such as open field and agriculture, non-native grassland, montane buckwheat scrub, upper Sonoran subshrub scrub, and big sagebrush scrub. Of the estimated 1,620 acres of potential habitat within the assessed areas, 61 acres will be permanently impacted by the modified project and 46.8 acres will be temporarily impacted. Permanently impacted areas represent 3.8% of suitable habitat that has been assessed and temporarily impacted areas represent 2.9%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Red diamond rattlesnake is most likely to occur in semi-arid chaparral and scrub (semi-arid shrubland), non-native grassland, and open coast live oak woodland communities within the project area. There are an estimated 6,132 acres of suitable coast patch nosed snake habitat within the assessed areas. Permanent impacts to 456 acres and temporary impacts to 202 acres of potentially suitable habitat are expected to result from implementation of the modified project. Permanently impacted areas represent 7.4% of suitable habitat that has been assessed, and temporarily impacted areas represent 3.3%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Rufous-crowned sparrow habitat includes all semi-arid chaparral and scrub (shrubland) communities within the project area. Of the estimated 5,942 acres of semi-arid shrubland habitat that occurs within the assessed areas, 453 acres are expected to be permanently impacted by implementation of the modified project and 200 acres are expected to be temporarily impacted. Permanently impacted areas represent 7.6% of suitable habitat that has been assessed, and temporarily impacted areas represent3.4%. The remaining 24,500-acre project area that will not be impacted contains similar habitat.

San Diego banded gecko is associated with rocky outcrops and crevices, which are prevalent in the region. Of the estimated 1,005 acres of potential rocky habitat (greater than 20% rock cover) within the survey corridor, 71 acres are expected to be permanently impacted by implementation of the proposed project and 21 acres are expected to be temporarily impacted. Permanent impacts represent 7.2% of this species' available preferred habitat in the assessed area and temporary impacts represent 2.1%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

San Diego black-tailed jackrabbit is common in the project area and is likely to occur in all natural vegetation communities, open fields and agriculture within the project area. Of the estimated 6,206 acres of potential habitat within the assessed areas, 457 acres will be permanently impacted by the modified project and 205 acres will be temporarily impacted. Approximately 7.4% of potential habitat available within the assessed areas would be permanently impacted and 3.3 acres would be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Spotted bat may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

One night of acoustic surveys conducted at a horizontal mine shaft indicated the presence of HF bats (112 of 113 bat passes recorded). The spotted bat is a VLF echolocator; it is therefore unlikely that this species was using the mine in April of 2010. There remains a potential that this species may use the mine at other times of the year (e.g., during hibernation). No impacts to this mine shaft are expected from the modified project and no abandoned buildings are expected to be removed.

Townsend's western big-eared bat may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted.

One night of acoustic surveys conducted at a horizontal mine shaft indicated the presence of HF bats (112 of 113 bat passes recorded). Townsend's big-eared bat is a LF echolocator; it is therefore unlikely that this species was using the mine in April of 2010. There remains a potential that this species may use the mine at other times of the year (e.g., during hibernation). No impacts to this mine shaft are expected from the modified project and no abandoned buildings are expected to be removed.

Turkey vulture may potentially use all natural vegetation communities, including non-native grasslands, as foraging habitat. Of the estimated 6,155 acres of potential foraging habitat within the assessed areas, 456 acres will be permanently impacted by the modified project and 204 acres will be temporarily impacted. Approximately 7.4% of potential foraging habitat available within the assessed areas would be permanently impacted and 3.3% will be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Vaux's swift may potentially use all natural vegetation communities as well as non-native grasslands, open fields and agriculture within the project area. Of the estimated 6,206 acres of potential foraging habitat within the assessed areas, 457 acres will be permanently impacted by the modified project and 205 acres will be temporarily impacted. Approximately 7.4% of potential foraging habitat available within the assessed areas would be permanently impacted and 3.3 acres would be temporarily impacted. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Western bluebird may use oak and riparian woodlands within the project area. There are an estimated 108 acres of suitable western bluebird habitat within the assessed areas. Approximately 1 acre of permanent impacts and 2 acres of temporary impacts to potentially suitable habitat are expected to result from implementation of the modified project. Permanently impacted areas represent 1.1% of suitable habitat that has been assessed and temporarily impacted areas represent 1.4%. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Western burrowing owl is not expected to occur on site; however, potential habitat does occur within the project area and includes non-native grasslands, open fields and agriculture. Of the estimated 153 acres of potential habitat, 3.2 acres are expected to be permanently impacted and 2.2 acres are expected to be temporarily impacted by implementation of the modified project. Permanent impacts represent 2.1% and temporary impacts represent 1.4% of this species' available preferred habitat within the assessed areas. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Western mastiff-bat may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

Western small-footed myotis may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

Yellow warbler occupies riparian habitats within close proximity to water, and is commonly found in willows and other riparian trees and shrubs. Of the estimated 4.7 acres of riparian foraging habitat within the assessed areas, 0.14 acre will be permanently impacted by the modified project. Permanent impacts would occur to approximately 3% of potential riparian habitat available within the assessed areas. The remaining 24,500-acre project extent that will not be impacted contains similar habitat.

Yuma bat may potentially use all vegetation communities as well as developed and disturbed areas within the project area as foraging habitat. This species may also use rocky outcrops as roosting habitat. Of the estimated 6,472 acres of potential foraging habitat within the assessed areas, 513 acres will be permanently impacted by the modified project and 212 acres will be temporarily impacted. This species may also use rocky outcrops as roosting habitat. Of the estimated 202 acres of potential rocky outcrop roosting habitat (greater than 50% rock cover), 13 acres will be impacted. Approximately 6.1% of potential roosting habitat available within the assessed areas would be impacted. The remaining 24,500-acre project extent that will not be impacted contains similar foraging and roosting habitat.

One night of acoustic surveys conducted at a horizontal mine shaft indicated the presence of HF bats (112 of 113 bat passes recorded). While use of the mine as roosting habitat by Yuma bats cannot be confirmed through acoustic data, the data does support the potential that Yuma bat were using the mine in April 2010. No impacts to this mine shaft are expected from the modified project and no abandoned buildings are expected to be removed.

4.2.4 Wildlife Movement

Temporary impacts on wildlife movement are anticipated to occur during facilities construction. Although wildlife species may be displaced by construction, long-term adverse effects are not anticipated due to animal habituation to the buildings and structures. The relatively wide placement of the turbines and low anticipated level of human operation is not expected to preclude any forms of movement for non-avian or bat species (**Tables 4-7**). Many avian species also will likely be unaffected due to the height and spacing of the turbines.

4.2.5 Wetlands/Jurisdictional Waters

Permanent and temporary impacts to USACE, RWQCB, CDFG, and County RPO jurisdictional areas will result from implementation of the modified project. Locations of impacted features are identified by jurisdiction in the Tule Wind Project Jurisdictional Delineation Report (**Appendix E**). Impacts to jurisdictional areas are summarized and separated by land ownership in **Table 4-8**.

Table 4-7
Distance Between Turbines

Structure Strand*	Structure Count	Mean Distance Between Rotor Tips (feet)	Mean Distance Between Turbine Towers (feet)	Mean Distance Between Rotor Tips (meters)	Mean Distance Between Turbine Towers (meters)
A	7	541.4	869.4	165.0	265.0
B	7	924.9	1,252.9	281.9	381.9
C	4	1,158.0	1,486.0	353.0	452.9
D	10	689.7	1,017.7	210.2	310.2
E	12	625.1	953.1	190.5	290.5
F	4	649.8	977.8	198.1	298.0
G	17	598.9	926.9	182.5	282.5
H	5	517.4	845.4	157.7	257.7
I	7	415.9	743.9	126.8	226.7
J	8	406.6	734.6	123.9	223.9
K	6	677.1	1,005.1	206.4	306.4
L	11	483.2	811.2	147.3	247.3
M	11	412.1	740.1	125.6	225.6
N	2	636.6	964.6	194.0	294.0
P	5	391.4	719.4	119.3	219.3
Q	2	435.4	763.4	132.7	232.7
R	7	709.8	1,037.8	216.3	316.3
S	1	2,663.8	2,991.8	811.9	911.9
T	2	797.8	1,125.8	243.2	343.1
Average Distance (Weighted by Number of Turbines)		**609.9**	**937.9**	**185.9**	**285.9**

*Structure Strand and Structure Count correlate with the Proposed Turbine Locations indicated in **Figure 1-2**.

Table 4-8
Impacts to Jurisdictional Areas within the Modified Project

Land Ownership	Impact	USACE Wetlands	USACE Waters of the U.S. (including wetlands)	RWQCB Waters of the State	CDFG Jurisdictional Areas	County RPO Wetlands
BLM	Temporary	-	0.29	0.29	0.57	-
	Permanent	-	0.22	0.22	0.31	-
	Total	**-**	**0.51**	**0.51**	**0.88**	**-**
State	Temporary	-	-	-	-	-
	Permanent	-	0.00	0.00	0.00	-
	Total	**-**	**0.00**	**0.00**	**0.00**	**-**
County/ Private	Temporary	-	0.06	0.06	0.17	0.06
	Permanent	-	0.04	0.04	0.07	0.04
	Total	**-**	**0.10**	**0.10**	**0.24**	**0.10**
Campo Reservation	Temporary	-	-	-	-	-
	Permanent	-	0.01	0.01	-	-
	Total	**-**	**0.01**	**0.01**	**-**	**-**
Manzanita Reservation	Temporary	-	-	-	-	-
	Permanent	-	0.02	0.02	-	-
	Total	**-**	**0.02**	**0.02**	**-**	**-**
Ewiiaapaayp Reservation	Temporary	-	0.00	0.00	-	-
	Permanent	-	0.01	0.01	-	-
	Total	**-**	**0.02**	**0.02**	**-**	**-**
Total*	Temporary	-	0.36	0.36	0.75	-
	Permanent	-	0.30	0.30	0.38	-
	Grand Total	**-**	**0.65**	**0.65**	**1.13**	**0.10**

*The various jurisdictional areas overlap with each other

5.0 ANALYSIS OF PROJECT EFFECTS

Impacts from wind energy development on biological resources can be considered significant if they result in, or contribute to, reduction of the quality and/or quantity of habitat, decrease populations to below a self-sustaining level, eliminate a plant or animal community, impact species protected by the Endangered Species Act, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act or any other applicable state laws, or establish or increase noxious weed populations. Project effects of implementation of the Tule Wind Project are analyzed in detail in Sections 3.2, 4.2, 5.2, 6.2, and 7.2 of the BTR. Impacts to biological resources are expected to be avoided, eliminated, or reduced to less than significant through applicant proposed avoidance and minimization measures and project mitigation measures. Applicant proposed avoidance and minimization measures presented in the BTR remain unchanged; however, mitigation measures have been modified based on project design and impacts information, and regulatory agency input. A summary of direct and indirect environmental impacts/environmental effects and proposed mitigation measures is included below.

5.1 IMPACTS AND PROPOSED MITIGATION

5.1.1 Vegetation Communities

Impact BIO-1 Construction activities would result in temporary and permanent losses of native vegetation.

Temporary impacts to native vegetation communities would result from the construction of the transmission line and poles, overhead and underground collector lines, construction of new and existing roadways, temporary parking area, temporary batch plant, and temporary staging areas. These temporary impacts to native vegetation communities are summarized in **Table 4-2**. Temporary impacts to native vegetation communities would be considered adverse and, therefore, Mitigation Measures BIO-1a through BIO-1d have been provided to mitigate this impact. Under CEQA, impacts would potentially be significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1d.

Permanent impacts to native vegetation communities would result from the construction of turbines, support facilities, access roads, and meteorological towers. Vegetation management around project facilities is also considered a permanent impact to vegetation communities. Although areas of the Tule Wind Project may be potentially restored upon decommissioning, all turbine locations, support facilities, access roads, and vegetation management areas are considered permanently impacted by construction of the project for the purposes of this analysis. Permanent impacts to native vegetation communities are summarized in **Table 4-2**. Permanent impacts to native vegetation communities are adverse and therefore, Mitigation Measure BIO-1e has been provided to mitigate this impact. Under CEQA, impacts would potentially be significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measure BIO-1e.

The proposed project will impact riparian habitats and have a substantial adverse effect on sensitive natural communities. Per the County of San Diego Biological Mitigation Ordinance, Tier I, Tier II, and Tier III vegetation communities are considered sensitive and require mitigation for impacts. Tier IV vegetation communities are not considered sensitive and do not require mitigation. Regardless of the sensitivity, all habitats supporting special status species are considered sensitive biological resources. Within the proposed project area, 14 sensitive natural communities and one riparian habitat will be impacted. Sensitive communities include upper Sonoran subshrub scrub, montane buckwheat scrub, big sagebrush scrub, northern mixed chaparral, semi-desert chaparral, chamise chaparral, redshank chaparral, scrub oak chaparral, upper Sonoran manzanita chaparral, southern north slope chaparral, open coast live oak woodland, dense coast live oak woodland, non-native grassland, and unvegetated channel. One riparian habitat–southern willow scrub–will be temporarily impacted by the proposed project. No temporary or permanent impacts to mulefat scrub or southern riparian woodland would occur. Impacts to sensitive natural communities from the Tule Wind Project would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1g have been provided to mitigate this impact. Under CEQA, impacts would be considered significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g.

The Tule Wind Project has the potential to result in indirect impacts to surrounding native vegetation communities from erosion, sedimentation, and increased risk of fire. These indirect effects have the potential to result in vegetation degradation and type conversion, which is considered adverse; therefore, Mitigation Measures BIO-1f and BIO-1g have been provided to mitigate this impact. Under CEQA, indirect effects would potentially be significant, but with implementation of Mitigation Measures BIO-1f and BIO-1g, impacts would be mitigated to a less than significant.

Mitigation Measures for Impact BIO-1

MM-BIO-1a **Confine all construction and construction-related activities to the minimum necessary area as defined by the final engineering plans.** All construction areas, access to construction areas, and construction-related activities shall be strictly limited to the areas identified on the final engineering plans. The limits of the approved work space shall be delineated with orange construction fencing that shall be maintained throughout the construction period. An environmental monitor shall complete regular observations to ensure that all work is completed within the approved work limits. In the event any work occurs beyond the approved limits, it shall be reported. During and after construction, entrances to access roads shall be gated to prevent the unauthorized use of these construction access roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.

MM-BIO-1b **Conduct contractor training for all construction staff.** Prior to construction, all developer, contractor, and subcontractor personnel shall receive training regarding the appropriate work practices necessary to implement the mitigation measures and comply with environmental regulations, including plant and wildlife species avoidance, impact minimization, and best management practices. Sign-in sheets and hard hat decals shall be provided that document contractor training has been completed for construction personnel.

MM-BIO-1c **Conduct biological construction monitoring.** An authorized biological monitor must be present at the construction sites during all ground disturbing and vegetation removal activities. The monitor shall survey the construction sites and surrounding areas for compliance with all environmental specifications. Weekly biological construction monitoring reports shall be prepared and submitted to the appropriate permitting and responsible agencies through the duration of the ground disturbing and vegetation removal construction phase. Monthly biological construction monitoring reports shall be prepared and submitted through the duration of project construction to document compliance with environmental requirements.

MM-BIO-1d **Restore all temporary construction areas pursuant to a Habitat Restoration Plan.** All temporary work areas not subject to long-term use or ongoing vegetation maintenance shall be revegetated with native species characteristic of the adjacent native vegetation communities in accordance with a Habitat Restoration Plan. A habitat restoration specialist will be designated and approved by the BLM and County of San Diego and will determine the most appropriate method of restoration. Restoration techniques may include the following: hydroseeding, hand-seeding, imprinting, and soil and plant salvage. Any salvage and relocation of species considered desert native plants shall be conducted in compliance with the California Desert Native Plant Act. The Habitat Restoration Plan shall include success criteria and monitoring specifications and shall be approved by the permitting agencies prior to construction of the project. At the completion of project construction, all construction materials shall be completely removed from the site. All temporary construction access roads shall be permanently closed and restored. Topsoil located in areas to be restored will be conserved and stockpiled during the excavation process for use in the restoration. Wherever possible, vegetation would be left in place to avoid excessive root damage to allow for natural recruitment following construction. Temporary impacts shall be restored sufficient to compensate for the impact to the satisfaction of the BLM or County (depending on the location of the impact). If restoration of temporary impact areas is not possible to the satisfaction of the appropriate agency, the temporary impact shall be considered a permanent impact and compensated accordingly (see MM BIO-1e).

MM-BIO-1e **Provide habitat compensation or restoration for permanent impacts to native vegetation communities.** Permanent impact to all native vegetation communities shall be compensated through a combination habitat compensation and habitat restoration at a minimum of a 1:1 ratio or as required by the permitting agencies. Habitat compensation shall be accomplished through agency-approved land preservation or mitigation fee payment for the purpose of habitat compensation of lands supporting comparable habitats to those lands impacted by the proposed project. Land preservation or mitigation fee payment for habitat compensation must be completed within 18 months of permit issuance. Habitat restoration may be appropriate as compensation for permanent impacts provided that restoration is demonstrated to be feasible and the restoration effort is implemented pursuant to a Habitat Restoration Plan, which includes success criteria and monitoring specifications as described above for Mitigation Measure BIO-1d. The Habitat Restoration Plan shall be approved by the permitting agencies prior to construction of the project. All habitat compensation and restoration used as mitigation for the proposed project on public lands shall be located in areas designated for resource protection and management. All habitat compensation and restoration used as mitigation for the proposed project on private lands shall include long-term management and legal protection assurances.

MM-BIO-1f **Implement fire prevention best management practices during construction and operation activities.** Fire prevention best management practices shall be implemented during construction and operation of the project as specified by the Construction Fire Prevention/Protection Plan (to be developed as required under dEIR/EIS Mitigation Measure FF-1) and Wildland Fire Prevention and Fire Safety Electric Standard Practice Operation and Maintenance Plan (to be revised as required under dEIR/EIS Mitigation Measure FF-2).

MM-BIO-1g **Prepare and implement a Stormwater Pollution Prevention Plan.** Prepare a Stormwater Pollution Prevention Plan pursuant to the specifications described in dEIR/EIS Mitigation Measure HYD-1.

5.1.2 Wetlands/Jurisdictional Waters

Impact BIO-1 Construction activities would result in temporary and permanent losses of native vegetation.

The Tule Wind Project would result in impacts to federal waters of the U.S. and CDFG and County jurisdictional features. No federal wetlands will be impacted. Although all areas of the Tule Wind Project may be potentially restored upon decommissioning, all turbine locations, support facilities, access roads, and vegetation management areas are considered permanently impacted by project construction for the purposes of this analysis. Impacts to jurisdictional areas from the Tule Wind Project would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1d, BIO-1f, BIO-1g, and BIO-2a through BIO-2c have been provided. Under CEQA, impacts would potentially be significant, but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1d, BIO-1f, BIO-1g, and BIO-2a through BIO-2c.

MM-BIO-2a **Limit temporary and permanent impacts to jurisdictional features to the minimum necessary as defined by the final engineering plans.** Obtain and implement the terms and conditions of agency permit(s) for unavoidable impacts to jurisdictional wetlands and waters. All construction areas, access to construction areas, and construction-related activities shall be strictly limited to the areas within the approved work limits identified on the final engineering plans. The limits of construction shall be delineated with orange construction fencing and maintained throughout construction to avoid and minimize impacts to jurisdictional resources. The project applicant shall obtain applicable permits and provide evidence of permit approval, which may include, but not be limited to, a Clean Water Act Section 404 Permit (or project authorization of a Section 404 Nationwide Permit), a Clean Water Act Section 401 water quality certification, and a Section 1602 Streambed Alteration Agreement with the USACE, RWQCB, and CDFG for impacts to jurisdictional features prior to project construction. The terms and conditions of these authorizations shall be implemented.

MM-BIO-2b **Implement habitat creation and/or restoration pursuant to a wetland mitigation plan to ensure no net loss of jurisdictional waters and wetlands.** Temporary and permanent impacts to all jurisdictional resources shall be compensated through a combination habitat creation (i.e., establishment), restoration and preservation at a minimum of a 1:1 ratio or as required by the permitting agencies. The creation/restoration effort shall be implemented pursuant to a Habitat Restoration Plan, which shall include success criteria and monitoring specifications and shall be approved by the permitting agencies prior to construction of the project. A habitat restoration specialist will be designated and approved by the permitting agencies and will determine the most appropriate method of restoration. Restoration techniques may include hydroseeding, hand-seeding, imprinting, and soil and plant salvage. Temporary impacts shall be restored sufficient to compensate for the impact to the satisfaction of the BLM or County (depending on the location of the impact). If restoration of temporary impact areas is not possible to the satisfaction of the BLM or County, the temporary impact shall be considered a permanent impact and compensated accordingly. All habitat creation and restoration used as mitigation for the proposed project on public lands shall be located in areas designated for resource protection and management. All habitat creation and restoration used as mitigation for the proposed project on private lands shall include long-term management and legal protection assurances.

MM-BIO-2c **Where drainage crossings are unavoidable, construct access roads at right angles to drainages.** Unless not possible due to existing landforms or site constraints, access roads shall be built perpendicular to drainages to minimize the impacts to these resources and prevent impacts along the length of jurisdictional features.

5.1.3 Invasive Vegetation

Impact BIO-3 Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species.

The Tule Wind Project area is characterized by native vegetation communities with generally low levels of invasive or noxious plant species. Non-native grasses and forbs occur as a component of the understory in most of the vegetation communities in the assessed areas. However, these species are at low percent cover and are not generally viewed as invasive or noxious within existing undisturbed vegetation communities. Areas within the Tule Wind Project where ground disturbance is occurring or has occurred support a higher level of and potential for invasive, non-native, and noxious plant species. These include areas of grazing, development, and along existing roadways.

The Tule Wind Project would result in temporary ground-disturbing activities that would disturb or remove existing vegetation. Ground-disturbance activities expose soils and allow invasive and non-native plant species to become established. Increased human and vehicle activity in the project area during construction would have the potential to introduce seeds of invasive and non-native species into the area. During operation and maintenance of the Tule Wind Project, the human and vehicle activities would have the potential to spread invasive and non-native species throughout the area. The introduction and spread of invasive, non-native, or noxious plant species has the potential to degrade plant and species habitat, including areas known to support special status species and sensitive natural communities. Therefore, impact of the Tule Wind Project on the introduction of invasive, non-native, or noxious plant species would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1d, BIO-1f, BIO-1g, and BIO-3a have been provided to mitigate this impact. Under CEQA, impacts would potentially be significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1d, BIO-1f, BIO-1g, and BIO-3a.

MM-BIO-3a **Prepare and implement a Noxious Weeds and Invasive Species Control Plan.** A Noxious Weeds and Invasive Species Control Plan shall be prepared and reviewed by the CPUC/BLM and applicable permitting agencies. The plan shall be implemented during all phases of project construction and operation. The plan shall include best management practices to avoid and minimize the direct or indirect effect of the establishment and spread of invasive plant species during construction. Implementation of specific protective measures shall be required during construction, such as cleaning vehicles prior to off-road use, using weed-free imported soil/material, restricted vegetation removal and requiring topsoil storage. Development and implementation of weed management procedures shall be used to monitor and control the spread of weed populations along the construction access and transmission line right-of-ways. Vehicles used in transmission line construction shall be cleaned prior to operation off of maintained roads. Existing vegetation shall be cleared only from areas scheduled for immediate construction work and only for the width needed for active construction activities. Noxious weed management shall be conducted annually to prevent the establishment and spread of invasive plant species. This shall include weed abatement efforts, targeted at plants listed as invasive exotics by the California Exotic Plant Pest Council in their most recent “A” or “Red Alert” list. Pesticide use should be limited to non-persistent pesticides and should only be applied in accordance with label and application permit directions and restrictions for terrestrial and aquatic applications.

5.1.4 Fugitive Dust

Impact BIO-4 Construction activities would create dust that would result in degradation of vegetation.

The construction of all components of the Tule Wind Project has the potential to generate dust that would cover vegetation adjacent to construction areas, including areas known to support special status species and sensitive natural communities. Dust cover on vegetation can cause reduced plant vigor and degraded plant and wildlife habitat through burial of plants or interruption of photosynthesis and other processes. The impact of fugitive dust would be adverse; therefore, Mitigation Measure BIO-4a has been provided to mitigate this impact. Under CEQA, impacts would potentially be significant but can be mitigated to a level that is considered less than significant with the implementation of Mitigation Measure BIO-4a.

MM-BIO-4a **Prepare and implement a Dust Control Plan.** Tule Wind, LLC shall: (a) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; (b) pre-water sites for 48 hours in advance of clearing; (c) reduce the amount of disturbed area where feasible; (d) spray all dirt stockpile areas daily as needed; (e) cover loads in haul trucks or maintain at least 6 inches of free-board when traveling on public roads; (f) pre-moisten, prior to transport, import and export dirt, sand, or loose materials; (g) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets or wash trucks and equipment before entering public streets; (h) plant vegetative ground cover in disturbed areas to meet the criteria of the restoration plan; (i) apply chemical soil stabilizers or apply water to form and maintain a crust on inactive construction areas (disturbed lands that are unused for 14 consecutive days); and (j) prepare and file a Dust Control Plan with the San Diego Air Pollution Control District, County of San Diego, and BLM that describes how these measures would be implemented and monitored at all locations of the project. This plan shall be developed consistent with the requirements of dEIR/EIS Mitigation Measure AQ-1.

5.1.5 Sensitive Plants

Impact BIO-5 Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants.

No state or federally listed plant species were observed or have the potential to occur in the project area. Special status plant species that were observed or have high to moderate potential to occur are discussed in Section 4.2.2.1. These include desert beauty, Jacumba milkvetch, Mountain Springs bush lupine, oceanblue larkspur, Palomar monkeyflower, Payson's jewel flower, San Diego hulsea, southern jewelflower, sticky geraea, and Tecate tarplant. Only two species, southern jewel flower and San Diego hulsea, are anticipated to have more impacts from the modified project design than from the original proposed design. San Diego Hulsea tends to be more abundant in somewhat disturbed habitat and is expected to quickly become reestablished in temporarily impacted areas. Southern jewelflower impacts are anticipated to be almost identical for the modified layout compared to the proposed project. Direct removal of special status species or indirect loss of from construction-related dust or trampling or direct removal of suitable habitat would be an adverse impact, therefore Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, BIO-5a and BIO-5b have been provided to mitigate this impact. Under CEQA, impacts would potentially be significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, BIO-5a, and BIO-5b.

MM-BIO-5a **Install fencing or flagging around identified special status plant species populations in the construction areas.** For areas without existing rare plant data, prior to the start of construction, a qualified biologist shall conduct focused surveys during the appropriate blooming period for special status plant species for all construction areas. All of the special status plant locations shall be recorded using a Global Positioning System (GPS), which will be used to site the avoidance fencing/flagging. Special status plant species shall be avoided to the maximum extent possible by all construction activities. The boundaries of all special status plant species to be avoided shall be delineated in the field with clearly visible fencing or flagging. The fencing/flagging shall be maintained for the duration of project construction activities.

MM-BIO-5b **Implement special status plant species compensation.** Impacts to special status plant species shall be maximally avoided. Where impacts to special status plant species are unavoidable, the impact shall be quantified and compensated through plant salvage and relocation or through land preservation. Where salvage and relocation is feasible and biologically preferred, it shall be conducted pursuant to an agency-approved plan that details the methods for salvage, stockpiling, and replanting and the characteristics of the receiver sites. Any salvage and relocation of species considered desert native plants shall be conducted in compliance with the California Desert Native Plant Act. Success criteria and monitoring shall also be included in the plan. Where off-site land preservation is biologically preferred, it shall be implemented pursuant to an agency approved plan that describes the mitigation land resources and the long-term management and legal protection assurances.

5.1.6 Wildlife

Impact BIO-6 Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality.

The Tule Wind Project would result in disturbance related to the construction of turbines, transmission lines, collectors, access roads, and other support facilities. Additionally, construction personnel and vehicles would be traversing the roadways in the vicinity of the project during the construction phase. Construction-related disturbance and/or mortality of wildlife would not be adverse, except where such disturbance or mortality affects special status species. Under CEQA, impacts would be considered less than significant. Potential disturbance and mortality of common wildlife does not rise to a level of significance, and mitigation measures implemented to avoid, minimize, and mitigate construction-related impacts to special status wildlife species will benefit other common wildlife species as well.

5.1.7 Sensitive Wildlife

Impact BIO-7 Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife.

Quino Checkerspot Butterfly

QCB is a federally endangered species that potentially occurs in a variety of habitats in the project area. QCB was observed in the project area during the 2010 surveys. Installation of the footings of the wind turbines, O&M building, power lines, and other ancillary facilities will result in permanent impacts to 24.4 acres of QCB habitat within the 1 kilometer movement radius of the 2010 observation. Construction will temporarily impact 7.3 acres of QCB habitat within the 1 kilometer movement radius of the 2010 observation.

Direct or indirect loss of this species from construction-related dust or vehicle collisions or permanent loss of suitable habitat would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, BIO-7b through BIO-7h, and BIO-7j have been provided to mitigate this impact. Under CEQA, impacts would significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, BIO-7b through BIO-7h, and BIO-7j.

Western Spadefoot Toad

Western spadefoot toad tadpoles were observed in a man-made ephemeral pond during the Tule Wind Project surveys. The ephemeral pond is not located within the permanent or temporary impact footprint. Although there appears to be limited potential for this species to be impacted by the project, direct or indirect loss from vehicle collisions, ground vibration, and construction-related dust or removal of suitable habitat would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7a through BIO-7f have been provided to mitigate this impact. Under CEQA, impacts would significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7a through BIO-7f.

Special Status Reptiles

The orange-throated whiptail, coastal western whiptail, northern red-diamond rattlesnake, coast horned lizard, coast patch-nosed snake, rosy boa, and common chuckwalla potentially use a variety of habitats in the project area. Orange-throated whiptail, northern red-diamond rattlesnake, coast horned lizard, coast patch-nosed snake, common chuckwalla, and rosy boa were observed in the project area. Direct or indirect loss of these species from vehicle collisions, ground vibration, and construction-related dust or removal of suitable habitat would be adverse therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7a through BIO-7f have been provided to mitigate this impact. Under CEQA, impacts would potentially significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7a through BIO-7f.

Golden Eagle

Golden eagles were observed in the project area and there is potential for this species to use most habitats on-site for foraging. However, use rates are low for the survey area as indicated by only three observations during over 700 thirty-minute point count surveys conducted at 16 locations throughout the Tule Wind Project area. In spring 2010, Wildlife Research Institute conducted a golden eagle helicopter survey within a 10-mile radius of the proposed Tule Wind Project (WRI 2010). This survey found 10 golden eagle territories, six of which were active. Of the six active territories, three nests had golden eagles incubating eggs. The nests with incubating adults are generally described as the Canebrake, Moreno Butte, and Glenn Cliff/Buckman Springs locations. The Canebrake location is approximately 0.1 mile northwest of the northern portion of the Tule Wind Project. The Moreno Butte location is approximately 10 miles southwest of the project. The Glenn Cliff/Buckman Springs location is approximately 8 miles west of the central portion of the project.

The nest locations of the other active territories, located at Garnet Mountain, Monument Peak, and Thing Valley, are approximately 10, 7, and 3 miles west of the Tule Wind Project, respectively.

Direct and indirect impacts to this species from construction activities would be adverse for the Canebrake pair/nest and therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-7a through BIO-7h and BIO-7j have been provided to mitigate this impact. Under CEQA, this impact would be potentially significant but can be mitigated to level that is less than significant with implementation of Mitigation Measures BIO-1a through BIO 1g, BIO-3a, BIO-4a, and BIO-7a through BIO-7f.

For the Canebrake pair, if the current nesting location is within 1 mile of the construction activity and the viewshed of the nest also includes the construction area, a temporal restriction may be required in order to avoid disturbance of the nesting pair and mitigate the potential direct and indirect impacts to a level that is not adverse and less than significant under CEQA. Direct removal of suitable foraging habitat for this species would be insignificant relative to the extent of foraging habitat available. However, placement of wind turbines within the zone where golden eagles hunt by soaring or from favored perches may cause a larger acreage of foraging habitat to be avoided by these birds than is affected by the ground disturbance. The data in the record shows that there is low golden eagle use on the project site, and low use and high vegetation cover in the western portion of the project suggest poor foraging habitat for golden eagles (WEST 2010b). Data suggests that the risk of collision is low, would not have population-level impacts, and any risk would be decreased to a less than significant level by applicable avoidance and minimization measures and mitigation measures (Hunt 2002). The potential effect of electrocution or collision for this species is addressed in Impact BIO-10.

Other Special Status Raptors

Cooper's hawk, long-eared owl, burrowing owl, turkey vulture, northern harrier, and prairie falcon potentially use a variety of habitats in the project area. A Cooper's hawk nest was observed in an oak tree during the avian survey and is considered a resident in the area; long-eared owl was observed once in winter 2007; northern harrier was observed in fall 2007 and winter and spring 2008; prairie falcon was observed once during the spring 2008 avian survey; and turkey vultures were observed frequently in the project area (Tetra Tech 2009). Burrowing owl was not observed, but has the potential to occur in the project area. Direct or indirect loss of these species from noise and increased human presence or removal of suitable habitat would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1f, BIO-3a, BIO-4a, BIO-7b through BIO-7e, and BIO-7j have been provided to mitigate this impact. Under CEQA, impacts would potentially significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1f, BIO-3a, BIO-4a, BIO-7b through BIO-7e, and BIO-7j.

Special Status Birds

Southern California rufous-crowned sparrow, Vaux's swift, olive-sided flycatcher, California horned lark, yellow warbler, loggerhead shrike, and gray vireo may potentially occur in a variety of habitats in the project area. Southern California rufous-crowned sparrow, Vaux's swift, olive-sided flycatcher, California horned lark, yellow warbler, and loggerhead shrike were observed in the project area; Gray vireo has the potential to occur in the project area. Vaux's swift, yellow warbler, and olive-sided flycatcher were likely migrating through the region. Direct or indirect loss of these species from noise and increased human presence or removal of suitable habitat would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, BIO-7b through BIO-7e, and BIO-7j have been provided and would mitigate this impact. Under CEQA, impacts would significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, BIO-7b through BIO-7e, and BIO-7j.

Mountain Lion

Mountain lion was observed on site and is found in variety of habitats where its preferred prey, mule deer, is found. Based on the high mobility of the mountain lion, the potential for direct loss of these species is low and would not be adverse. In addition indirect effects of noise and increased human presence on this species would not be considered adverse. Under CEQA, potential direct impact to this species and indirect effects of noise and increased human presence would be considered less than significant.

Direct removal of suitable habitat for these species would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1g and BIO-7a through BIO-7e have been provided to mitigate this impact. Under CEQA, impacts would significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g and BIO-7a through BIO-7e. The effects of the project on wildlife movement are addressed in Impact BIO-9.

Peninsular Bighorn Sheep

Peninsular bighorn sheep is a federally endangered and California state-threatened species. Given the known locations of Peninsular bighorn sheep (extensive annual monitoring data collected by CDFG confirms that there have been no occurrences of the bighorn sheep on the Tule Wind Project area), the species has not been detected in the project area, but is located east of the site in Carrizo Canyon. No USFWS critical habitat occurs in the project area. Physical and biological features that are essential for Peninsular bighorn sheep habitat, including a range of vegetation types, foraging and watering areas, and steep to very steep, rocky terrain with appropriate elevations and slope (74 FR 70) is lacking in the project area. Additionally, there is a lack of sufficient escape terrain within the vicinity, and bighorn sheep have never been recorded anywhere in which the proposed turbines would be visible within a half mile (IRI 2010c). The species is not expected to occur in the project area; therefore, the project is not expected to result in direct or indirect effects on the species and no adverse impacts are expected. Under CEQA, impacts to peninsular bighorn sheep would be considered less than significant.

Special Status Bats

Special status bats may potentially use a variety of habitats in the project area. Potential direct loss of this species or removal of suitable habitat would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7b through BIO-7e have been provided to mitigate this impact. Under CEQA, impacts would significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7b through BIO-7e.

Special Status Small Mammals

Several special status small mammals have the potential to occur in the project area. Direct loss of these species or removal of suitable habitat would be adverse. Therefore, Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7b through BIO-7e have been provided to mitigate this impact. Under CEQA, impacts would significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1g, BIO-3a, BIO-4a, and BIO-7b through BIO-7e.

MM-BIO-7a **Cover and/or provide escape routes for wildlife from excavated areas and monitor these areas daily.** All steep trenches and excavations during construction shall be inspected twice daily (i.e., morning and evening) by a qualified biologist to monitor for wildlife entrapment. Large/steep excavations shall be covered and/or fenced nightly to prevent wildlife entrapment. Excavations shall provide an earthen ramp to allow for a wildlife escape route.

MM-BIO-7b **Enforce speed limits in and around all construction areas.** Vehicles shall not exceed 25 miles per hour on any gravel roads accessing the construction site or 20 miles per hour on the construction site.

MM-BIO-7c **Minimize night construction lighting adjacent to native habitats.** Lighting of construction areas at night shall be the minimum necessary for personnel safety and shall be low illumination, selectively placed, and directed/shielded appropriately to minimize lighting in adjacent native habitats.

MM-BIO-7d **Prohibit littering and remove trash from construction areas daily.** Littering shall not be allowed by the project personnel. All food-related trash and garbage shall be removed from the construction sites on a daily basis.

MM-BIO-7e **Prohibit the harm, harassment, collection of, or feeding of wildlife.** Project personnel shall not harm, harass, collect, or feed wildlife. No pets shall be allowed in the construction areas.

MM-BIO-7f **Obtain and implement the terms of agency permit(s) with jurisdiction federal or state listed species.** If determined necessary, the applicant shall obtain a biological opinion through Section 7 consultation between the BLM and USFWS for impacts to federally listed wildlife species and a Section 2081 permit (or consistency determination) from the CDFG for impacts to state-listed wildlife species resulting from this project. The terms and conditions included in these authorizations shall be implemented, which may include seasonal restrictions, relocation, monitoring/reporting specifications, and/or habitat compensation through restoration or acquisition of suitable habitat.

MM-BIO-7g **Conduct protocol surveys for Quino checkerspot butterfly within the Quino checkerspot butterfly flight season prior to commencement of construction in occupied habitat.** Tule Wind, LLC shall conduct pre-construction protocol surveys for Quino checkerspot butterfly within the QCB flight season prior to commencement of construction activities in any area known to support the species. Surveys shall be conducted by a qualified, permitted biologist in accordance with the most currently accepted protocol survey method. Results shall be reported to the U.S. Fish and Wildlife Service within 45 days of the completion of the survey.

MM-BIO-7h **Provide compensation for temporary and permanent impacts to Quino checkerspot butterfly habitat through conservation and/or restoration.** Temporary and permanent impact to Quino checkerspot butterfly shall be compensated through a combination of habitat compensation and habitat restoration at a minimum of a 2:1 mitigation ratio for non-critical habitat and a minimum of a 3:1 mitigation ratio for critical habitat, or as required by the permitting agencies. Habitat compensation shall be accomplished through agency-approved land preservation or mitigation fee payment for the purpose of habitat compensation of lands supporting Quino checkerspot butterfly. Land preservation or mitigation fee payment for habitat compensation must be completed within 18 months of permit issuance. Habitat restoration may be appropriate as habitat compensation provided that the restoration effort is demonstrated to be feasible and implemented pursuant to a Habitat Restoration Plan, which shall include success criteria and monitoring specifications and shall be approved by the permitting agencies prior to project construction. All habitat compensation and restoration used as mitigation for the proposed project on public lands shall be located in areas designated for resource protection and management. All habitat compensation and restoration used as mitigation for the proposed project on private lands shall include long-term management and legal protection assurances.

MM-BIO-7j **Conduct pre-construction nesting bird surveys and implement appropriate avoidance measures for identified nesting birds.** The project proponent shall conduct pre-construction surveys for nesting birds if construction and removal activities are scheduled to occur during the breeding season. Surveys shall be conducted in areas within 500 feet of construction activities, such as tower sites, laydown/staging areas, substation sites, and access/spur road locations. The breeding season is generally defined as period from February 1 through August 15. For raptors, the breeding season is generally defined as January 15 through July 31. The required survey dates may be modified based on local conditions (i.e., high altitude locations) with the approval of the USFWS, CDFG and/or the relevant jurisdictional agency. The project applicant shall be responsible for retaining qualified biologists who can conduct pre-construction surveys and monitoring for breeding birds. Biological monitors will note any nests observed during construction within or adjacent to the project construction areas.

If breeding birds with active nests are found, a biological monitor shall establish up to a 300-foot buffer around the nest for construction activities and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. Construction within one mile of a golden eagle nest may only proceed if construction monitoring confirms the nest is not occupied. *See* Draft EIR/EIS at D.2-157.

The 300-foot (1-mile for golden eagle) buffer may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of with the approval of the USFWS, CDFG, and/or the relevant jurisdictional agency.

The biological monitors shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitors shall be responsible for documenting the results of the surveys and the ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies. If for any reason a bird nest must be removed during the nesting season, the project applicant shall provide written documentation providing concurrence from the USFWS and CDFG authorizing the nest relocation. The project applicant shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.

5.1.8 Nesting Birds

Impact BIO-8 Construction activities would result in a potential loss of nesting birds.

Construction of the Tule Wind Project would result in the removal of vegetation and increased human presence and noise that has the potential to cause the loss of nesting birds. The potential loss of nesting birds resulting from construction activities would be adverse; therefore, Mitigation Measures BIO-1a through BIO-1c, BIO-4a, BIO-7b through BIO-7e, and BIO-7j have been provided to mitigate this impact. Under CEQA, potential direct and indirect impacts to nesting birds would be significant but can be mitigated to a level considered less than significant with implementation of Mitigation Measures BIO-1a through BIO-1c, BIO-4a, BIO-7b through BIO-7e, and BIO-7j.

5.1.9 Wildlife Movement and Nursery Sites

Impact BIO-9 Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites.

Currently, wildlife movement through the Tule Wind Project area is relatively unconstrained. Regional north-south movement of wildlife is constrained by Interstate 8 and the U.S./Mexico border fence. Wildlife species expected to move through the area include mule deer, mountain lion, bobcat, coyote, small mammals, reptiles, and birds. There are no known or identified wildlife movement corridors, areas of fish movement, or native wildlife nursery sites in the project area. The County of San Diego's DPLU has modeled the project area as an important wildlife linkage within East County, as described previously in Section 3.4.3. It identifies connectivity to the Laguna Mountains to the west, and the Anza-Borrego Desert and Peninsular Ranges to the east. While many of these areas are undeveloped, they support roads and recreational activities. The Tule Wind Project is not expected to impede movement between these areas.

Wildlife may avoid the Tule Wind Project area during construction; however, this impact would be considered temporary, and wildlife movement would be relatively unconstrained around the project area. Therefore, the Tule Wind Project would not have an adverse impact on linkages or wildlife movement corridors. Under CEQA this impact would be less than significant. No impact on the movement of fish and native wildlife nursery sites during construction would occur.

The Tule Wind Project would result in the permanent placement and operation of wind turbines, access roads, transmission lines, and support facilities. The access roads, transmission lines, and support facilities would be largely permeable to wildlife movement, including ground-dwelling species and winged wildlife. The human presence at these facilities would be relatively low, and wildlife would be expected to acclimate to these features such that no long-term adverse effects to wildlife movement would be anticipated. The effect of the Tule Wind Project on wildlife movement resulting from electrocution or collision with the transmission lines by special-status avian species is addressed in Impact BIO-10. The wide spacing of the turbine placement and the low level of human presence at the turbines is not expected to preclude wildlife movement. There is evidence that terrestrial wildlife would acclimate to operating wind turbines and move between and around them. The effect of the Tule Wind Project wildlife movement resulting from collision with operating turbines is addressed in Impact BIO-10. Therefore, the Tule Wind Project would not have an adverse impact on linkages or wildlife movement corridors. Under CEQA, this impact would be less than significant. No impact on the movement of fish and native wildlife nursery sites would occur.

Impact BIO-10 Presence of transmission lines and wind turbines may result in electrocution of, and/or collisions by, listed or sensitive bird or bat species.

The Tule Wind Project would result in the installation of approximately 9 miles of 138 kV transmission line with 128 turbines. Special-status bird species have the potential to collide with towers and transmission lines and have the potential to be electrocuted by the transmission towers associated with the project, resulting in injury or mortality. Electrocution and/or collision impacts between listed or sensitive bird or bat species and transmission line components would be adverse; therefore, Mitigation Measures BIO-10a and BIO-10b have been provided and would mitigate this impact. Under CEQA, impacts would potentially be significant but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-10a and BIO-10b.

As previously discussed, wind energy projects pose the potential risk of bird and bat collision with turbines to resident and migratory species. Consistent with the California Energy Commission (CEC) and CDFG guidelines for a Category 3 site with uncertain potential for wildlife impacts, a number of technical studies were conducted for the site, including avian use studies, nest surveys, and bat studies (Tetra Tech 2008, 2009; WRI 2010; WEST 2009, 2010a, 2010b). These studies provide information for Tier 2 (Site Characterization) and Tier 3 (field studies and prediction of project impacts) pursuant to the Draft USFWS Wind Turbine Guidelines Advisory Committee Recommendations (Draft USFWS Guidelines) tiered approach. These studies employed avian point count stations, raptor nest searches, acoustic bat monitoring, and bat roost searches conducted by qualified biologists utilizing standard survey protocols to assess the potential collision risk to birds and bats.

During the 2005–2006 and 2007–2008 avian use and flight behavior surveys, over 700 30- minute point count surveys were conducted at 16 locations throughout the Tule Wind Project area. From this data, the encounter rate for species can be determined, which is an estimate of the frequency with which a species is observed at the elevations of the proposed turbines' rotor swept area (RSA). The encounter rate index provides one potential measure of risk to avian species; however, the actual risk to bird species is dependent upon other unmeasured factors, including behavior, visual acuity, and habitat affinities, among others (Tetra Tech 2008, 2009).

Raptor use of the site was considered moderate (0.58 birds/30 minutes in 2005–2006; 0.98 birds/ 30 minutes in 2007-2008), and non-raptor use of the site was considered low (11.83 birds/30 minutes in 2005-2006; 8.37 birds/30 minutes in 2007-2008) when compared to other sites with data from similar studies (Tetra Tech 2008, 2009). Overall, the estimated use of the Tule Wind Project area by raptors is low to moderate compared to other wind energy projects nationwide (Tetra Tech 2008, 2009; WEST 2010b). High raptor use (greater than 2.0 birds/30 minutes) tends to lead to relatively high raptor mortality (greater than 0.4 birds/megawatt (MW)/year), whereas low raptor use (less than 1.0 bird/30 minutes) tends to lead to relatively low raptor mortality (less than 0.2 birds/MW/year) (Tetra Tech 2009).

Avian Mortality

Of the raptor species detected in Tule Wind Project area, red-tailed hawks and turkey vultures had the highest encounter rates. Based solely on the encounter rates, these two raptor species would have the highest risk of collision. All other raptors detected in the project area (i.e., Cooper's hawk, American kestrel (*Falco sparverius*), northern harrier, sharp-shinned hawk (*Accipiter striatus*), golden eagle, prairie falcon, osprey (*Pandion haliaetus*), and an unidentified falcon and raptor) had very low encounter rates and would be at relatively low risk of collision according to these two studies (Tetra Tech 2008, 2009).

Significance of Avian Impacts

Based on the overall raptor use data and encounter rate index combined with species-specific nest survey information, and regulatory status, the operation of wind turbines proposed by the project could result in an adverse impact to golden eagle; therefore, Mitigation Measures BIO-10a through BIO-10h have been provided. Under CEQA, impacts may be significant but can be mitigated to a level that is considered less than significant. This mitigation includes implementation of an Avian and Bat Protection Plan (Mitigation Measure BIO-10b), an adaptive management program (Mitigation Measure BIO-10h), and eagle-specific surveys (Mitigation Measure BIO-10g), including telemetry, to guide final turbine site selection (Mitigation Measure BIO-10f).

Based on use data and encounter rate index, the presence of wind turbines would result in a significant risk of collision to Vaux's swift. This impact would be adverse; therefore, Mitigation Measures BIO-10a through BIO-10e and BIO-10g have been provided to mitigate this impact. Under CEQA, this impact would be considered potentially significant but can be mitigated to a level that is less than significant with implementation of Mitigation Measures BIO-10a through BIO-10e and BIO-10g. Based on the population status of the Vaux's swift, the potential loss of individuals due to collision with turbines would not result in a significant risk to the population. Based on the species' use data and encounter rate indices, the presence of wind turbines would not result in an adverse impact due to collision to other special-status bird species. Under CEQA, impacts to other special-status bird species would be considered less than significant. Implementation of these measures would also reduce the risk of collision for other special-status and common bird species.

Bat Mortality

Bat mortality is associated with collision with wind turbine rotors. Tree-roosting, migratory bat species have accounted for the majority of fatalities recorded at existing wind farm sites in North America (Kunz et al. 2007). Data on bat mortality is limited and potentially compromised by difficulties in detecting and identifying carcasses during post-construction searches. The highest numbers of bat fatalities have been reported in late summer and early fall, in the eastern and Midwestern United States, and during lower wind speeds (Arnett et al. 2008). No data on bat mortality was available for the southwestern United States (Kunz et al. 2007; Arnett et al. 2008). Data on bat mortality does suggest that post-construction bat mortality is roughly correlated to pre-project bat use at a site (Kunz et al. 2007; WEST 2009).

Bat activity at the Tule Wind Project area was estimated through the use of acoustical monitoring conducted between September 2008 and November 2010. Bat use for the Tule Wind Project area was estimated to be approximately 17.7 bat passes per detector night at ground-based stations at MET towers (Gruver et al. 2011). Compared to existing data from nine wind energy facilities where both bat activity rates and mortality levels have been measured, the level of bat activity documented at the Tule Wind Project area was higher than that at wind facilities in Minnesota and Wyoming where reported bat mortalities are low, but was lower than at facilities in the eastern United States where reported bat fatalities have been highest (Gruver et al. 2011). The acoustical monitoring did not identify bats to species.

Reported bat fatality rates from post-construction monitoring of existing wind farm sites shows a wide range of fatality rates, from 0 to nearly 40 bat fatalities/MW/year (Gruver et al. 2011). Based solely on the correlation between pre-project bat use and post-construction bat mortality, the Tule Wind Project has the potential to result in up to 2.5 bat fatalities/MW/year (Gruver et al. 2011). In addition to bat use information and estimates of fatality rates, the mine shafts known from the Tule Wind Project area were investigated. Seven horizontal mine shafts and three vertical shafts present within the project were surveyed and assessed for potential use by bats. Only one horizontal shaft appeared suitable as a roost structure (WEST 2010a).

Special status bat species have the potential to use the Tule Wind Project area. Some of these species are rock, crevice, and cave roosting. Frequencies in the range of several bat species were detected during acoustical monitoring (see Section 3.4.2.1). Given the detected bat use and the potential for special-status bat species to forage in the Tule Wind Project area, the presence of wind turbines would result in a potentially significant risk of collision to special-status species. This impact would be adverse, therefore Mitigation Measures BIO-10a through BIO-10e and BIO-10h have been provided to mitigate this impact. Under CEQA the risk of collision to special-status species would potentially be significant, but can be mitigated to a level that is considered less than significant with implementation of Mitigation Measures BIO-10a through BIO-10e and BIO-10h.

MM-BIO-10a **Design all transmission towers and lines to conform with Avian Power Line Interaction Committee standards.** The proposed project shall implement recommendations by the Avian Power Line Interaction Committee (2006), which will protect raptors and other birds from electrocution. These measures are sufficient to protect even the largest birds that may perch or roost on transmission lines or towers from electrocution.

MM-BIO-10b **Develop and implement project-specific Avian Protection Plans**. Develop and implement an Avian Protection Plan related to wire, transmission tower, and facilities impacts from electrocution and collision of bird species. An Avian Protection Plan shall be developed jointly with the USFWS and CDFG and shall provide the framework necessary for implementing a program to reduce bird mortalities and document actions. The Avian Protection Plan shall include the following: corporate policy, training, permit compliance, construction design standards, nest management, avian reporting system, risk assessment methodology, mortality reduction measures, avian enhancement options, quality control, public awareness, and key resources.

MM-BIO-10c **Design and configure wind turbines to maximally avoid and minimize bird and bat resources.** Various design features shall be used to reduce or avoid impacts to bird and bat species. These may include avoiding guy wires, reducing impacts with appropriate turbine layout based on micro-siting decisions that may include such refinements as placing all turbines on the ridgeline and avoiding placement of turbines on slopes and within canyons, placing power lines underground as much as feasible, and reducing foraging resources near turbines.

MM-BIO-10d **Minimize turbine lighting.** Night-lighting may serve as an attractant for birds especially migrants, which may be attracted to the light and then become unable to leave it. Except where FAA safety requirements determine the requirements for lighting, lighting that attracts birds shall be avoided on the turbines. Lights with short flash duration that emit no light during the off phase shall be used. Lights that have the minimum number of flashes per minute and the briefest flash duration shall be used. Lights on auxiliary buildings near turbines and MET towers shall be motion-sensitive rather than constant "on" lights. All lighting on buildings shall be shielded and downcast. To avoid disorienting or attracting birds, Federal Aviation Administration visibility lighting shall employ only strobe, strobe-like, or blinking incandescent lights, preferably with all lights illuminating simultaneously. Minimum intensity, maximum "off-phased" duel strobes are preferred. No steady burning lights shall be used.

MM-BIO-10e **Conduct post-construction bird and bat species mortality monitoring and reporting pursuant to an approved monitoring program.** Conduct at least 2 years of post-construction bird and bat mortality monitoring. A Post-Construction Monitoring Program shall be developed in accordance with the *California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development* (CEC and CDFG 2007) and recommendations from the Wind Turbine Guidelines Advisory Committee (USFWS 2010) to satisfy Tier 4 and Tier 5 monitoring requirements. This plan shall be reviewed by the permitting agencies prior to project initiation. At a minimum, the plan shall outline the monitoring methods, evaluation methods, threshold criteria for action, and types of management actions to be undertaken. Annual monitoring reports shall be submitted to the wildlife agencies, BLM, County of San Diego, and Bureau of Indian Affairs.

MM-BIO-10f **Authorize construction of portions of the project based on the results of behavioral and population studies of local golden eagles.** Construction of the Tule Wind project would be authorized in two portions:

1. Construction of the first portion of the project would occur at those turbine locations deemed to present less risk to the eagle population~~s~~ and would not include turbines on the northwest ridgeline.

2. Construction of the second portion of the project would occur at those turbine locations that show reduced risk to the eagle population following analysis of detailed behavior studies of known eagles in the vicinity of the Tule Wind project. Pending the outcome of eagle behavior studies, all, none or part of the second portion of the project would be authorized and will include the following turbine strings: J1 through J15; K1 through K12; L1 through L11; M1and M2; N1 through N8; P1 through P5; Q1and Q2.

Construction of turbines in the second portion of the project will only be authorized following detailed behavioral telemetry studies and continued nest monitoring of known eagles in the vicinity of the Tule Wind Project (considered to be within approximately 10 miles of the project). Behavior studies will be used to determine eagle usage and forage areas, and authorization for construction at each turbine location in the second portion will be at the discretion of the BLM or the appropriate land management entity.

The final criteria determining the risk each location presents to eagles will be determined by the BLM or the appropriate land management agency, in consultation with the required resource agencies, tribes and other relevant permitting entities and will be detailed in the Avian Protection Plan. Criteria will be established related to the proportion of the observed golden eagle use areas (based on the telemetry data) within proposed turbine strings to determine the risk of these turbines on individual eagles in the vicinity. Criteria will also be established related to past and current nest occupancy and productivity (based on past and continued nest monitoring data) for the monitored nests in the project vicinity to determine the risk of the construction of turbines on the eagle population. Turbine locations exceeding the acceptable risk levels to golden eagles based on these final criteria will not be authorized for construction.

MM-BIO-10g **Monitor golden eagles nests in the area to track productivity.** Conduct periodic surveys of golden eagle territories as provided in the Avian and Bat Protection Plan. Conduct surveys to determine location of active nest, number of eggs laid and number of young fledged, as described by Pagel et al. (2010). Monitoring reports shall be provided to the wildlife agencies, Bureau of Indian Affairs, and the BLM.

MM-BIO-10h Implement an adaptive management program in an Avian and Bat Protection Plan developed jointly with USFWS and CDFG that provides triggers for required operational modifications (e.g., seasonality, radar, turbine-specific modifications, cut-in speed). An adaptive management program shall be prepared jointly with USFWS and CDFG and implemented by the project applicant that uses the information provided from implementation of Mitigation Measures 10e and 10g, which includes the post-construction bird monitoring and the golden eagle nest productivity monitoring. If mortality of any golden eagle occurs as a result of Tule Wind Project's operation, regardless of age or gender, the responsible and adjacent turbines will be shut down while the adaptive management program is assessed for its validity and modified to the satisfaction of the resource agencies. This program will be based on monitoring of the active nest locations and eagle activity within 10 miles of the turbines. Measures to be considered for implementation include curtailing operation of all or selected turbines during the fledging period of the active nests or potential permanent shutdown of turbines that are closest to active nests until the nest location changes to a farther location (eagles are known to build numerous nests within their territory and use different nest locations each year (Kochert et al. 2002)). Adaptive management measures may also include prey population control if populations of ground squirrels and rabbit species are noted in proximity (within 50 meters or 164 feet) to the turbine base. The prey population may serve as an attractant to foraging raptors and could result in the collision with the turbines as a result. Other measures (e.g., radar monitoring and turbine modifications) will be implemented as dictated by the monitoring data and as specified by the adaptive management program. Based on the monitoring of bat mortality, the adaptive management program shall have triggers for the implementation of limited and periodic feathering or shut downs of turbines to avoid impacts to bats.

5.1.10 Facilities Maintenance

Impact BIO-11 Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality.

Similar to the description of Impact BIO-6 for construction activities, maintenance activities during the operation of the Tule Wind Project have the potential to result in disturbance to and mortality of wildlife. The project would require 12 full-time staff operating out of the O&M Building. Routine maintenance of the turbines would occur twice a year. Staff would visit the substation several times a week for routine operations. Vegetation maintenance would occur as needed to maintain minimum necessary space around turbines and overhead structures. The loss of wildlife habitat resulting from vegetation maintenance has been addressed under Impact BIO-1. Operations and maintenance related disturbance or direct mortality of special-status wildlife species would be adverse; therefore, Mitigation Measures BIO-3a, BIO-4a, BIO-7b through BIO-7d, and BIO-11a have been provided to mitigate this impact. Under CEQA, the disturbance to or direct mortality of special-status wildlife species during maintenance activities would be significant but can be mitigated to below a level of significance with implementation of Mitigation Measures BIO-3a, BIO-4a, BIO-7b through BIO-7d, and BIO-11a. Operations and maintenance-related disturbance or direct mortality of common wildlife species would not be adverse, and under CEQA, would be less than significant. The mitigation measures for Impact BIO-7 that offset operation and maintenance effects to special status wildlife species will benefit other common wildlife species as well.

MM-BIO-11a **Conduct maintenance activities resulting in vegetation disturbance outside of the bird nesting season or conduct pre-construction nesting bird surveys.** Maintenance activities with the potential to result in direct or indirect habitat disturbance, most notably vegetation management, shall be conducted outside of the bird nesting season to the maximum extent practicable. Where avoidance is not possible, the project proponent shall conduct pre-construction nesting bird surveys to determine the presence/absence of active nests in or adjacent to construction areas. If active nests are identified, appropriate avoidance measures would be identified and implemented to prevent disturbance to the nesting bird(s). If federal or state-listed nesting birds are identified, the project proponent shall contact the USFWS and/or CDFG to determine the appropriate course of action.

5.2 CONCLUSION

The assessed area contains high quality native vegetation, as well as areas with varying levels of disturbance and development. Terrestrial communities include riparian habitats, sensitive natural communities, and other native habitats that may be used by native resident or migratory wildlife, including several sensitive species.

Federal waters of the U.S., including wetlands, and CDFG and County RPO jurisdictional areas are located within the project area. Project implementation would result in permanent and temporary impacts to these jurisdictional features.

Impacts to biological resources are expected to be avoided, eliminated, or reduced to less than significant through applicant proposed avoidance and minimization measures and project mitigation measures. Applicant proposed avoidance and minimization measures presented in the BTR remain unchanged; however, mitigation measures have been modified based on project design and impacts information, and regulatory agency input. As compared to the original proposed project design, the modified project design (based on the new surveys) demonstrates that no new significant impacts are anticipated to occur as a result of the modified project design.

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APPENDIX A

Biological Resources Map

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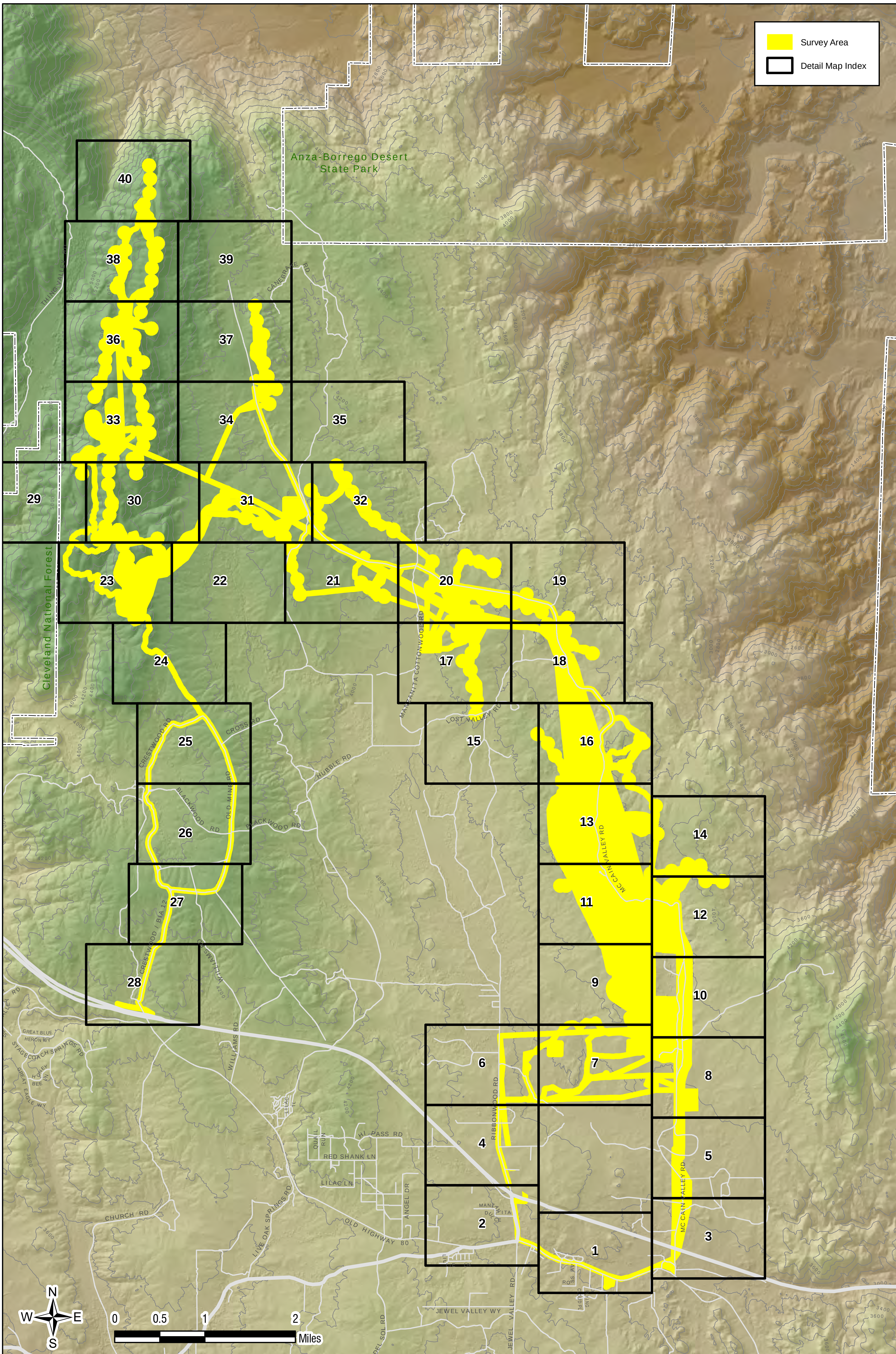

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Map Index

FIGURE 1

Tule, LLC | Tule Wind Project | BTA

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

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Feet

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Appendix A: Biological Resources Maps (Index Map 1)

Figure 2

Tule, LLC | Tule Wind Project | BTA

Appendix A: Biological Resources Maps (Index Map 2)

Figure 3

Tule, LLC | Tule Wind Project | BTA

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Appendix A: Biological Resources Maps (Index Map 3)

Figure 4

Tule, LLC | Tule Wind Project | BTA

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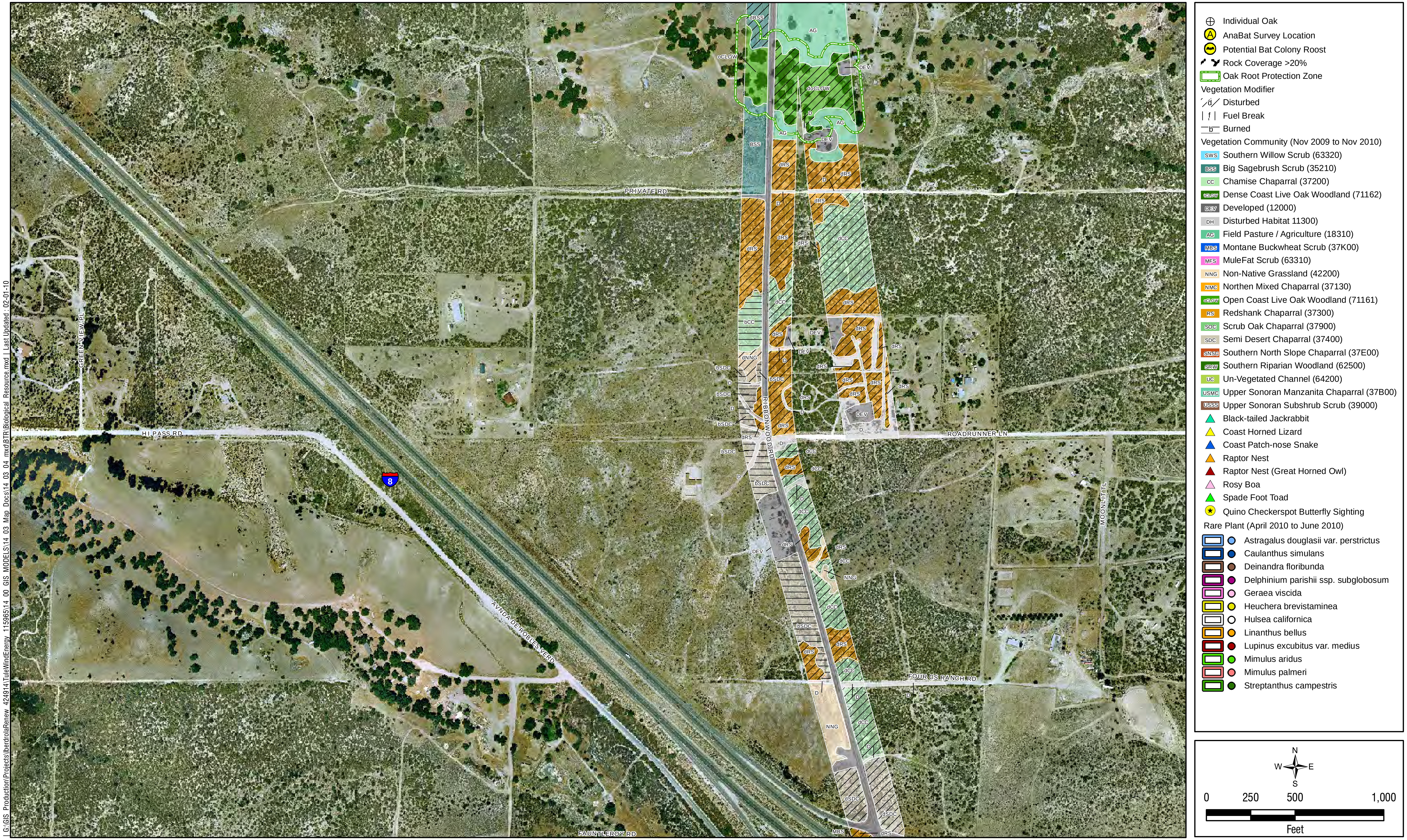

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Appendix A: Biological Resources Maps (Index Map 4)

Figure 5

Tule, LLC | Tule Wind Project | BTA

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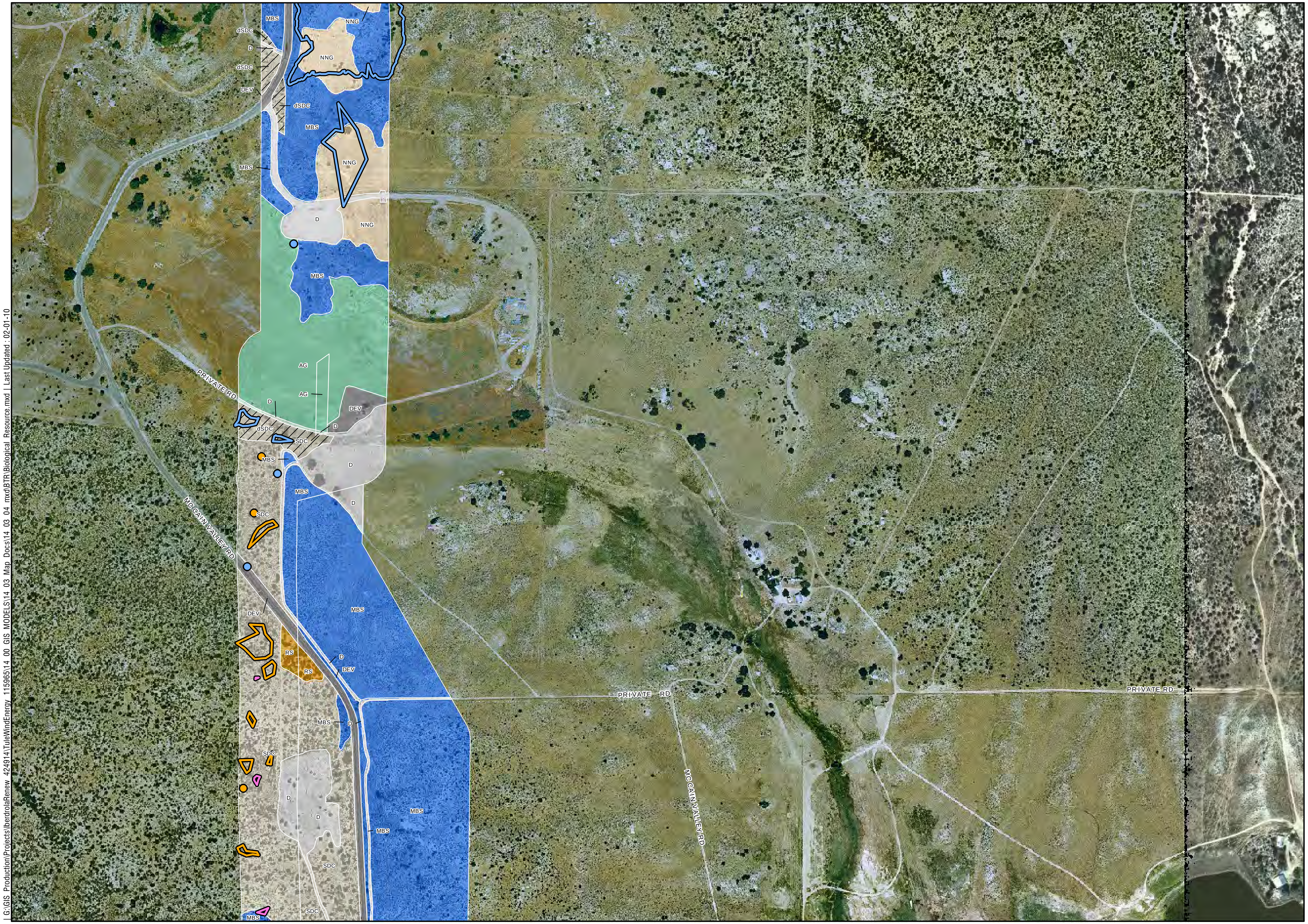

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
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Vegetation Community (Nov 2009 to Nov 2010)
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Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
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Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

N W E S

0 250 500 1,000

Feet

Appendix A: Biological Resources Maps (Index Map 5)

Figure 6

Tule, LLC | Tule Wind Project | BTA

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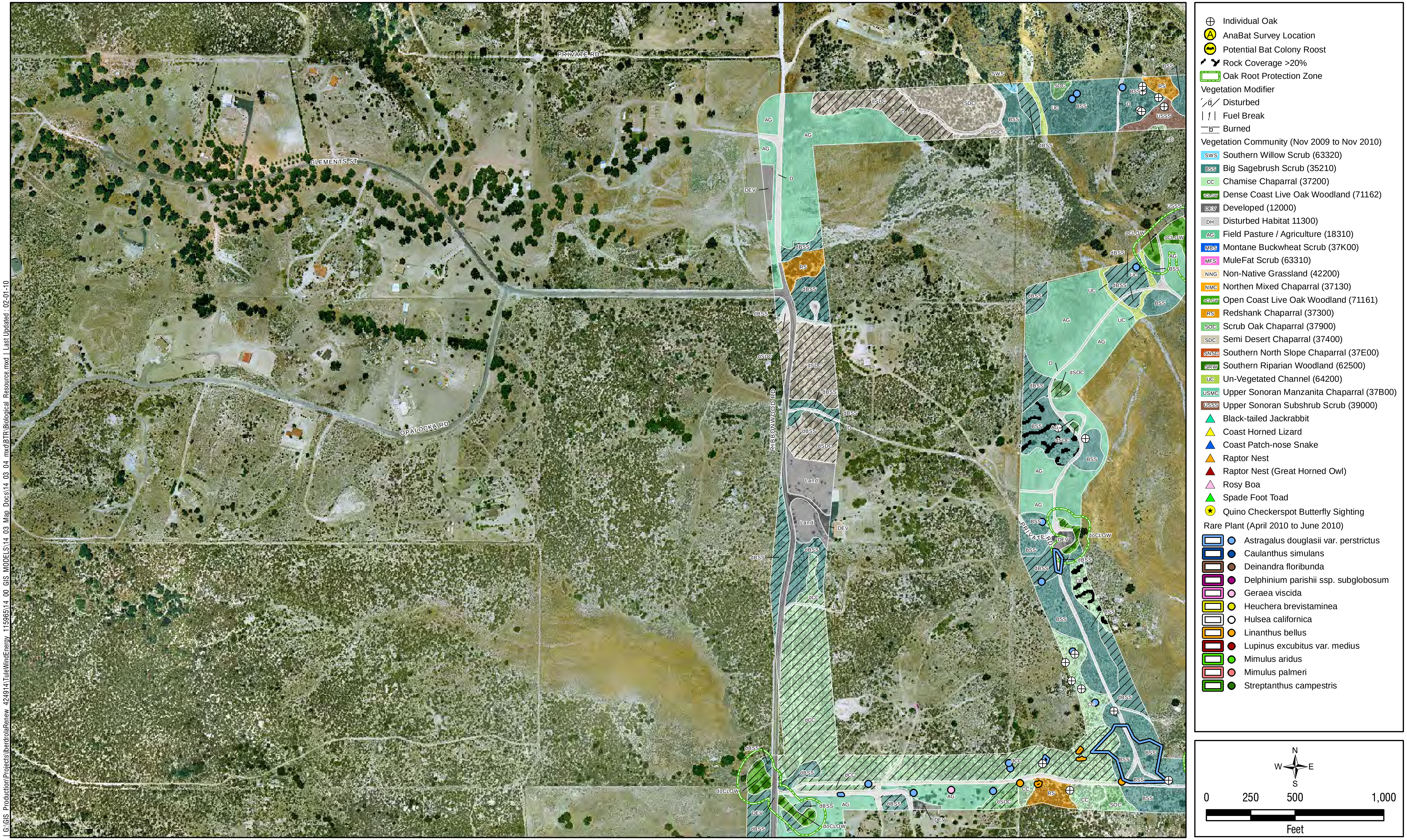

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Appendix A: Biological Resources Maps (Index Map 6)

Figure 7

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier
- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- dCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- oCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

0 250 500 1,000

Feet

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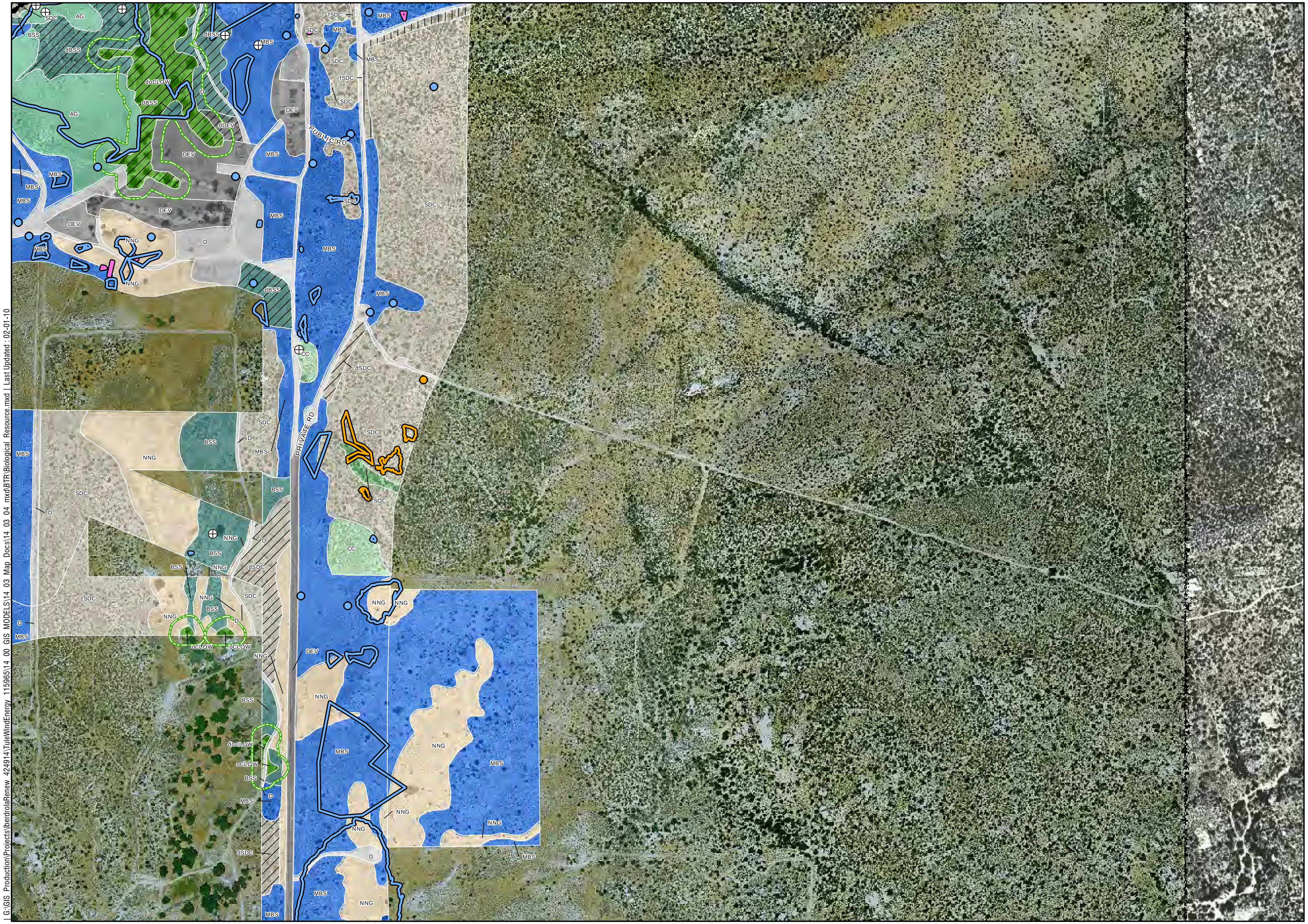
Appendix A: Biological Resources Maps (Index Map 7)

Figure 8

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Nov 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
DCLW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
DH Disturbed Habitat 11300)
AG Field Pasture / Agriculture (18310)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
NMC Northen Mixed Chaparral (37130)
OCLW Open Coast Live Oak Woodland (71161)
RS Redshank Chaparral (37300)
SOC Scrub Oak Chaparral (37900)
SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)

Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

N
W E
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0 250 500 1,000
Feet

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Appendix A: Biological Resources Maps (Index Map 8)

Figure 9

Tule, LLC | Tule Wind Project | BTA

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Appendix A: Biological Resources Maps (Index Map 9)

Figure 10

Tule, LLC | Tule Wind Project | BTA

Appendix A: Biological Resources Maps (Index Map 10)

Figure 11

Tule, LLC | Tule Wind Project | BTA

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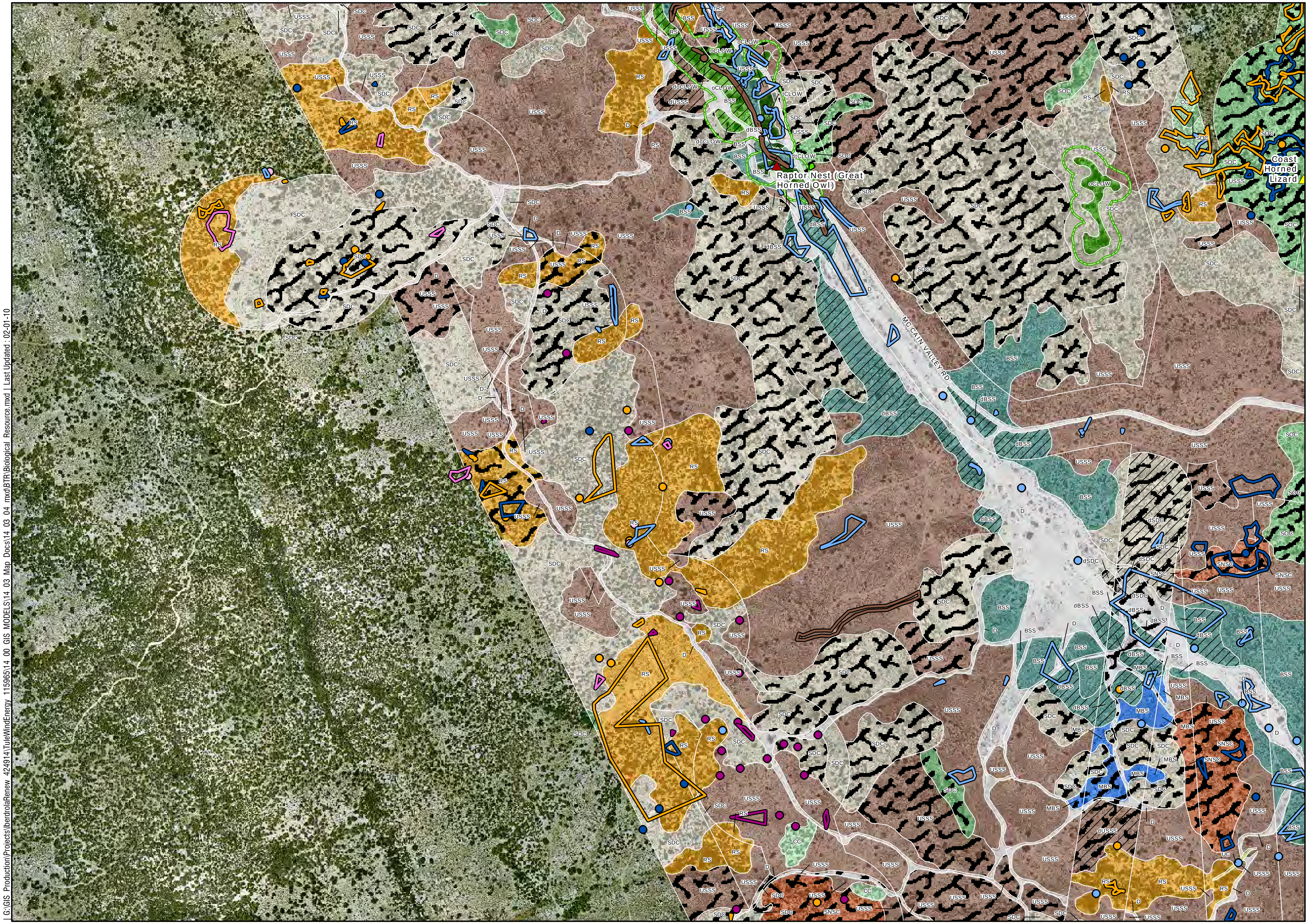

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northern Mixed Chaparral (37130)
- OCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N E S W

0 250 500 1,000

Feet

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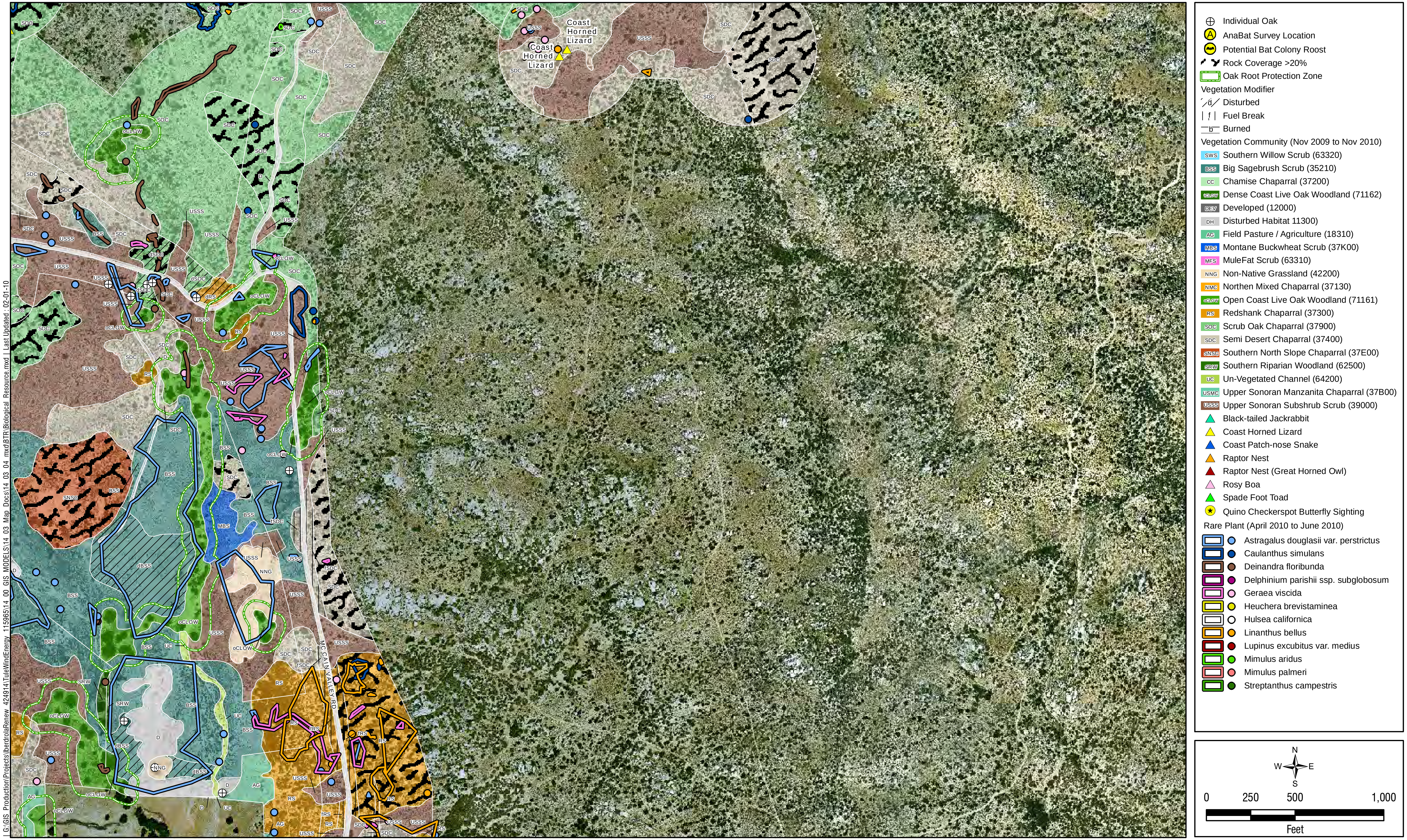
Appendix A: Biological Resources Maps (Index Map 11)

Figure 12

Tule, LLC | Tule Wind Project | BTA



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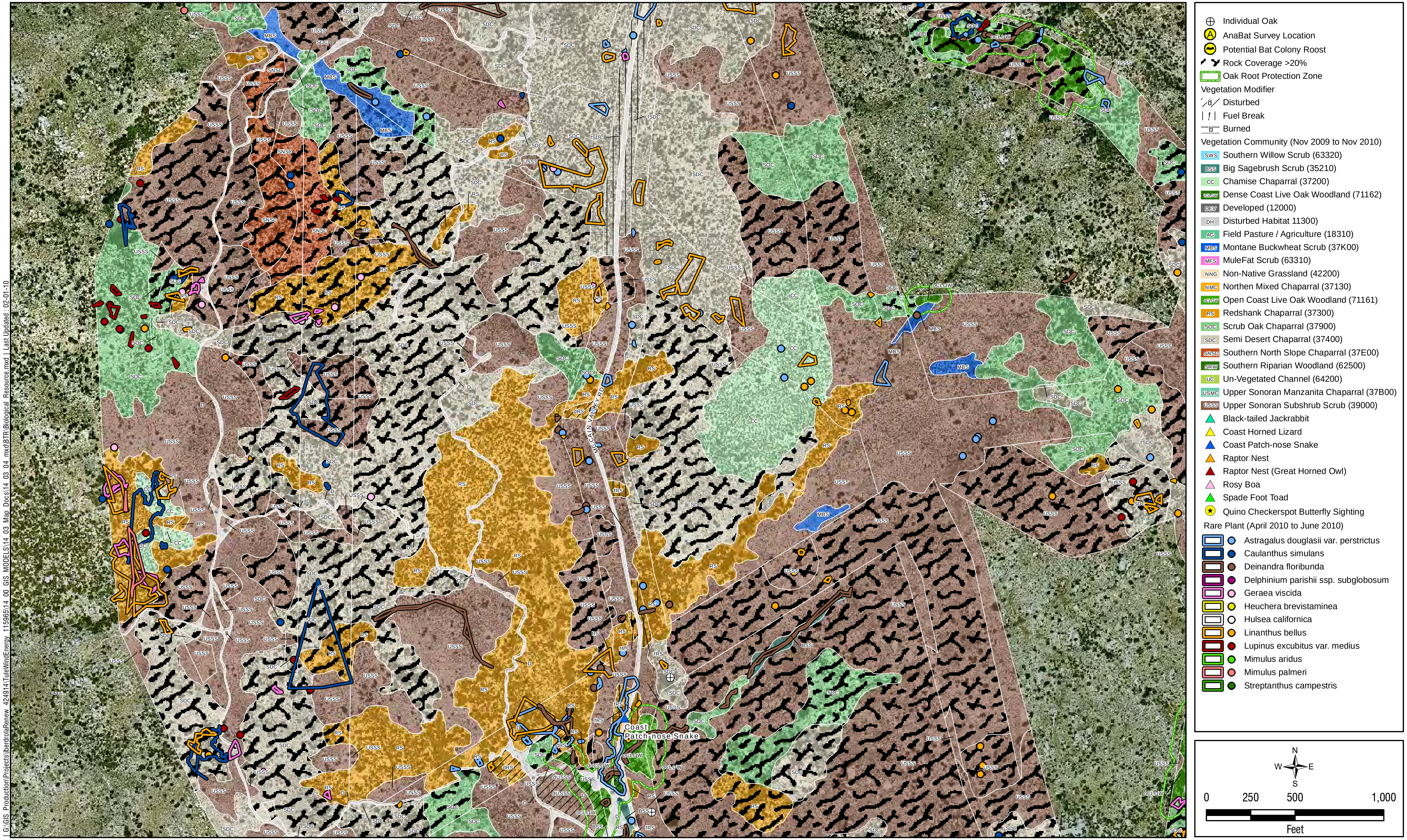
Appendix A: Biological Resources Maps (Index Map 12)

Figure 13

Tule, LLC | Tule Wind Project | BTA



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Appendix A: Biological Resources Maps (Index Map 13)

Figure 14

Tule, LLC | Tule Wind Project | BTA

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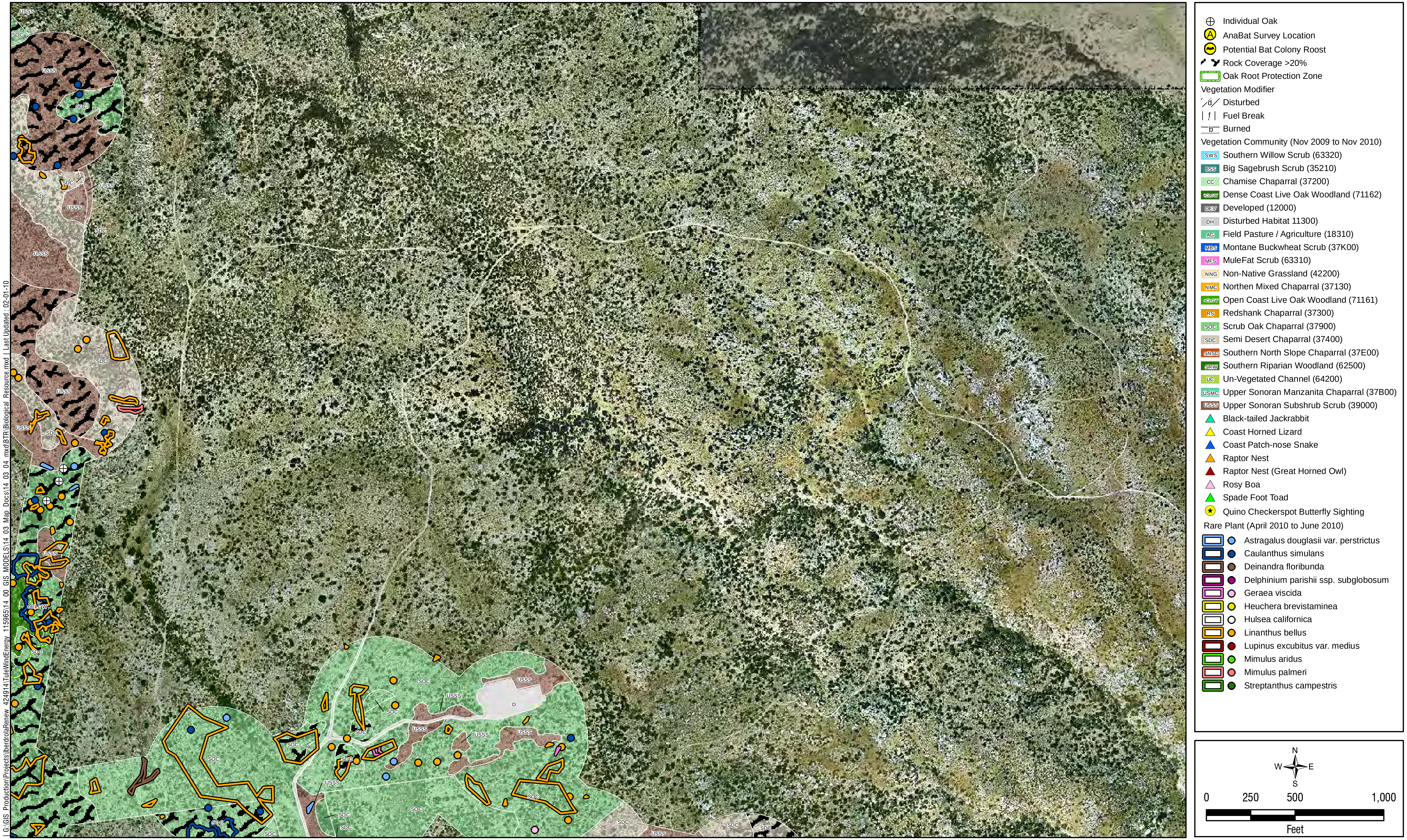

Appendix A: Biological Resources Maps (Index Map 14)

Figure 15

Tule, LLC | Tule Wind Project | BTA

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Appendix A: Biological Resources Maps (Index Map 15)

Figure 16

Tule, LLC | Tule Wind Project | BTA

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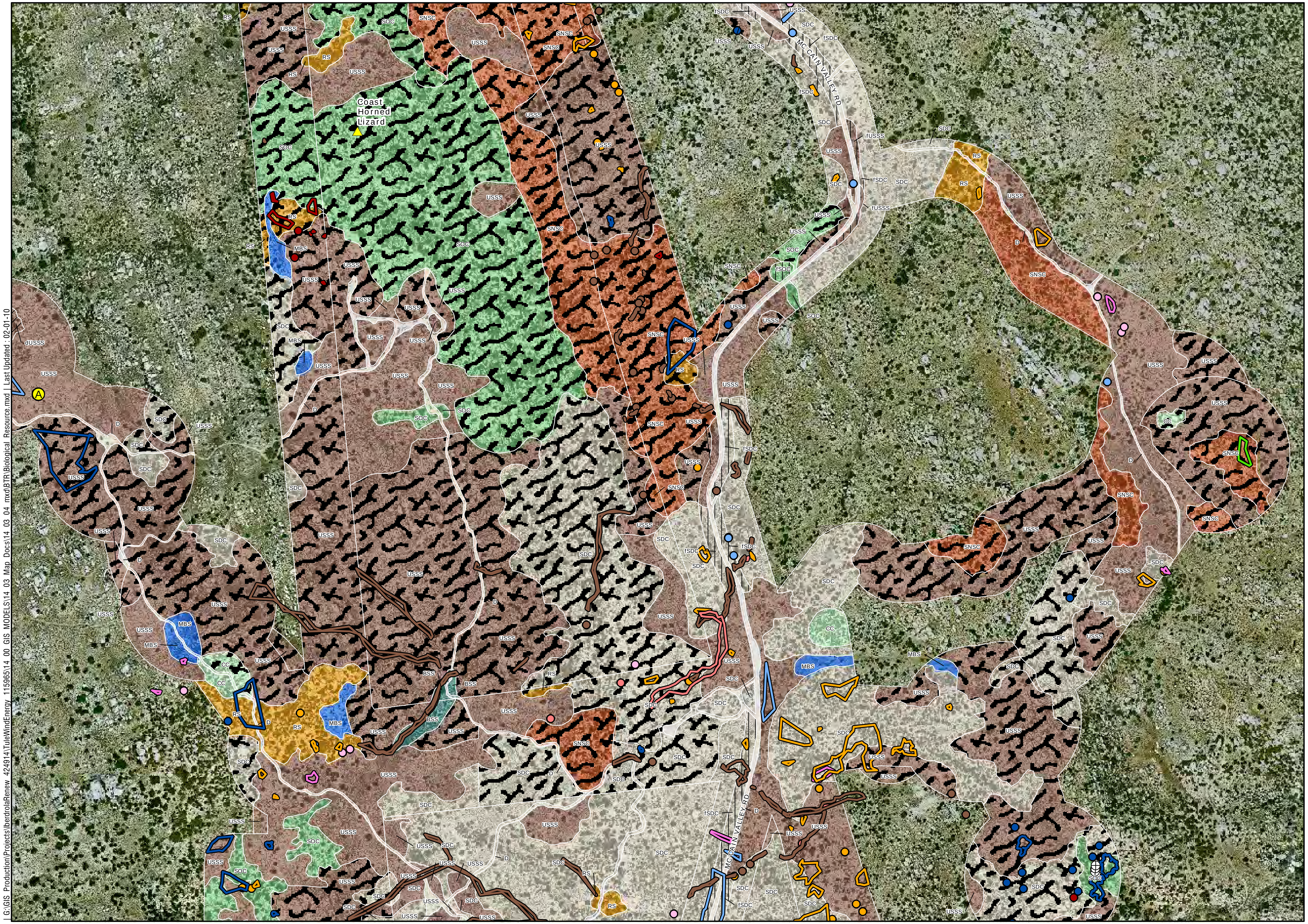

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone
Vegetation Modifier
Disturbed
Fuel Break
Burned
Vegetation Community (Nov 2009 to Nov 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
DCLOW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
DH Disturbed Habitat 11300)
AG Field Pasture / Agriculture (18310)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
NMC Northen Mixed Chaparral (37130)
OCLOW Open Coast Live Oak Woodland (71161)
RS Redshank Chaparral (37300)
SOC Scrub Oak Chaparral (37900)
SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)
Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting
Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

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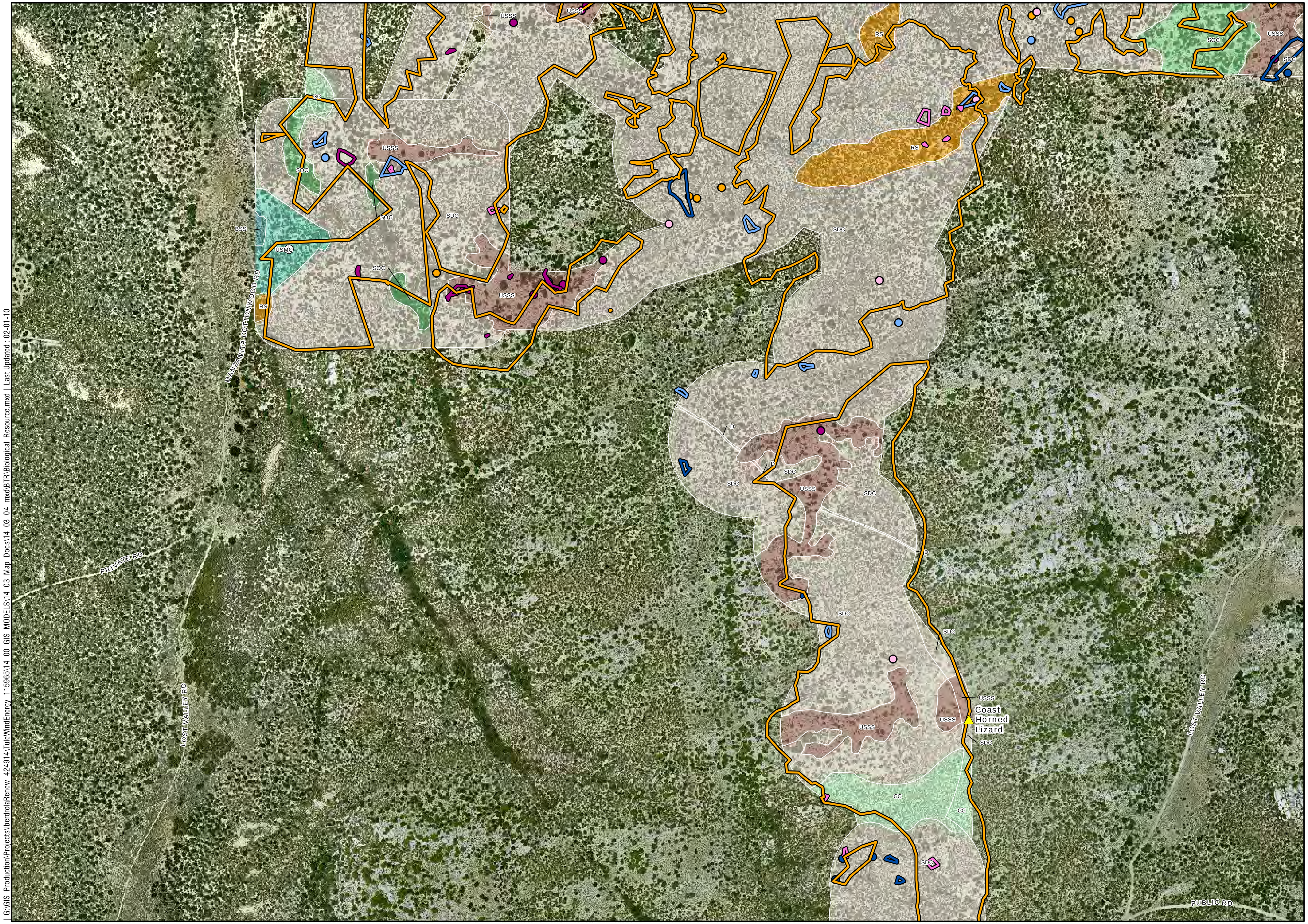
Appendix A: Biological Resources Maps (Index Map 16)

Figure 17

Tule, LLC | Tule Wind Project | BTA



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
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- MFS MuleFat Scrub (63310)
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- SDC Semi Desert Chaparral (37400)
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- SRW Southern Riparian Woodland (62500)
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- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix A: Biological Resources Maps (Index Map 17)

Figure 18

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
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- MBS Montane Buckwheat Scrub (37K00)
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- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
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- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

0 250 500 1,000

Feet

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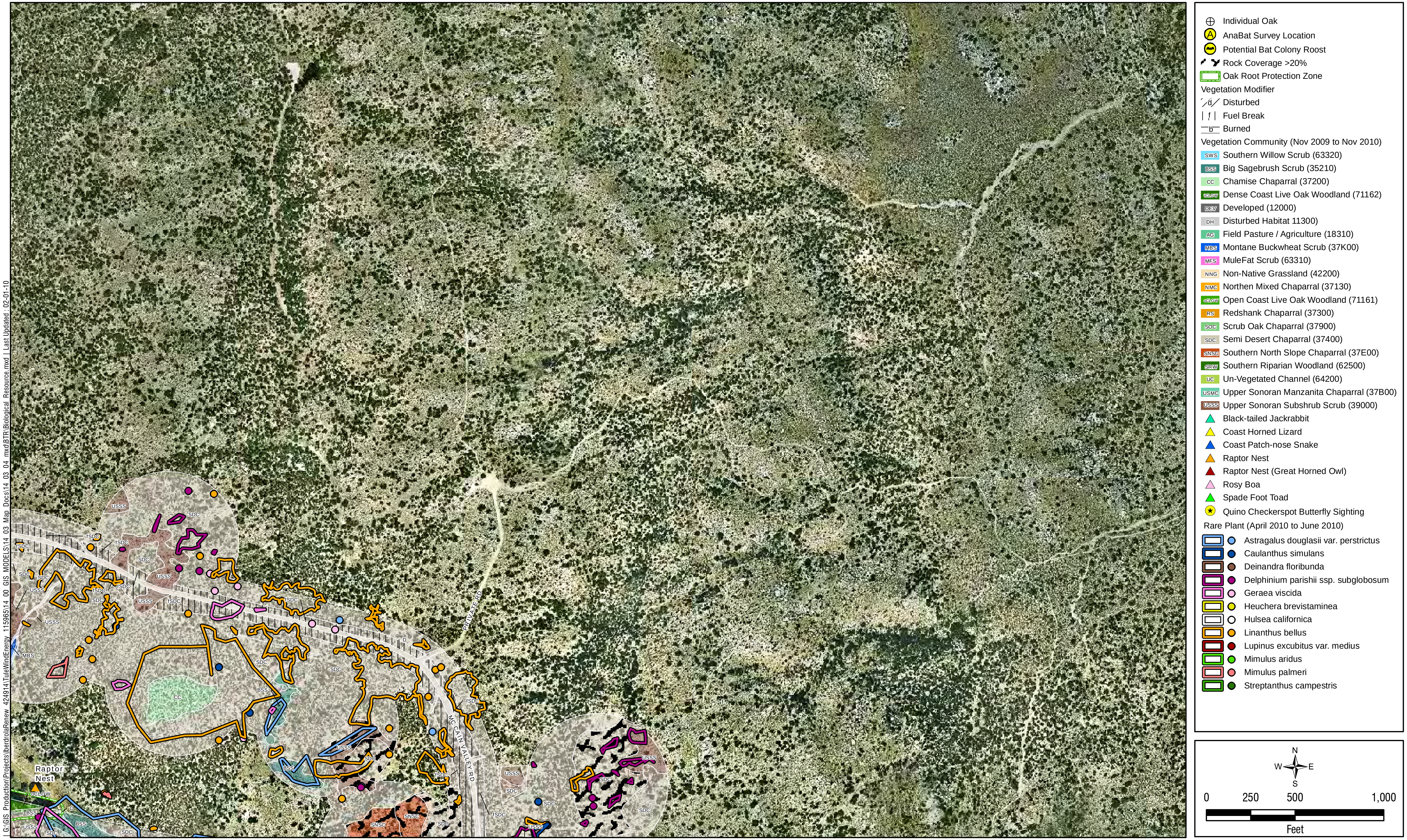
Appendix A: Biological Resources Maps (Index Map 18)

Figure 19

Tule, LLC | Tule Wind Project | BTA



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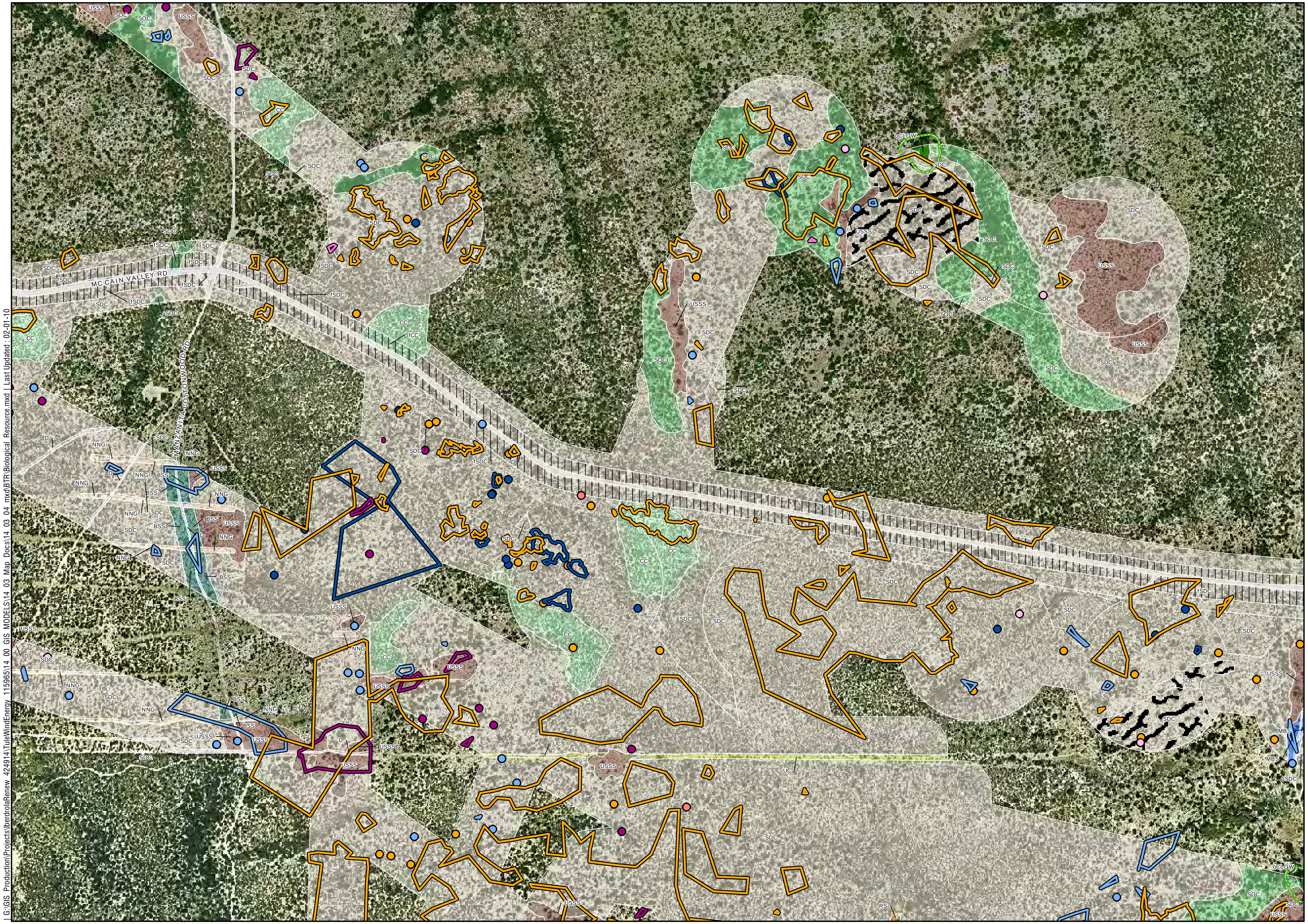
Appendix A: Biological Resources Maps (Index Map 19)

Figure 20

Tule, LLC | Tule Wind Project | BTA



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
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- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
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- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

0 250 500 1,000

Feet

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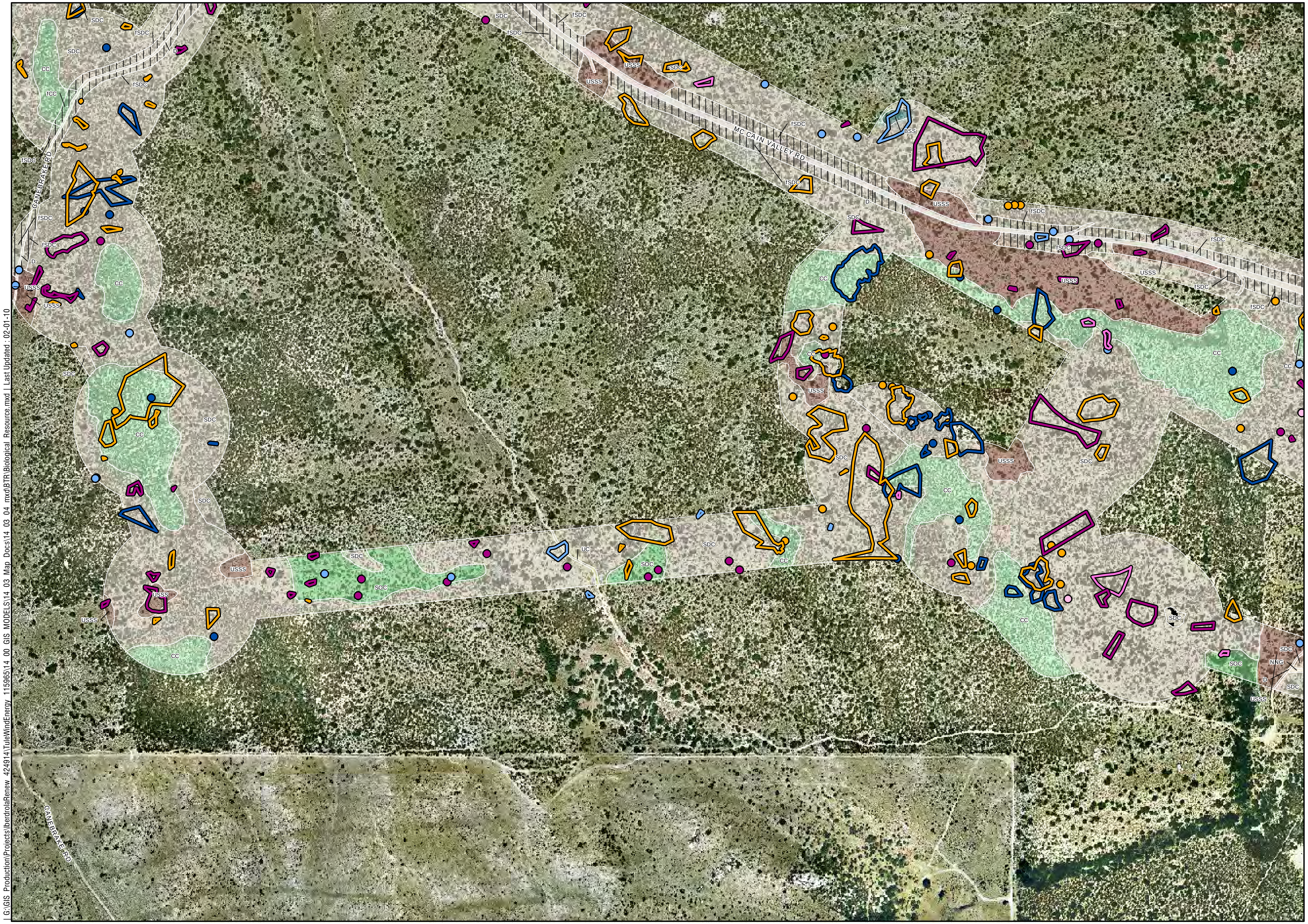
Appendix A: Biological Resources Maps (Index Map 20)

Figure 21

Tule, LLC | Tule Wind Project | BTA



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- DCLOW Dense Coast Live Oak Woodland (71162)
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- DH Disturbed Habitat 11300)
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- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
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- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

0 250 500 1,000

Feet

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Appendix A: Biological Resources Maps (Index Map 21)

Figure 22

Tule, LLC | Tule Wind Project | BTA

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Nov 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
DCLOW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
DH Disturbed Habitat 11300)
AG Field Pasture / Agriculture (18310)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
NMC Northen Mixed Chaparral (37130)
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SOC Scrub Oak Chaparral (37900)
SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)

Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

N
W E
S

0 250 500 1,000

Feet

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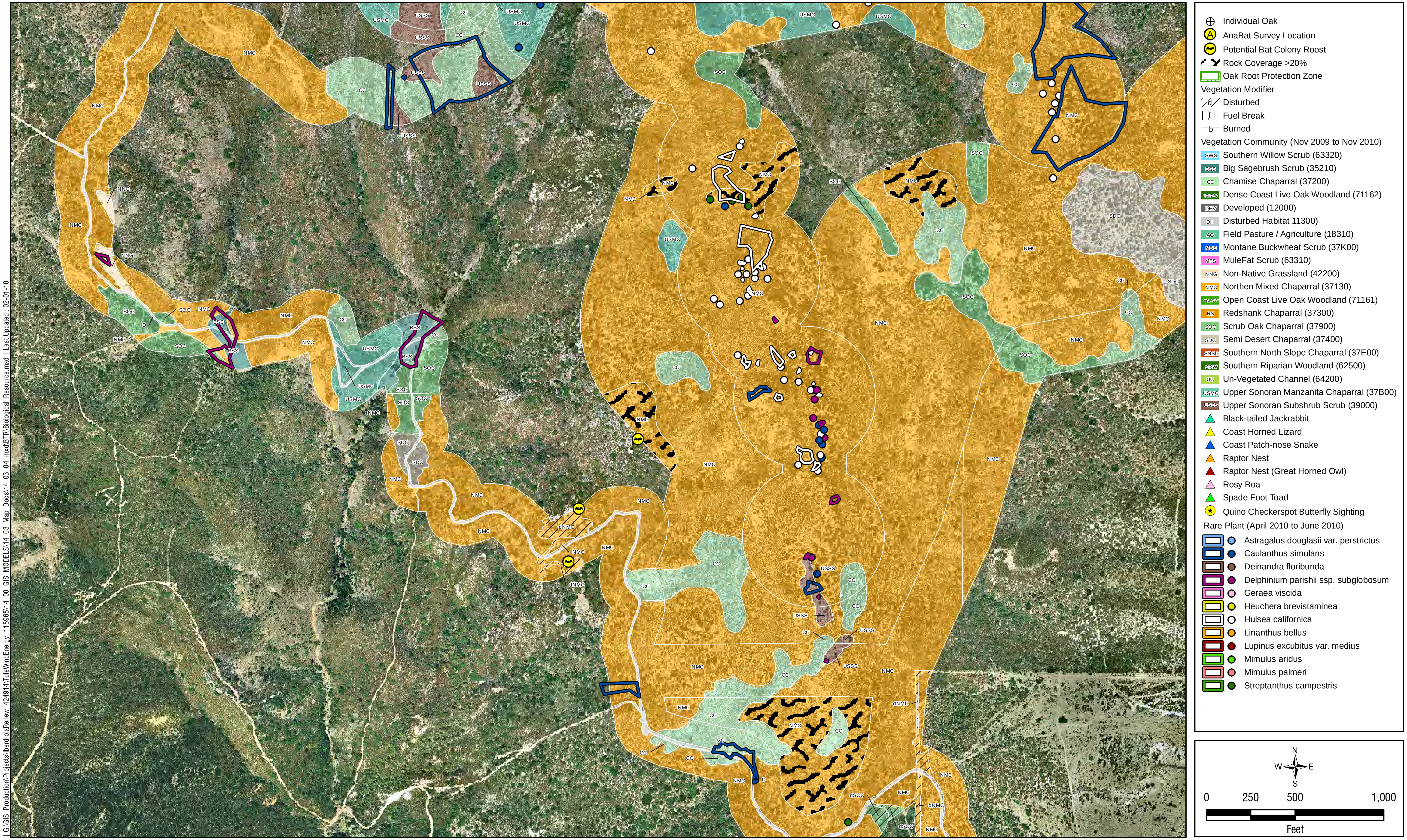
Appendix A: Biological Resources Maps (Index Map 22)

Figure 23

Tule, LLC | Tule Wind Project | BTA



Appendix A: Biological Resources Maps (Index Map 23)

Figure 24

Tule, LLC | Tule Wind Project | BTA

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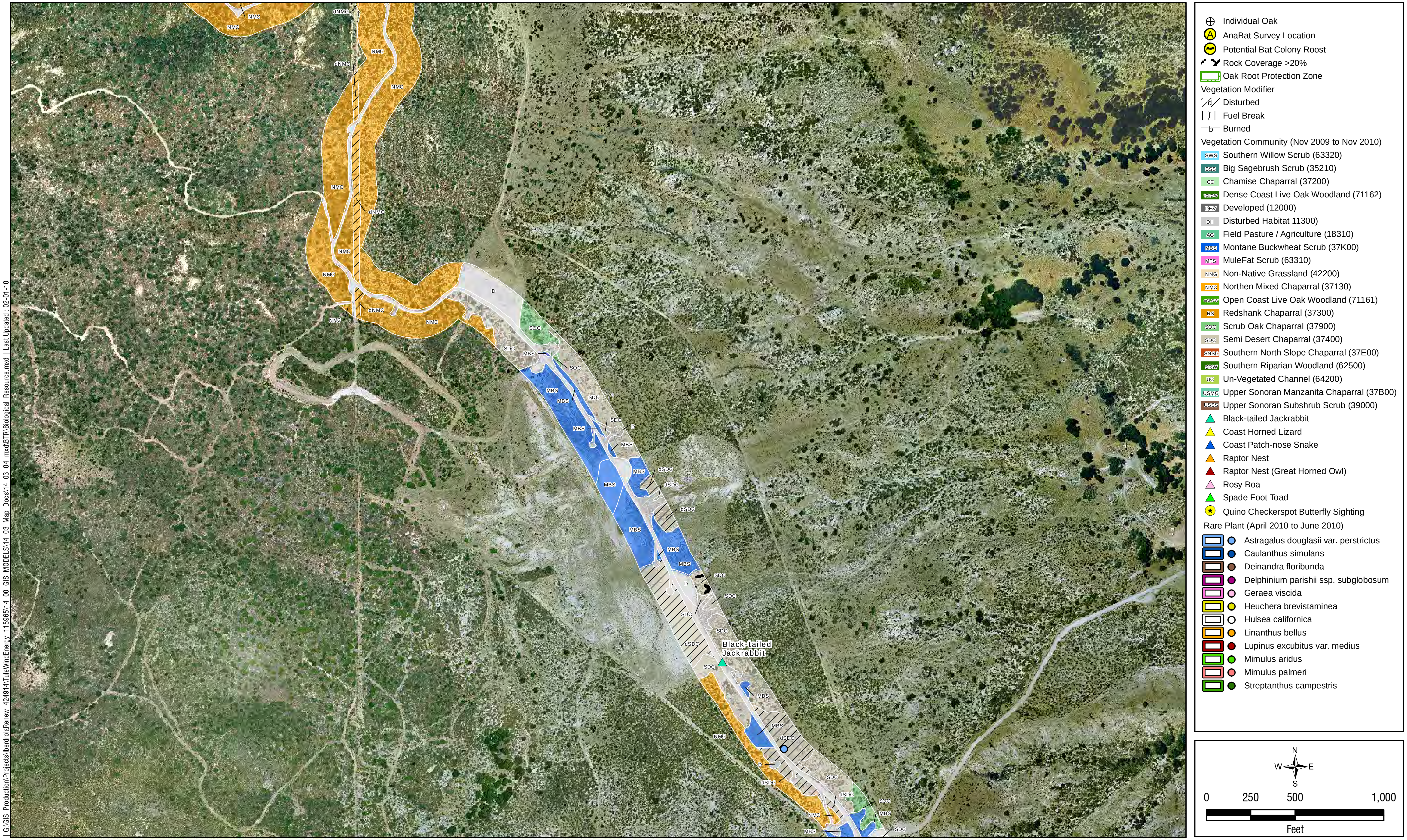

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Appendix A: Biological Resources Maps (Index Map 24)

Figure 25

Tule, LLC | Tule Wind Project | BTA

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Appendix A: Biological Resources Maps (Index Map 25)

Figure 26

Tule, LLC | Tule Wind Project | BTA

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- CLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- oCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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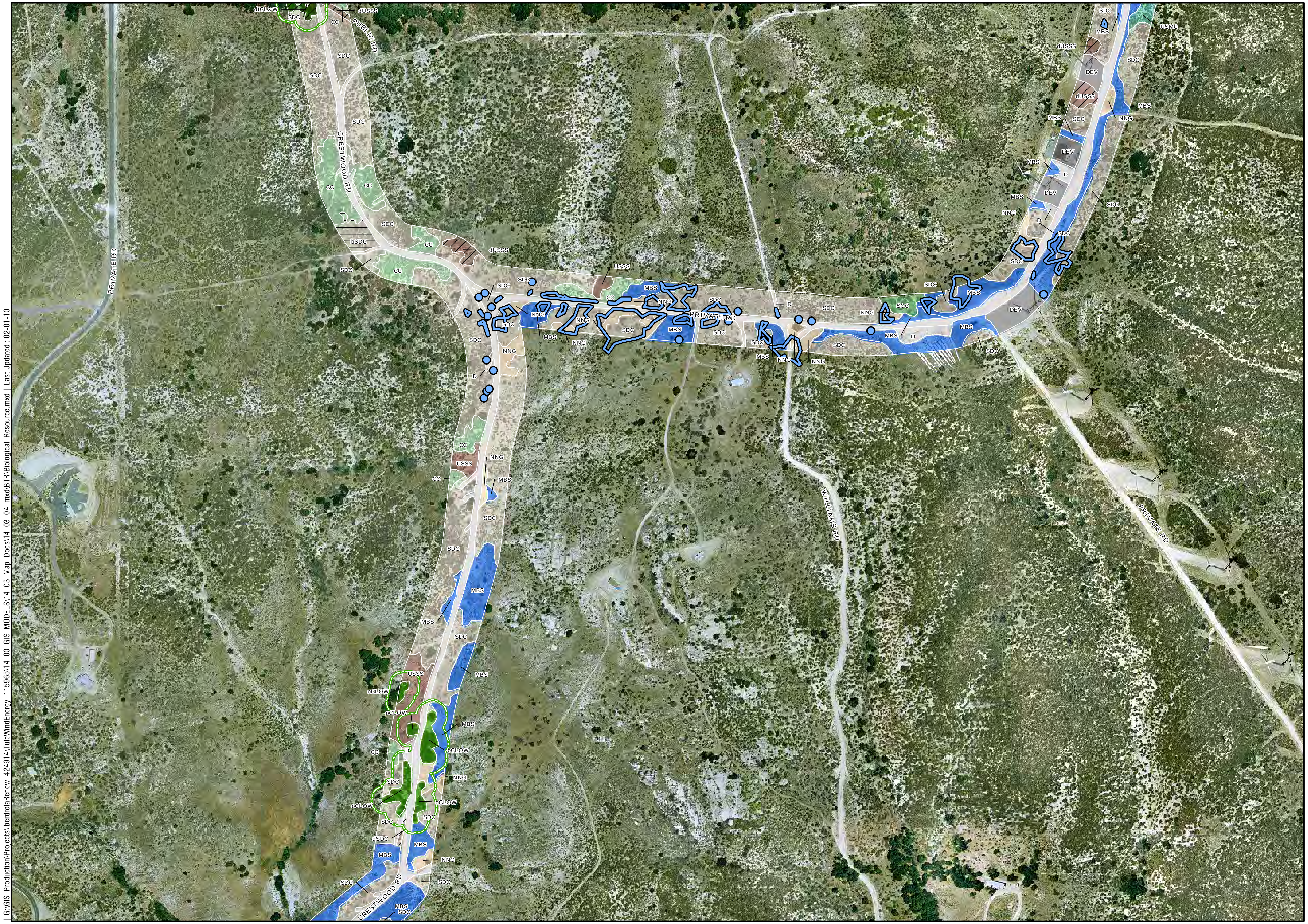
Appendix A: Biological Resources Maps (Index Map 26)

Figure 27

Tule, LLC | Tule Wind Project | BTA



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier
- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- DCLOW Dense Coast Live Oak Woodland (71162)
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- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

0 250 500 1,000

Feet

Appendix A: Biological Resources Maps (Index Map 27)

Figure 28

Tule, LLC | Tule Wind Project | BTA

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Appendix A: Biological Resources Maps (Index Map 28)

Figure 29

Tule, LLC | Tule Wind Project | BTA

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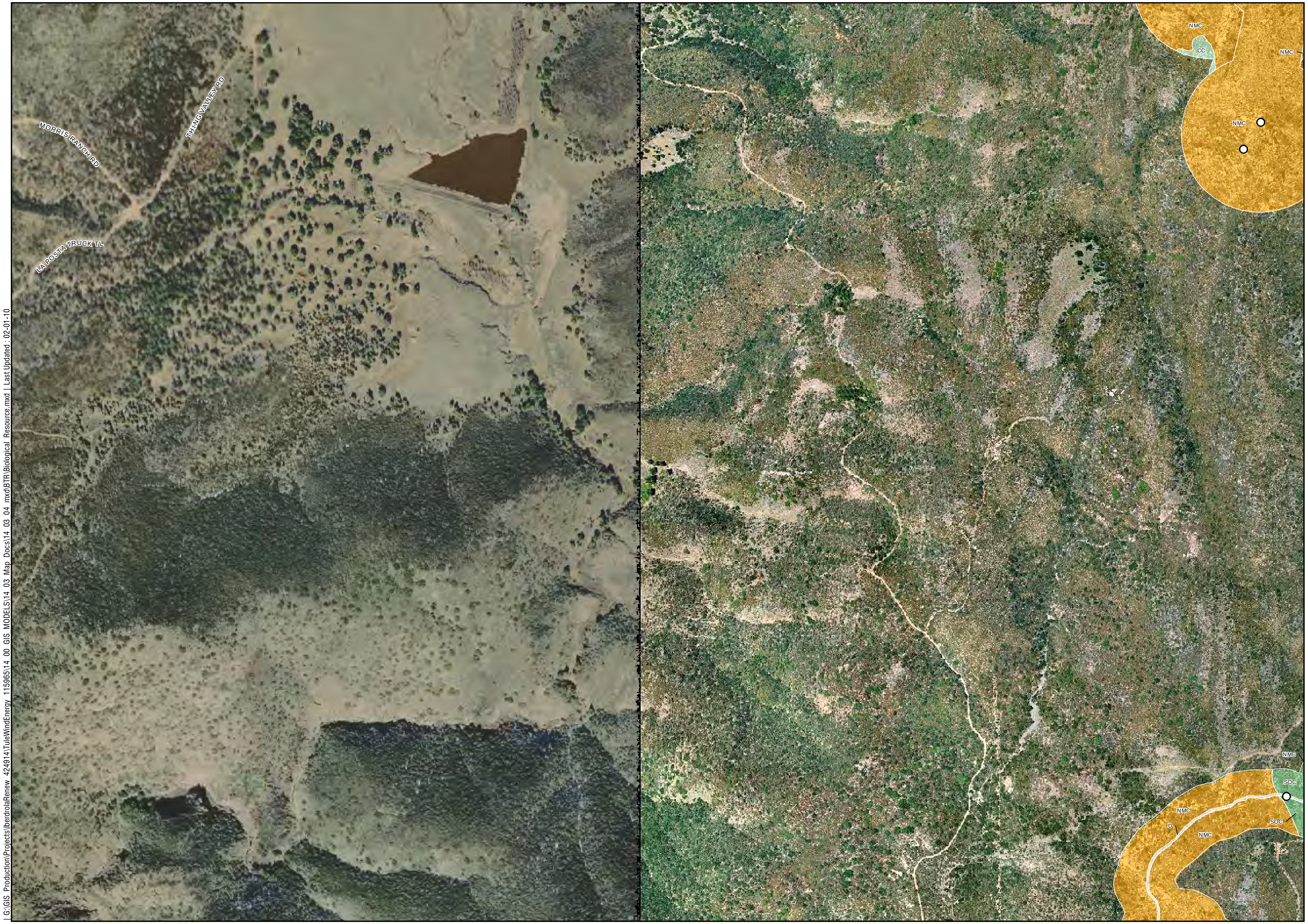

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone
Vegetation Modifier
Disturbed
Fuel Break
Burned
Vegetation Community (Nov 2009 to Nov 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
DCLOW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
DH Disturbed Habitat 11300)
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MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
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SOC Scrub Oak Chaparral (37900)
SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)
Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting
Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

N
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0 250 500 1,000
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Appendix A: Biological Resources Maps (Index Map 29)

Figure 30

Tule, LLC | Tule Wind Project | BTA

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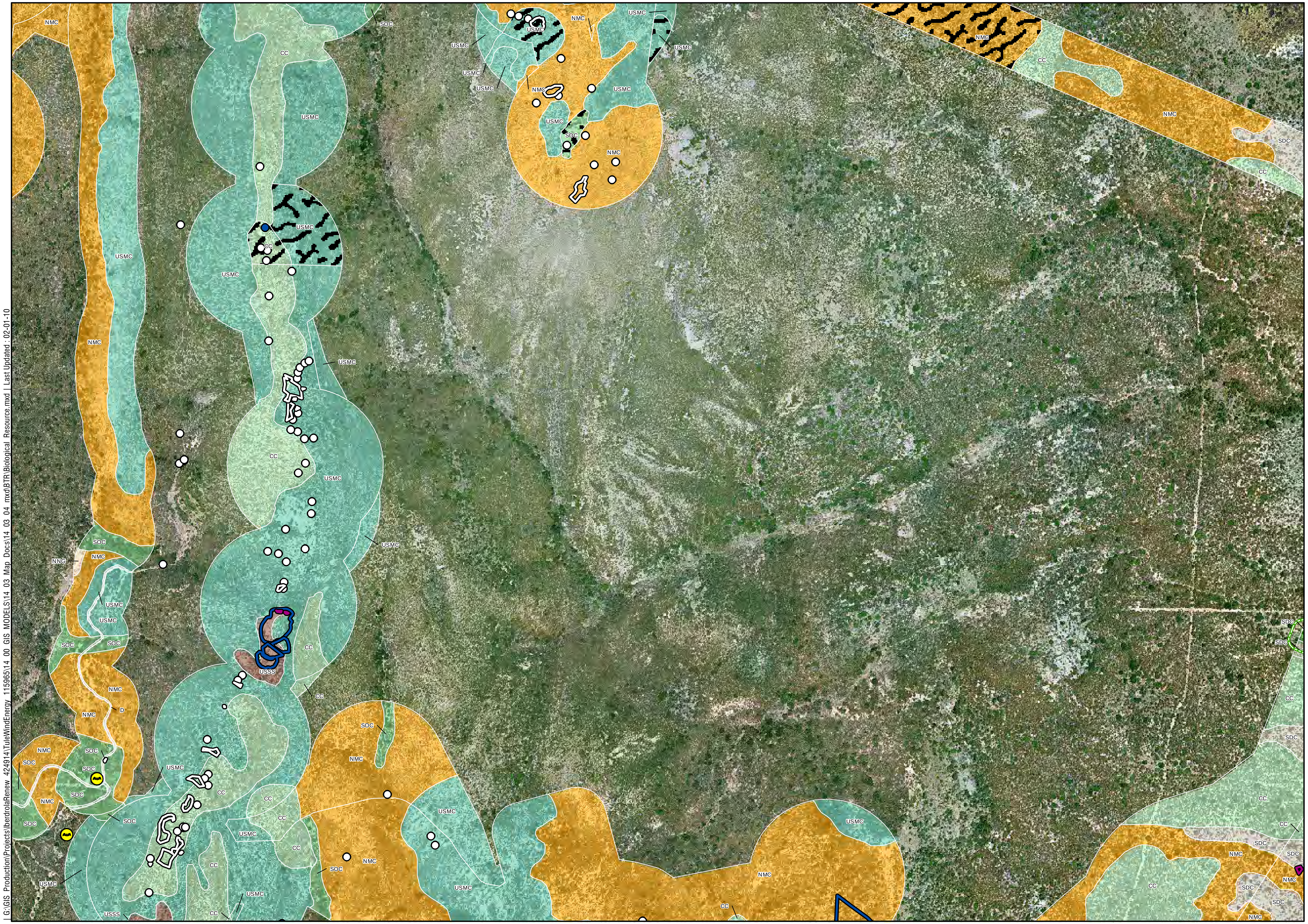

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
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- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
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- OCLOW Open Coast Live Oak Woodland (71161)
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- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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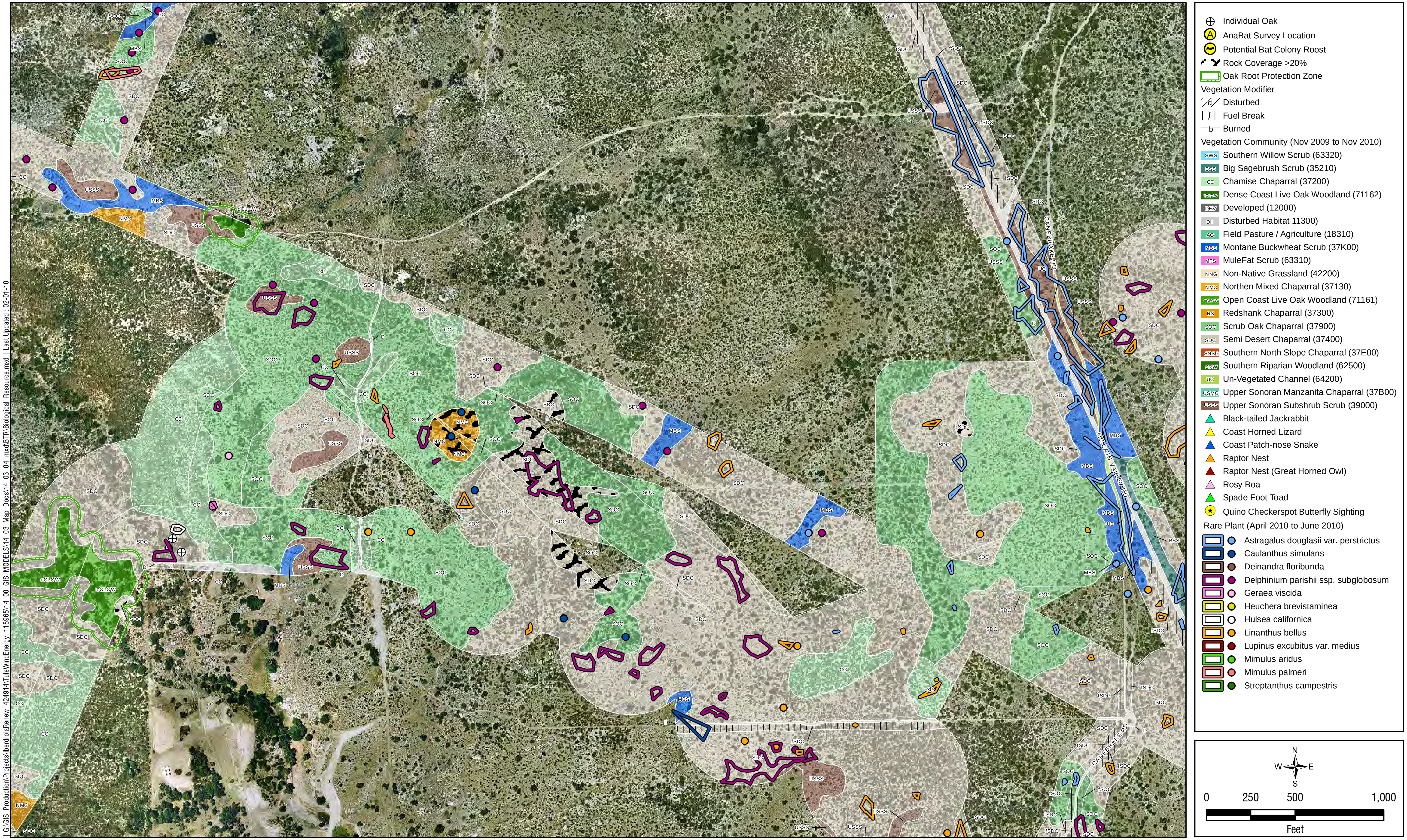
Appendix A: Biological Resources Maps (Index Map 30)

Figure 31

Tule, LLC | Tule Wind Project | BTA



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Appendix A: Biological Resources Maps (Index Map 31)

Figure 32

Tule, LLC | Tule Wind Project | BTA

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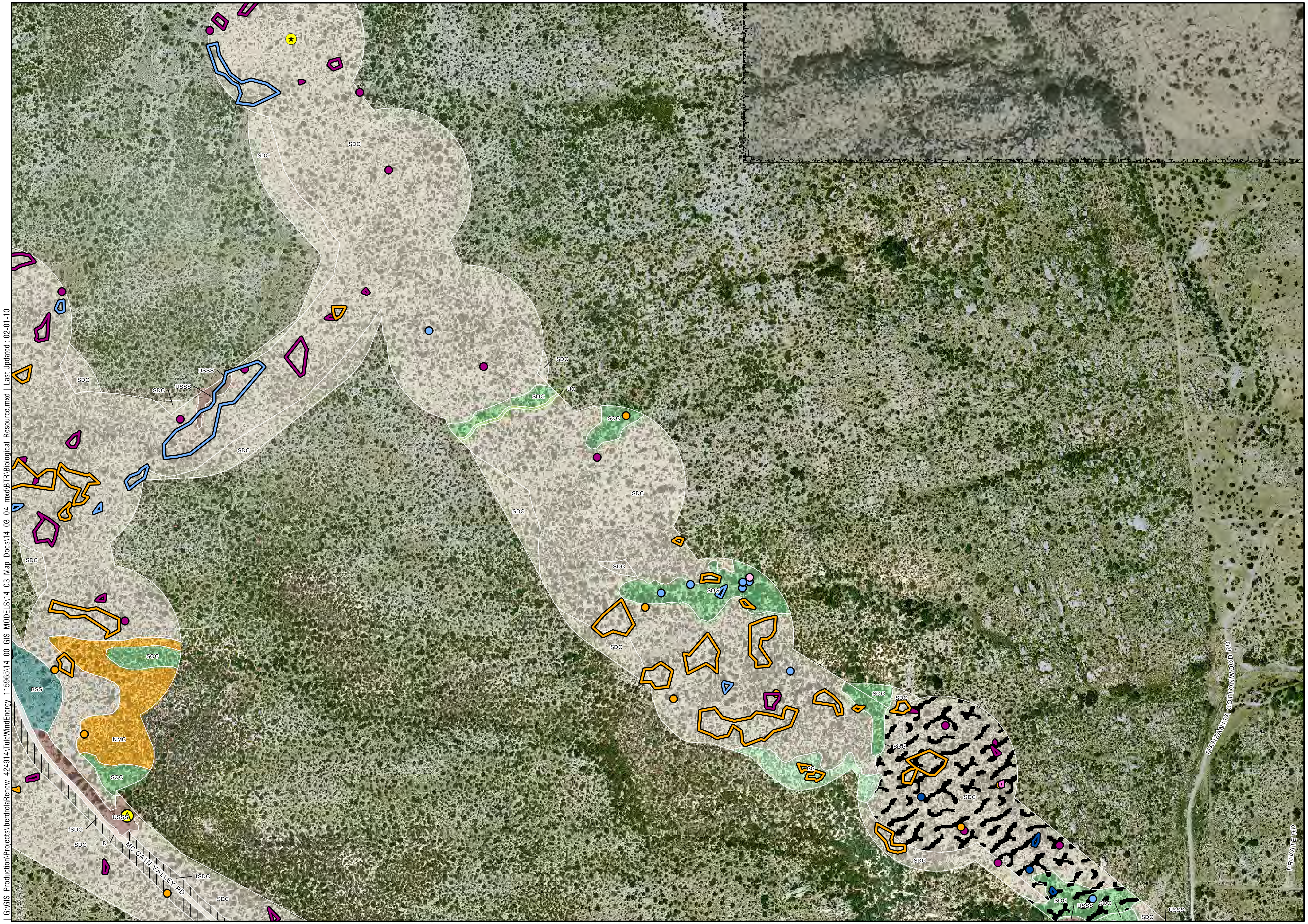

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
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- DEV Developed (12000)
- DH Disturbed Habitat 11300)
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- MFS MuleFat Scrub (63310)
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- SRW Southern Riparian Woodland (62500)
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- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Feet

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Appendix A: Biological Resources Maps (Index Map 32)

Figure 33

Tule, LLC | Tule Wind Project | BTA

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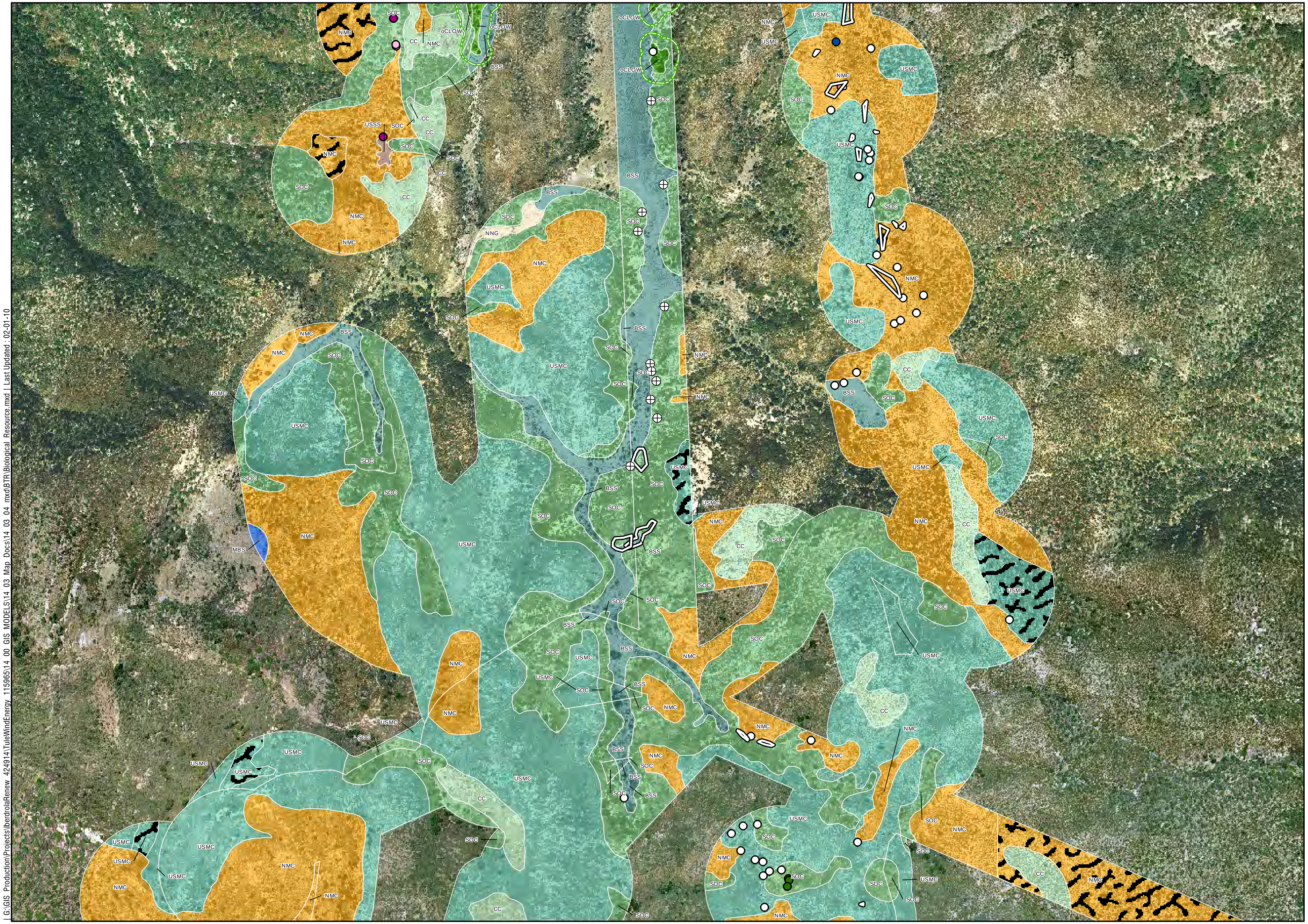

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northern Mixed Chaparral (37130)
- OCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Feet

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Appendix A: Biological Resources Maps (Index Map 33)

Figure 34

Tule, LLC | Tule Wind Project | BTA

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Appendix A: Biological Resources Maps (Index Map 34)

Figure 35

Tule, LLC | Tule Wind Project | BTA

Appendix A: Biological Resources Maps (Index Map 35)

Figure 36

Tule, LLC | Tule Wind Project | BTA

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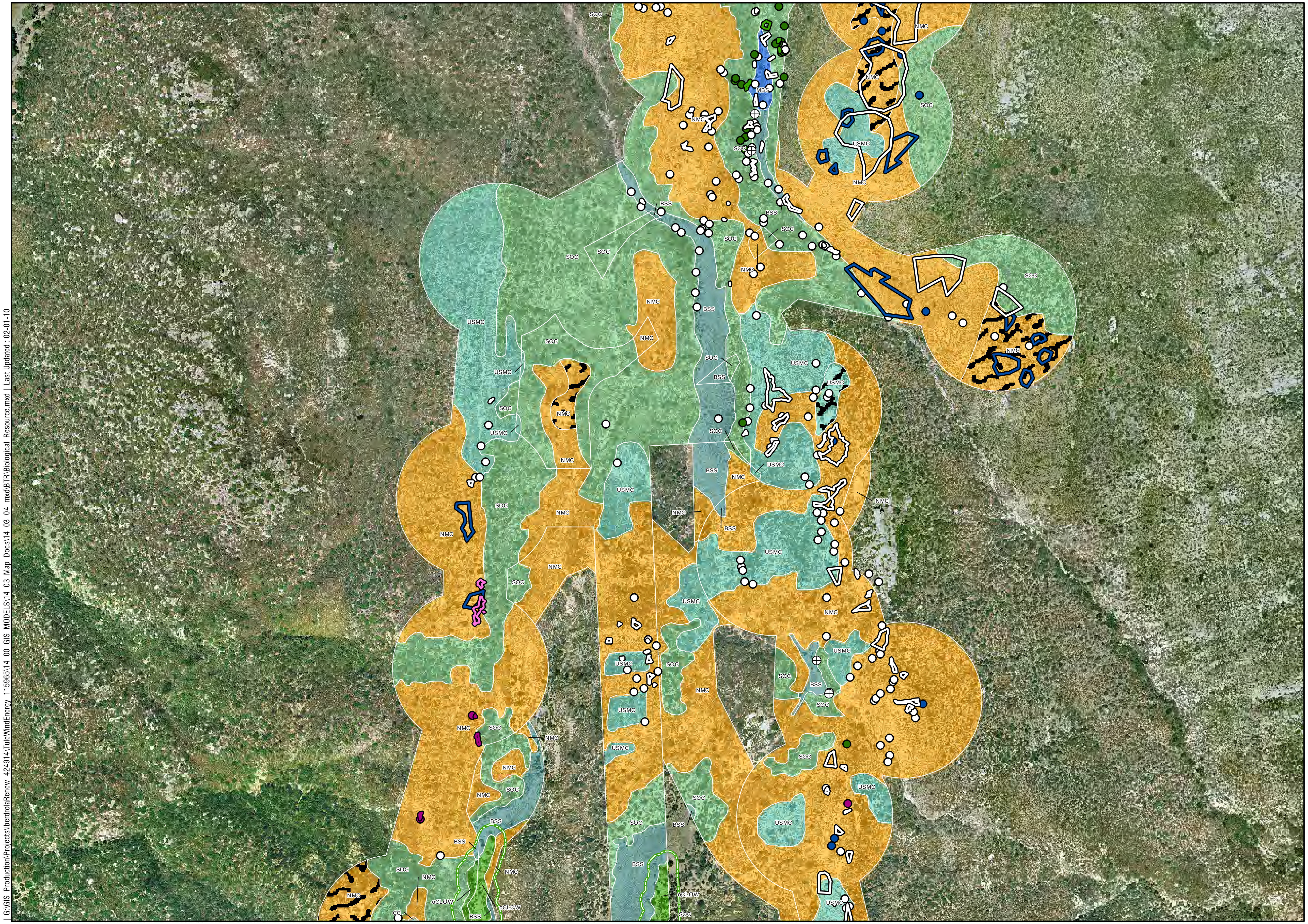

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- DEV Developed (12000)
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- MFS MuleFat Scrub (63310)
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- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N
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0 250 500 1,000
Feet

Appendix A: Biological Resources Maps (Index Map 36)

Figure 37

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™

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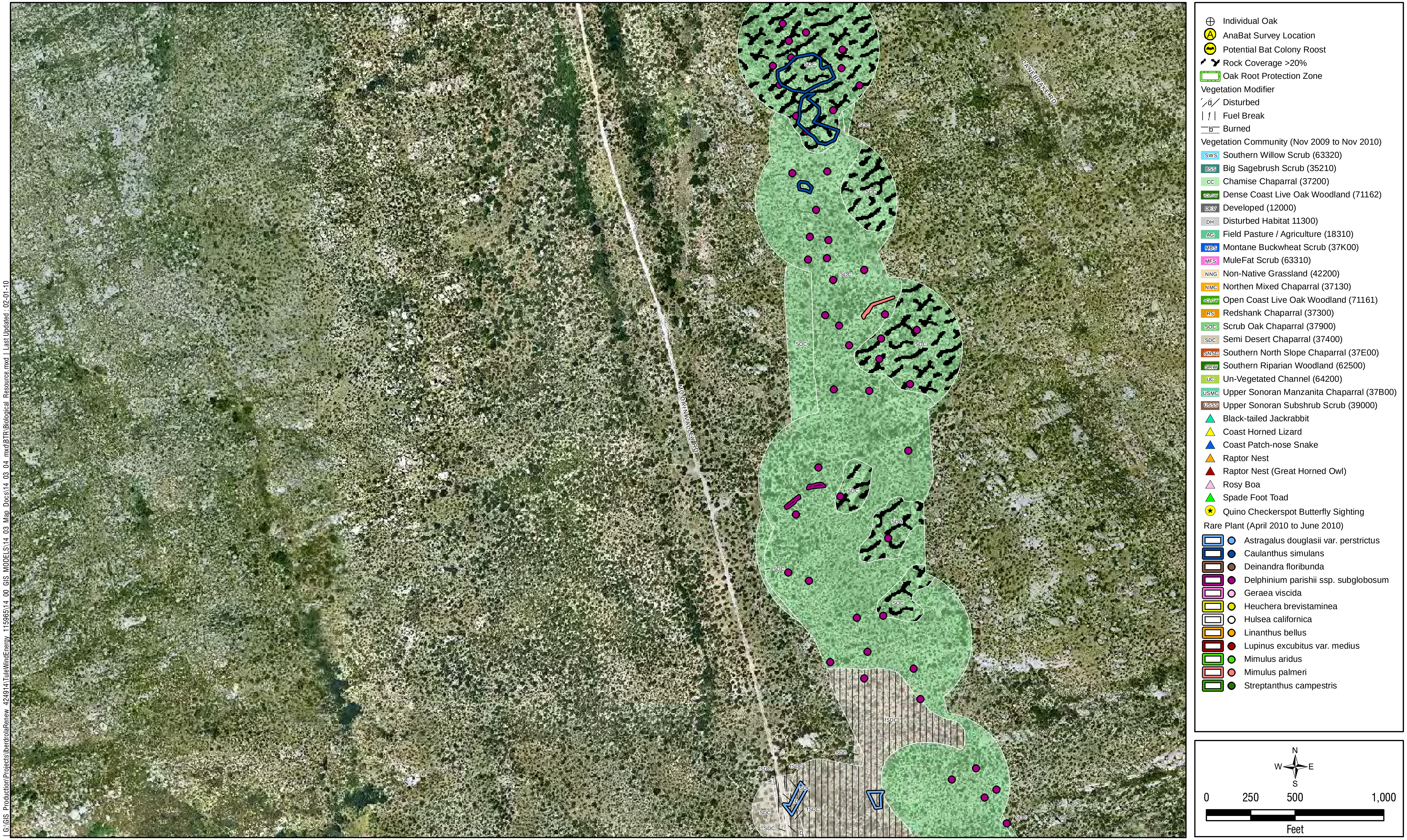

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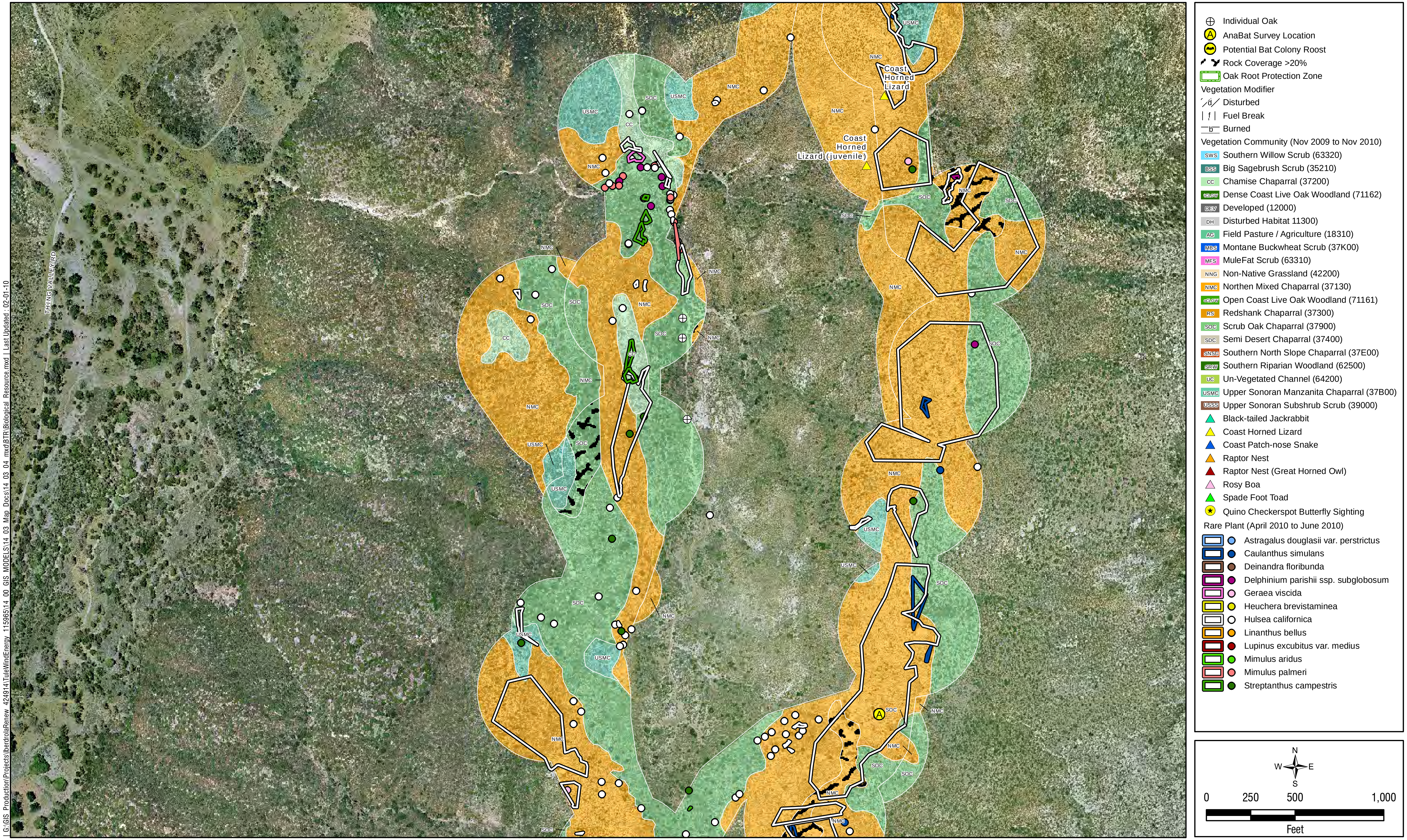
Appendix A: Biological Resources Maps (Index Map 37)

Figure 38

Tule, LLC | Tule Wind Project | BTA



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Appendix A: Biological Resources Maps (Index Map 38)

Figure 39

Tule, LLC | Tule Wind Project | BTA

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Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Nov 2010)
- SWS Southern Willow Scrub (63320)
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- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
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Black-tailed Jackrabbit
Coast Horned Lizard
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Raptor Nest
Raptor Nest (Great Horned Owl)
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- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

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Appendix A: Biological Resources Maps (Index Map 39)

Figure 40

Tule, LLC | Tule Wind Project | BTA

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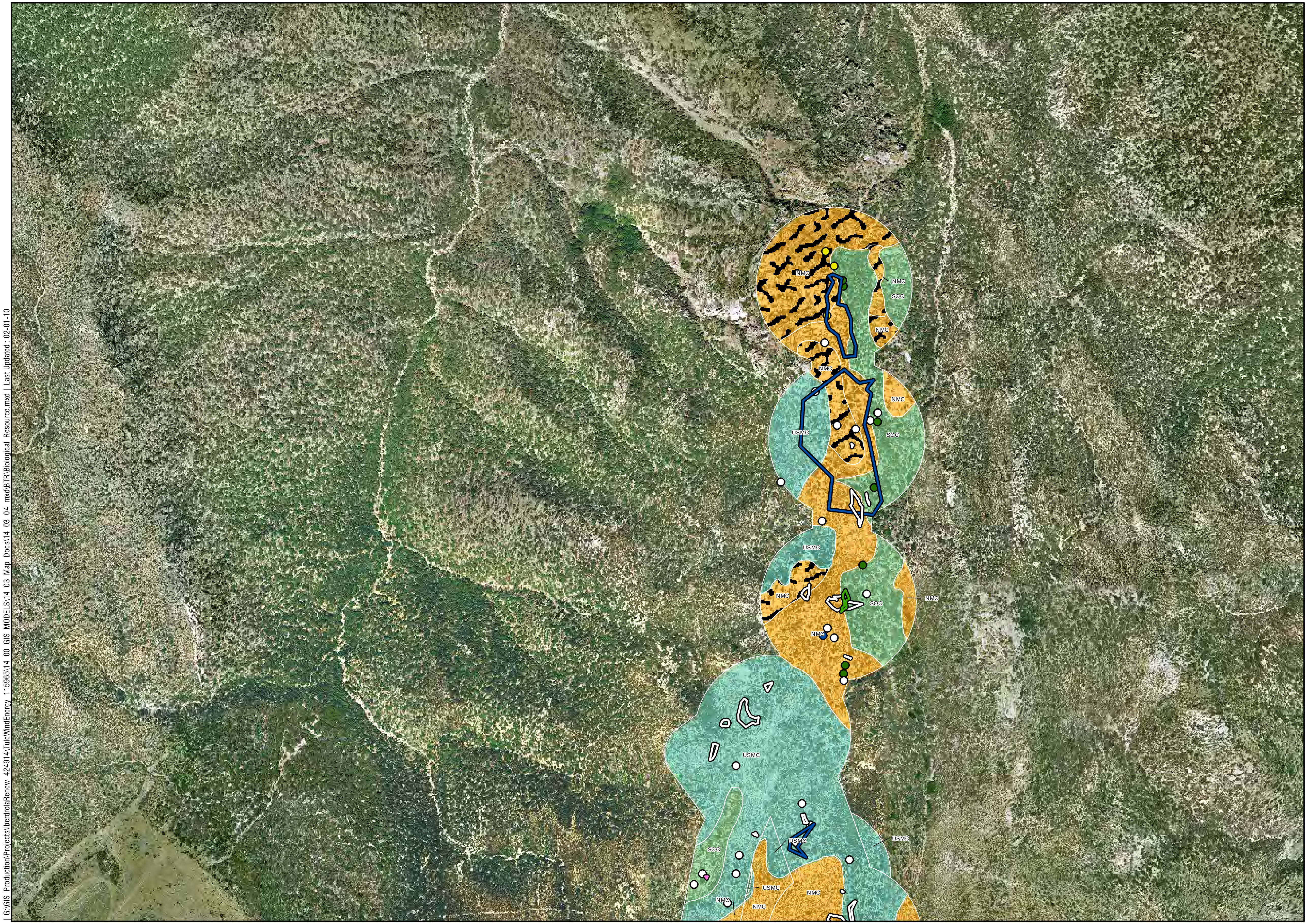

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Nov 2010)
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- MFS MuleFat Scrub (63310)
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- OCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix A: Biological Resources Maps (Index Map 40)

Figure 41

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™

APPENDIX B

Tule Wind Project Floral Species

Tule Wind Project Floral Species

Scientific Name	Family	Common Name
FERNS		
Cheilanthes covillei Maxon	Pteridaceae	Coville's lip fern
Pellaea mucronata (D. Eaton) D. Eaton var. *mucronata*	Pteridaceae	Bird's foot cliff-brake
Pentagramma triangularis (Kaulf.) Yatsk., Windham & E. Wollenw. ssp. *viscosa* (D.C. Eaton) Yatsk., Windham & E. Wollenw.	Pteridaceae	Silverback fern
CONIFERS		
Juniperus californica Carriere	Cupressaceae	California juniper
Juniperus sp. (ornamental)	Cupressaceae	Juniper
Pinus jeffreyi Grev. & Balf.	Pinaceae	Jeffrey/yellow pine
Pinus monophylla (Torrey & Fremont)	Pinaceae	Single-leaf pinyon
Pinus quadrifolia Parl. ex Sudw.	Pinaceae	Parry pinyon
Pinus L. sp.* (ornamental)	Pinaceae	Pine/pinyon
GNETALES		
Ephedra californica S. Watson	Ephedraceae	California ephedra/Mormon tea
MONOCOTS		
Hesperoyucca whipplei (Torrey) Trel.	Agavaceae	Chaparral candle
Yucca schidigera K. E. Ortgies	Agavaceae	Mohave yucca
Carex praegracilis W. Boott	Cypraceae	Cluster field sedge
Carex triquetra Boott	Cypraceae	Triangular fruit sedge
Eleocharis R. Br. sp.	Cypraceae	Spike-rush
Chlorogalum pomeridianum (DC.) Kunth var. *pomeridianum*	Hyacinthaceae	Wavy-leaf soap-plant/amole
Juncus bufonius L.	Juncaceae	Toad rush
Juncus dubius Engelm.	Juncaceae	Mariposa rush
Juncus L. sp.	Juncaceae	Rush
Calochortus concolor (Baker) Purdy.	Liliaceae	Golden bowl Mariposa lily
Calochortus splendens Douglas ex Benth.	Liliaceae	Splendid Mariposa lily
Dichelostemma capitatum (Benth.) Alph. Wood	Liliaceae	Blue dicks
Nolina parryi S. Watson	Nolinaceae	Parry's bear-grass
Achnatherum coronatum (Thurber) Barkworth	Poaceae	Giant stipa
Achnatherum speciosum (Trin. & Rupr.) Barkworth	Poaceae	Desert needlegrass
Avena barbata Link*	Poaceae	Slender wild oat

Scientific Name	Family	Common Name
Avena fatua L.*	Poaceae	Wild oat
Bromus diandrus Roth*	Poaceae	Ripgut brome
Bromus hordeaceus L.*	Poaceae	Soft brome
Bromus madritensis (L.) ssp. *madritensis**	Poaceae	Compact brome
Bromus madritensis L. ssp. r*ubens* (L.) Husnot*	Poaceae	Foxtail chess/red brome
Bromus tectorum L.*	Poaceae	Cheat grass/downy brome
Cynodon dactylon (L.)* Pers.	Poaceae	Bermuda grass
Distichlis spicata (L.) E. Green	Poaceae	Saltgrass
Elymus elymoides (Raf.) Sweezey	Poaceae	Squirreltail
Elymus glaucus Buckley	Poaceae	Blue wild rye
Hordeum murinum L.*	Poaceae	Mouse barley
Melica imperfecta Trin.	Poaceae	Smallflower melicgrass
Muhlenbergia rigens (Benth.) A. Hitchc.	Poaceae	Deergrass
Nassella (Trin.) Desv. sp.	Poaceae	Needlegrass
Poa secunda J. Presl	Poaceae	Sandberg bluegrass
Polypogon monspeliensis (L.) Desf.*	Poaceae	Annual beard grass
Schismus barbatus (Loefl. ex L.) Thell.*	Poaceae	Mediterranean schismus
Vulpia microstachys (Nutt.) Benth.	Poaceae	Desert fescue
Vulpia myuros (L.) C.C. Gmel.*	Poaceae	Rat-tail fescue
EUDICOTS		
Sambucus mexicana C. Presl	Adoxaceae	Blue elderberry
Chenopodium californicum (S. Watson) S. Watson	Amaranthaceae	California goosefoot
Salsola tragus L.*	Amaranthaceae	Prickly Russian-thistle/ tumbleweed
Rhus ovata S. Watson	Anacardiaceae	Sugar bush
Rhus trilobata Torrey & A. Gray	Anacardiaceae	Skunkbrush
Toxicodendron diversilobum (Torr. & A. Gray) Greene	Anacardiaceae	Western poison-oak
Apiastrum angustifolium Nutt.	Apiaceae	Mock parsley
Bowlesia incana Ruiz & Pav.	Apiaceae	Bowlesia
Lomatium lucidum (Torrey & A. Gray) Jepson	Apiaceae	Shiny lomatium
Lomatium mojavense (J. Coulter & Rose) J. Coulter & Rose	Apiaceae	Mojave lomatium
Sanicula arguta J. Coulter & Rose	Apiaceae	Sharp-tooth sanicle
Asclepias L. sp.	Apocynaceae	Milkweed

Scientific Name	Family	Common Name
Achillea millefolium L.	Asteraceae	White yarrow
Agoseris retrorsa (Benth.) Greene	Asteraceae	Spearleaf agoseris
Ambrosia confertiflora DC.	Asteraceae	Weak-leaf bur-sage
Ambrosia psilostachya DC.	Asteraceae	Western ragweed
Anisocoma acaulis Torr. & A. Gray	Asteraceae	Scalebud
Artemisia dracunculus L.	Asteraceae	Taragon, dragon sagewort
Artemisia tridentata Nutt. ssp. *tridentata*	Asteraceae	Big sagebrush
Baccharis salicifolia (Ruiz Lopez & Pavon) Pers.	Asteraceae	Mule-fat, seep-willow
Baccharis sergiloides A. Gray	Asteraceae	Desert baccharis
Bebbia juncea (Benth.) E. Greene var. *aspera* E. Greene	Asteraceae	Rush sweetbush
Brickellia californica (Torrey & A. Gray) A. Gray	Asteraceae	California brickellbush
Centaurea melitensis L.*	Asteraceae	Tocalote
Chaenactis artemisiifolia (A. Gray) A. Gray	Asteraceae	White pincushion
Chaenactis glabriuscula DC.	Asteraceae	Yellow pincushion
Cirsium occidentale ssp. *californicum* (A. Gray) Keil& C. Turner	Asteraceae	California thistle
Conyza canadensis (L.) Cronquist	Asteraceae	Horseweed
Coreopsis californica (Nutt.) H. Sharsm var. *californica*	Asteraceae	California coreopsis
Corethrogyne filaginifolia (Hook. & Arn.) Nutt. var. *californica* (DC.) J.P. Saroyan	Asteraceae	California-aster
Deinandra floribunda (A. Gray) Davids. & Moxley	Asteraceae	Tecate tarplant
Encelia [*virginensis*] *actoni* Elmer	Asteraceae	Acton's encelia
Encelia farinosa Torrey & A. Gray	Asteraceae	Brittlebush, incienso
Ericameria brachylepis (A. Gray) H. M. Hall	Asteraceae	Boundary goldenbush
Ericameria cuneata (A. Gray) McClatchie var. *spathulata*	Asteraceae	Wedge-leaf goldenbush
Ericameria linearifolia (DC.) Urbatsch & Wussow	Asteraceae	Linear-leaf goldenbush
Ericameria parishii (Greene) H.M. Hall	Asteraceae	Goldenbush
Ericameria pinifolia (A. Gray) H.M. Hall	Asteraceae	Pinebush
Eriophyllum confertiflorum (DC.) A. Gray var. *confertiflorum*	Asteraceae	Long-stem golden-yarrow
Eriophyllum wallacei (A. Gray) A. Gray	Asteraceae	Wallace's woolly-daisy

Scientific Name	Family	Common Name
Filago californica Nutt.	Asteraceae	California filago
Geraea viscida (A. Gray) S. F. Blake	Asteraceae	Sticky geraea
Gnaphalium stramineum Kunth	Asteraceae	Cotton-batting plant
Gutierrezia californica (DC.) Torrey & A. Gray	Asteraceae	California matchweed
Hazardia squarrosa (Hook. & Arn.) E. Greene	Asteraceae	Sawtoothed goldenbush
Helianthus gracilentus A. Gray	Asteraceae	Slender sunflower
Heterotheca grandiflora Nutt.	Asteraceae	Telegraph weed
Hulsea californica Torrey & A. Gray	Asteraceae	San Diego hulsea
Hypochaeris glabra L.*	Asteraceae	Smooth cat's ear
Isocoma menziesii (Hook & Arn.) G.L Nesom var. *sedoides*	Asteraceae	San Diego goldenbush
*Lactuca serriola L.**	Asteraceae	Prickly lettuce
Lasthenia gracilis (DC.) E. Greene.	Asteraceae	Common goldfields
Layia glandulosa (Hook.) Hook. & Arn.	Asteraceae	White tidytips
Layia platyglossa (Fisch. & C.A. Mey.) A. Gray	Asteraceae	Coastal tidytips
Lessingia glandulifera A. Gray var. *glandulifera*	Asteraceae	Valley lessingia
Machaeranthera canescens (Pursh) A. Gray var. *canescens*.	Asteraceae	Ash-color aster
Madia Molina sp.	Asteraceae	Tarweed
Pseudognaphalium californicum (DC.) Anderb.	Asteraceae	California everlasting
Pseudognaphalium canescens (DC.) W.A. Weber	Asteraceae	Everlasting cudweed
Rafinesquia californica Nutt.	Asteraceae	California chicory
Senecio californicus DC.	Asteraceae	California butterweed
Senecio flaccidus Less. var. *monensis* (Greene) B.L. Turner & T.M. Barkley	Asteraceae	Mono butterweed
Solidago californica Nutt.	Asteraceae	California goldenrod
Stephanomeria exigua Nutt. ssp. *deanei* (J.F. Macbr.) Gottlieb	Asteraceae	Deane’s small wreath-plant
Stephanomeria virgata Benth. ssp. *pleurocarpa* (Greene) Gottlieb	Asteraceae	Tall wreath-plant
Tetradymia comosa A.Gray	Asteraceae	Cotton-thorn
Amsinckia menziesii (Lehm.) A. Nelson & J.F. Macbr. var. *intermedia* (Fisch. & C.A. Mey.) Ganders	Boraginaceae	Common fiddleneck
Cryptantha angustifolia (Torr.) Greene	Boraginaceae	Narrow-leaf cryptantha

Scientific Name	Family	Common Name
Cryptantha intermedia (A. Gray) E. Greene	Boraginaceae	Nievitas cryptantha
Cryptantha micrantha (Torrey) I.M. Johnson	Boraginaceae	Purple-rooted cryptantha
Cryptantha micromeres (A. Gray) E. Greene	Boraginaceae	Minute-flowered cryptantha
Cryptantha muricata (Hook & Arn.) Nelson & J.F. Macbr.	Boraginaceae	Prickley cryptantha
Pectocarya penicillata (Hook. & Arn.) A. DC. var. *heterocarpa* I.M. Johnst.	Boraginaceae	Combseed
Pectocarya setosa A. Gray	Boraginaceae	Moth combseed
Plagiobothrys nothofulvus (A. Gray) A. Gray	Boraginaceae	Rusty popcornflower
Arabis glabra (L.) Benth var. *glabra*	Brassicaceae	Tower mustard
Athysanus pusillus (Hook) E. Greene	Brassicaceae	Dwarf athysanus
Boechera [*Arabis*] *perennans* (S. Watson) W.A. Weber	Brassicaceae	Nevada rock cress
Boechera [*Arabis*] *pulchra* (M.E. Jones ex S. Watson) W.A. Weber var. *pulchra*	Brassicaceae	Beautiful rock cress
Boechera [*Arabis*] *sparsiflora* (Nuttall) Dorn var. *californica* Rollins	Brassicaceae	Elegant rock cress
Brassica nigra (L.) Koch*	Brassicaceae	Black mustard
Brassica tournefortii Gouan*	Brassicaceae	Wild turnip
Brassica L. sp.*	Brassicaceae	Mustard/rape seed/turnip
Caulanthus heterophyllus (Nutt.) Payson var. *heterophyllus*	Brassicaceae	San Diego wild cabbage
Caulanthus simulans Payson	Brassicaceae	Payson's jewelflower
Descurainia pinnata (Walter) Britton	Brassicaceae	Western tansy-mustard
Hirschfeldia incana (L.) Lagr.-Fossat*	Brassicaceae	Short-pod mustard
Lepidium campestre (L.) W.T. Aiton*	Brassicaceae	Field pepperweed
Lepidium perfoliatum L.*	Brassicaceae	Clasping pepperweed
Sisymbrium altissimum L.*	Brassicaceae	Tumble/Jim Hill mustard
Sisymbrium irio L.*	Brassicaceae	London rocket
Streptanthus campestris S. Watson	Brassicaceae	Southern jewelflower
Thysanocarpus curvipes Hook.	Brassicaceae	Hairy fringe pod
Cylindropuntia californica (Torrey & A. Gray) F. M. Kunth var. *parkeri* (J. Coult.)	Cactaceae	Cane/valley cholla
Cylindropuntia ganderi (C.B. Wolf) J. Rebman	Cactaceae	Gander's buckhorn cholla
Echinocereus engelmannii (Engelm.) Lemaire	Cactaceae	Engelmann's hedgehog cactus
Opuntia phaeacantha Engelm.	Cactaceae	Desert prickly pear
Triodanis biflora (Ruiz & Pav.) Greene	Campanulaceae	Small Venus looking-glass
Lonicera subspicata Hook. & Arm.	Caprifoliaceae	Johnston's honeysuckle

Scientific Name	Family	Common Name
Symphoricarpos mollis Nutt.	Caprifoliaceae	Creeping snowberry, trip vine
Minuartia douglasii (Fenzl ex Torr. & A. Gray) Mattf.	Caryophyllaceae	Douglas's sandwort
Helianthemum scoparium Nutt.	Cistaceae	Peak rush-rose
Dudleya abramsii Rose ssp. *abramsii*	Crassulaceae	Abrams's dudleya
Dudleya lanceolata (Nutt.) Britton & Rose	Crassulaceae	Lanceleaf liveforever
Dudleya pulverulenta (Nutt.) Britton & Rose	Crassulaceae	Chalk dudleya
Marah macrocarpus (E. Greene) E. Greene var. *macrocarpus*	Cucurbitaceae	Wild-cucumber
Cuscuta californica Hook. & Arn.	Cuscutaceae	California dodder
Arctostaphylos glauca Lindley	Ericaceae	Big-berry manzanita
Arctostaphylos pungens Kunth	Ericaceae	Point-leaf manzanita
Chamaesyce albomarginata (Torr. & A. Gray) Small	Euphorbiaceae	Whitemargin sandmat
Chamaesyce Gray sp.	Euphorbiaceae	Spurge
Croton setigerus Hook	Euphorbiaceae	Doveweed
Acacia greggii A. Gray	Fabaceae	Catclaw acacia
Astragalus douglasii (Torr. & A. Gray) A. Gray var. *perstrictus* (Rydb.) Munz & McBurney	Fabaceae	Jacumba milkvetch
Astragalus douglassi (Torrey & A. Gray) A. Gray var. *parishii* (A. Gray) M.E. Jones	Fabaceae	Parish's locoweed
Astragalus palmeri A. Gray	Fabaceae	Palmer's milkvetch
Lathyrus vestitus ssp. Nutt.	Fabaceae	Sweet pea
Lotus argophyllus (A. Gray) E. Greene. var. *argophyllus*	Fabaceae	Silver-leaf lotus
Lotus purshianus (Benth.) Clements & E. G. Clements var. *purshianus*	Fabaceae	Spanish-clover
Lotus scoparius (Nutt.) Ottley	Fabaceae	Short-wing deerweed
Lotus strigosus (Nutt.) E. Greene	Fabaceae	Strigose lotus
Lupinus albifrons Benth. var *albifrons*	Fabaceae	Silver bush lupine
Lupinus bicolor Lindley.	Fabaceae	Miniature lupine
Lupinus concinnus J. Agardh	Fabaceae	Bajada lupine
Lupinus excubitus M.E. Jones var. *austromontanus* (A. Heller) C.P. Sm.	Fabaceae	Grape soda lupine
Lupinus excubitus M.E. Jones var. *medius* (Jepson) Munz	Fabaceae	Mountain Springs bush lupine
Medicago polymorpha L.*	Fabaceae	California burclover

Scientific Name	Family	Common Name
Trifolium L. sp.*	Fabaceae	Clover
Trifolium willdenovii Spreng.	Fabaceae	Valley clover
Quercus ×*acutidens* Torr. [*cornelius-mulleri* × *engelmannii*]	Fagaceae	Torrey's hybrid oak
Quercus agrifolia Née var. *agrifolia*	Fagaceae	Coast live oak
Quercus agrifolia Née var. *oxyadenia* (Torr.) J.T. Howell	Fagaceae	Interior coast live oak
Quercus berberidifolia Liebm.	Fagaceae	Scrub oak
Quercus chrysolepis Liebm.	Fagaceae	Canyon live oak
Quercus cornelius-mulleri K. Nixon & K. Steele	Fagaceae	Desert scrub oak
Quercus kelloggii Newb.	Fagaceae	California black oak
Quercus wislizeni A. DC. var. *frutescens* Engelm.	Fagaceae	Interior live oak, scrub live oak
Quercus ×*morehus* Kellogg	Fagaceae	Oracle oak
Garrya veatchii Kellog	Garryaceae	Canyon silk tassel
Swertia parryi (Torrey) Kuntze	Gentianaceae	Deer’s ears
Erodium botrys (Cav.) Bertol*	Geraniaceae	Long-beak filaree/storksbill
Erodium cicutarium (L.) L'Her.*	Geraniaceae	Red-stem filaree/storksbill
Erodium moschatum (L.) L'Her.*	Geraniaceae	White-stem filaree/storksbill
Ribes quercetorum E. Greene	Grossulariaceae	Oak gooseberry
Heliotropium curassavicum L.	Heliotropaceae	Salt heliotrope
Emmenanthe penduliflora Benth. var. *penduliflora*	Hydrophyllaceae	Whispering bells
Eriodictyon trichocalyx A. Heller var. *lanatum* (Brand) Jeps.	Hydrophyllaceae	Hairy yerba santa
Eucrypta chrysanthemifolia (Benth.) Greene var. *chrysanthemifolia*	Hydrophyllaceae	Common eucrypta
Nama demissum A. Gray var. *demissum*	Hydrophyllaceae	Purple mat
Nemophila menziesii Hook. & Arn.	Hydrophyllaceae	Baby blue eyes
Nemophila spatulata Coville	Hydrophyllaceae	Sierra baby blue eyes
Phacelia brachyloba (Benth.) A. Gray	Hydrophyllaceae	Short-lobe phacelia
Phacelia cicutaria E. Greene var. *hispida* (A. Gray) J. Howell	Hydrophyllaceae	Caterpillar phacelia
Phacelia curvipes S. Watson	Hydrophyllaceae	Washoe phacelia
Phacelia distans Benth.	Hydrophyllaceae	Distant phacelia
Phacelia imbricata E. Greene.	Hydrophyllaceae	Imbricate phacelia
Phacelia minor (Harv.) Thell.	Hydrophyllaceae	Wild canterbury bells

Scientific Name	Family	Common Name
Phacelia parryi Torr.	Hydrophyllaceae	Parry's phacelia
Phacelia ramosissima Lehm.	Hydrophyllaceae	Branching phacelia
Pholistoma Lilja sp.	Hydrophyllaceae	Fiesta-flower
Marubium vulgare L.*	Lamiaceae	Horehound
Monardella linoides A. Gray ssp. *linoides*	Lamiaceae	Narrow-leaf monardella
Monardella nana A. Gray	Lamiaceae	*Yellow monardella*
Salvia apiana Jepson	Lamiaceae	White sage
Salvia columbariae Benth.	Lamiaceae	Chia
Stachys ajugoides Benth. var. *rigida* Jepson & Hoover	Lamiaceae	Hedge-nettle
Trichostema lanatum Benth.	Lamiaceae	Woolly bluecurls
Linum lewisii Pursh var. *lewisii*	Linaceae	Wild flax
Mentzelia montana (Davidson) Davidson	Loasaceae	Montane mentzelia
Mentzelia veatchiana Kellogg	Loasaceae	Veatch's stick-leaf
Malacothamnus fasciculatus (Nutt. ex Torr. & A. Gray) Greene	Malvaceae	Mesa bushmallow
Sphaeralcea ambigua A. Gray ssp. *ambigua*	Malvaceae	Apricot globemallow
Mirabilis laevis (Benth.) Curran	Nyctaginaceae	Desert wishbone bush
Mirabilis multiflora (Torrey) A. Gray var. *pubescen*s S. Watson	Nyctaginaceae	Froebell's four o'clock
Olea europeae L.*	Oleaceae	Olive
Camissonia californica (Torrey & A. Gray) Raven	Onagraceae	False-mustard
Camissonia campestris (E. Greene)	Onagraceae	Mojave sun-cup
Camissonia strigulosa (Fisch. & C.A. Mey.) P.H. Raven	Onagraceae	Sandysoil sun-cup
Clarkia rhomboidea Douglas ex Hook.	Onagraceae	Diamond clarkia
Epilobium canum (E. Greene) Raven	Onagraceae	California fuchsia
Gayophytum diffusum Torr. & A. Gray ssp. *parviflorum* F.H. Lewis & Szweykowski	Onagraceae	Hairy-leaf gayophytum
Oenothera californica (S.Watson) S.Watson ssp. *californica*	Onagraceae	California evening-primrose
Oenothera deltoids Torrey & Frémont ssp. *deltoides*	Onagraceae	Dune evening primrose
Castilleja Mutis ex L. f. sp.	Orobanchaceae	Paintbrush
Castilleja attenuate (A. Gray) Chuang & Heckard	Orobanchaceae	Valley tassels

Scientific Name	Family	Common Name
Castilleja foliolosa Hook. & Arn.	Orobanchaceae	Woolly Indian paintbrush
Cordylanthus rigidus (Benth.) Jepson ssp. *setigerus* Chuang & Heckard	Orobanchaceae	Dark-tip bird's beak
Orobanche californica Cham. &Schldl. ssp. *feudgei* (Munz) Heckard	Orobanchaceae	Sagebrush broom-rape
Orobanche fasciculate Nutt.	Orobanchaceae	Clustered broom-rape
Paeonia californica Nutt.	Paeoniaceae	California peony
Argemone munita Durand & Hilg.	Papaveraceae	Chicalote, prickly poppy
Dendromecon rigida Benth.	Papaveraceae	Bush poppy
Eschscholzia californica Cham.	Papaveraceae	California poppy
Platystemon californicus Benth.	Papaveraceae	Cream cups
Mimulus aurantiacus Curtis var. *aridus* (Abrams) D. Thompson	Phrymaceae	Jacumba monkey flower
Mimulus aurantiacus Curtis var. *pubescens* (Torrey) D. Thompson	Phrymaceae	Bush monkey flower
Mimulus brevipes Benth	Phrymaceae	Slope semiphore
Mimulus fremontii (Benth.) A. Gray	Phrymaceae	Fremont’s monkey flower
Mimulus guttatus DC.	Phrymaceae	Seep monkey flower
Mimulus moschatus Lindley	Phrymaceae	Musk monkey flower
Mimulus palmeri A. Gray	Phrymaceae	Palomar monkey flower
Mimulus parishii E. Greene	Phrymaceae	Parish’s monkey flower
Mimulus pilosus (Benth.) S. Watson	Phrymaceae	Downy monkey flower
Collinsia concolor E. Greene	Plantaginaceae	Southern Chinese houses
Keckiella antirrhinoides (Benth.) Straw	Plantaginaceae	Yellow bush penstemon
Keckiella ternata (Torrey) Straw var. *ternata*.	Plantaginaceae	Summer bush penstemon
Penstemon centranthifolius (Benth.) Benth.	Plantaginaceae	Scarlet bugler
Penstemon clevelandii A. Gray var. *clevelandii*	Plantaginaceae	Cleveland’s beardtongue
Penstemon spectabilis Thurber	Plantaginaceae	Showy penstemon
Eriastrum eremicum (Jepson) H. Mason ssp. *eremicum*	Polemoniaceae	Desert woolly-star
Eriastrum filifolium (Nutt.) Wooton & Standley	Polemoniaceae	Thread-leaf woolly-star
Gilia capitata Sims ssp. *abrotanifolia* (E. Greene) V. Grant	Polemoniaceae	Ball gilia
Gilia diegensis (Munz) A. D. Grant & V. Grant	Polemoniaceae	San Diego gilia
Gilia Ruiz & Pav. sp.	Polemoniaceae	Gilia
Leptosiphon lemmonii (A. Gray) J.M. Porter & L.A. Johnson	Polemoniaceae	Lemmon’s linanthus

Scientific Name	Family	Common Name
Leptosiphon parviflorus (Benth.) J.M. Porter & L.A. Johnson	Polemoniaceae	Coast baby-star
Linanthus bellus (A. Gray) Greene	Polemoniaceae	Desert beauty
Linanthus californicus (Hook. & Arn.) J.M. Porter& L.A. Johnson	Polemoniaceae	Prickly-phlox
Loeseliastrum schottii (Torr.) Timbrook	Polemoniaceae	Schott's calico
Chorizanthe fimbriata Nutt.	Polygonaceae	Fringed spineflower
Eriogonum davidsonii Greene	Polygonaceae	Davidson's buckwheat
Eriogonum elongatum Benth.	Polygonaceae	Long-stemmed buckwheat
Eriogonum fasciculatum Benth. var. *polifolium* (A. DC.) Torrey & A. Gray	Polygonaceae	Mountain buckwheat
Eriogonum gracile Benth. var. *gracile*	Polygonaceae	Slender buckwheat
Eriogonum wrightii Benth. var. *membranaceum* Jepson	Polygonaceae	Foothill buckwheat
Rumex L. sp.	Polygonaceae	Dock
Rumex salicifolius J.A. Weinm	Polygonaceae	Willow dock
Calyptridium monandrum Nutt.	Portulacaceae	Pussypaws
Claytonia exigua Torrey & A. Gray ssp. *exigua*	Portulacaceae	Serpentine montia
Claytonia perfoliata Willd. ssp. *mexicana* (Rydb.) John M. Miller & Chambers	Portulacaceae	Mexican miner’s lettuce
Clematis lasiantha Nutt.	Ranunculaceae	Pipestem clematis
Clematis pauciflora Nutt.	Ranunculaceae	Ropevine clematis
Delphinium cardinal Hook.	Ranunculaceae	Cardinal/scarlet larkspur
Delphinium parishii A. Gray ssp. *subglobosum* (Wiggins) Harlan Lewis & Epling	Ranunculaceae	Oceanblue larkspur
Ceanothus cuneatus (Hook.) Nutt. var. *cuneatus*	Rhamnaceae	Buck brush
Ceanothus greggii A. Gray var. *perplexans* (Trel.) Jepson	Rhamnaceae	Cup-leaf lilac
Ceanothus leucodermis E. Greene	Rhamnaceae	Chaparral whitethorn
Rhamnus californica Eschsch. ssp. *californica*	Rhamnaceae	California coffeeberry
Rhamnus ilicifolia Kellog	Rhamnaceae	Holly-leaf redberry
Adenostoma fasciculatum Hook & Arn.	Rosaceae	Chamise
Adenostoma sparsifolium Torrey	Rosaceae	Red shank
Cercocarpus betuloides Torrey & A. Gray var. *betuloides*	Rosaceae	Birch-leaf mountain-mohagany
Heteromeles arbutifolia (Lindley) Roemer	Rosaceae	Toyon
Prunus fremontii S. Watson	Rosaceae	Desert apricot

Scientific Name	Family	Common Name
Prunus ilicifolia (Nutt.) Walp. ssp. *iIlicifolia*	Rosaceae	Holly-leaf cherry
Galium andrewsii A. Gray ssp. *andrewsii*	Rubiaceae	Moss/phlox-leaf bedstraw
Galium angustifolium Nutt.	Rubiaceae	Narrow-leaf bedstraw
Galium aparine L.	Rubiaceae	Stickywilly
Sherardia arvensis L.*	Rubiaceae	Field madder
Thamnosma montana Torrey & Fremont	Rutaceae	Turpentine-broom
Populus fremontii S. Watson (ornamental)	Salicaceae	Western cottonwood
Salix gooddingii C. Ball	Salicaceae	Goodding's black willow
Salix laevigata Bebb	Salicaceae	Red willow
Salix lasiolepis Benth.	Salicaceae	Arroyo willow
Antirrhinum coulterianum Benth.	Scrophulariaceae	Coulter’s snapdragon
Verbascum thapsus L.*	Scrophulariaceae	Common mullein
Ailanthus altissima (Mill.) Swingle* (ornamental)	Simaroubaceae	Tree-of-heaven
Datura wrightii Regel	Solanaceae	Western jimson weed
Nicotiana L. sp.	Solanaceae	Tobacco
Solanum parishii A.A. Heller	Solanaceae	Parish's nightshade
Solanum xanti A. Gray	Solanaceae	Chaparral nightshade
Tamarix ramosissima Ledeb.*	Tamaricaceae	Tamarisk/salt-cedar
Urtica dioica L. ssp. *holosericea* (Nutt.) Thorne	Urticaceae	Hoary nettle
Viola pedunculata Torrey & A.Gray	Violaceae	Johnny jump-up
Phoradendron villosum (Nutt.) Nutt.	Viscaceae	Pacific mistletoe

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APPENDIX C

Tule Wind Project Faunal Species

Tule Wind Project Faunal Species

Scientific Name	Family	Common Name
Invertebrates		
Aeoloplides sp.	Acrididae	Band-wing grasshopper
Andrena sp.	Andrenidae	Digger bee
Neolarra alba	Anthophoridae	Anthophorid bee
Coccinella septempunctata	Coccinellidae	Convergent ladybird beetle
Pogonomyrmex sp.	Formicidae	Harvester ants
LichnantheI sp.	Glaphyridae	Bear beetle
Erynnis brizo brizo	Hesperiidae	Sleepy duskywing
Pholisora catullus	Hesperiidae	Common sootywing
Erynnis funeralis	Hesperiidae	Funereal duskywing
Erynnis propertius	Hesperiidae	Propertius duskywing
Erynnis tristis	Hesperiidae	Mournful duskywing
Atlides halesus	Lycaenidae	Great purple hairstreak
Callophrys dumetorum perplexa	Lycaenidae	Perplexing hairstreak
Celastrina ladon	Lycaenidae	Echo blue
Glaucopsyche lygdamusI ssp.	Lycaenidae	Silvery blue
Incisalia augustinus	Lycaenidae	Brown elfin
Plebejus acmon	Lycaenidae	Acmon blue
Strymon melinus	Lycaenidae	Gray hairstreak
LyttaI sp.	Meloidae	Blister beetle
Chlosyne californica	Nymphalidae	California patch
Coenonympha tullia california	Nymphalidae	California ringlet
Danaus gilippus	Nymphalidae	Striated queen
Euphydryas chalcedona chalcedona	Nymphalidae	Chalcedon checkerspot
Euphydryas chalcedona hennei	Nymphalidae	Henne’s checkerspot
Euphydryas editha quino	Nymphalidae	Quino checkerspot
Junonia coenia	Nymphalidae	Common buckeye
Nymphalis californica	Nymphalidae	California tortoiseshell
Vanessa atalanta rubria	Nymphalidae	Red admiral
Vanessa cardui	Nymphalidae	Painted lady
Papilio eurymedon	Papilionidae	Pale swallowtail
Papilio indra	Papilionidae	Indra swallowtail
Papilio polyxenes coloro	Papilionidae	Desert black swallowtail
Papilo zelicaon lucas	Papilionidae	Anise swallowtail
Abaeis nicippe	Pieridae	Sleepy orange

Scientific Name	Family	Common Name
Anthocharis cethura	Pieridae	Desert orangetip
Anthocharis sara	Pieridae	Sara’s orangetip
Colias eurydice	Pieridae	California dogface
Colias harfordii	Pieridae	Harford's sulfur
Euchloe hyantis	Pieridae	Pearly marble
Pieris rapae	Pieridae	Cabbage butterfly
Pontia protodice	Pieridae	Checkered white
Pontia sisymbrii	Pieridae	Spring white
Apodemia mormo virgulti	Riodinidae	Behr's metalmark
Chalybion zimmermanni	Sphecidae	Blue mud wasp
Hyles lineata	Sphingidae	White-lined sphinx
Reptiles/Amphibians		
Lichanura trivirgata	Boidae	Rosy boa
Masticophis lateralis lateralis	Colubridae	California striped racer
Pituophis catenifer annectens	Colubridae	San Diego gophersnake
Salvadora hexalepis virgultea	Colubridae	Coast patchnosed snake
Gambelia sp.	Crotaphytidae	Leopard lizard
Sauromalus ater	Iguanidae	Common chuckwalla
Petrosaurus mearnsi	Phrynosomatidae	Banded rock lizard
Phrynosoma blainvillii	Phrynosomatidae	Coast horned lizard
Sceloporus occidentalis	Phrynosomatidae	Western fence lizard
Sceloporus orcutti	Phrynosomatidae	Granite spiny lizard
Uta stansburiana	Phrynosomatidae	Side-blotched lizard
Spea hammondii	Scaphiopodidae	Western spadefoot toad (tadpole)
Aspidoscelis tigris	Teiidae	Western whiptail
Crotalus mitchelli pyrrhus	Viperidae	Southwestern speckled rattlesnake
Crotalus ruber	Viperidae	Red diamond rattlesnake
Crotalus viridis helleri	Viperidae	Southern pacific rattlesnake
Birds		
Accipiter cooperii	Accipitridae	Cooper's hawk
Accipiter striatus	Accipitridae	Sharp-shinned hawk
Aquila chrysaetos	Accipitridae	Golden eagle
Buteo jamaicensis	Accipitridae	Red-tailed hawk
Circus cyaneus	Accipitridae	Northern harrier
Pandion haliaetus	Accipitridae	Osprey
Psaltriparus minimus	Aegithalidae	Bushtit

Scientific Name	Family	Common Name
Eremophila alpestris	Alaudidae	Horned lark
Anas platyrhynchos	Anatidae	Mallard duck
Chaetura vauxi	Apodidae	Vaux's swift
Chordeiles acutipennis	Caprimulgidae	Lesser nighthawk
Phalaenoptilus nuttallii	Caprimulgidae	Common poorwill
Guiraca caerulea	Cardinalidae	Blue grosbeak
Passerina amoena	Cardinalidae	Lazuli bunting
Pheucticus melanocephalus	Cardinalidae	Black-headed grosbeak
Piranga ludoviciana	Cardinalidae	Western tanager
Cathartes aura	Cathartidae	Turkey vulture
Patagioenas fasciata	Columbidae	Band-tailed pigeon
Zenaida macroura	Columbidae	Mourning dove
Aphelocoma californica	Corvidae	Western scrub jay
Corvus brachyrhynchos	Corvidae	American crow
Corvus corax	Corvidae	Common raven
Cyanocitta stelleri	Corvidae	Steller's jay
Geococcyx californianus	Cuculidae	Greater roadrunner
Aimophila ruficeps	Emberizidae	Rufous-crowned sparrow
Amphispiza belli	Emberizidae	Sage sparrow
Amphispiza bilineata	Emberizidae	Black-throated sparrow
Chondestes grammacus	Emberizidae	Lark sparrow
Junco hyemalis	Emberizidae	Dark-eyed junco
Passerculus sandwichensis	Emberizidae	Savannah sparrow
Passerella iliaca	Emberizidae	Fox sparrow
Pipilo crissalis	Emberizidae	California towhee
Pipilo maculatus	Emberizidae	Spotted towhee
Spizella atrogularis	Emberizidae	Black-chinned sparrow
Zonotrichia albicollis	Emberizidae	White-throated swift
Zonotrichia leucophrys	Emberizidae	White crowned sparrow
Falco mexicanus	Falconidae	Prairie falcon
Falco sparverius	Falconidae	American kestrel
Carduelis lawrencei	Fringillidae	Lawrence’s goldfinch
Carduelis psaltria	Fringillidae	Lesser goldfinch
Carpodacus mexicanus	Fringillidae	House finch
Hirundo rustica	Hirundinidae	Barn swallow
Petrochelidon pyrrhonota	Hirundinidae	Cliff swallow

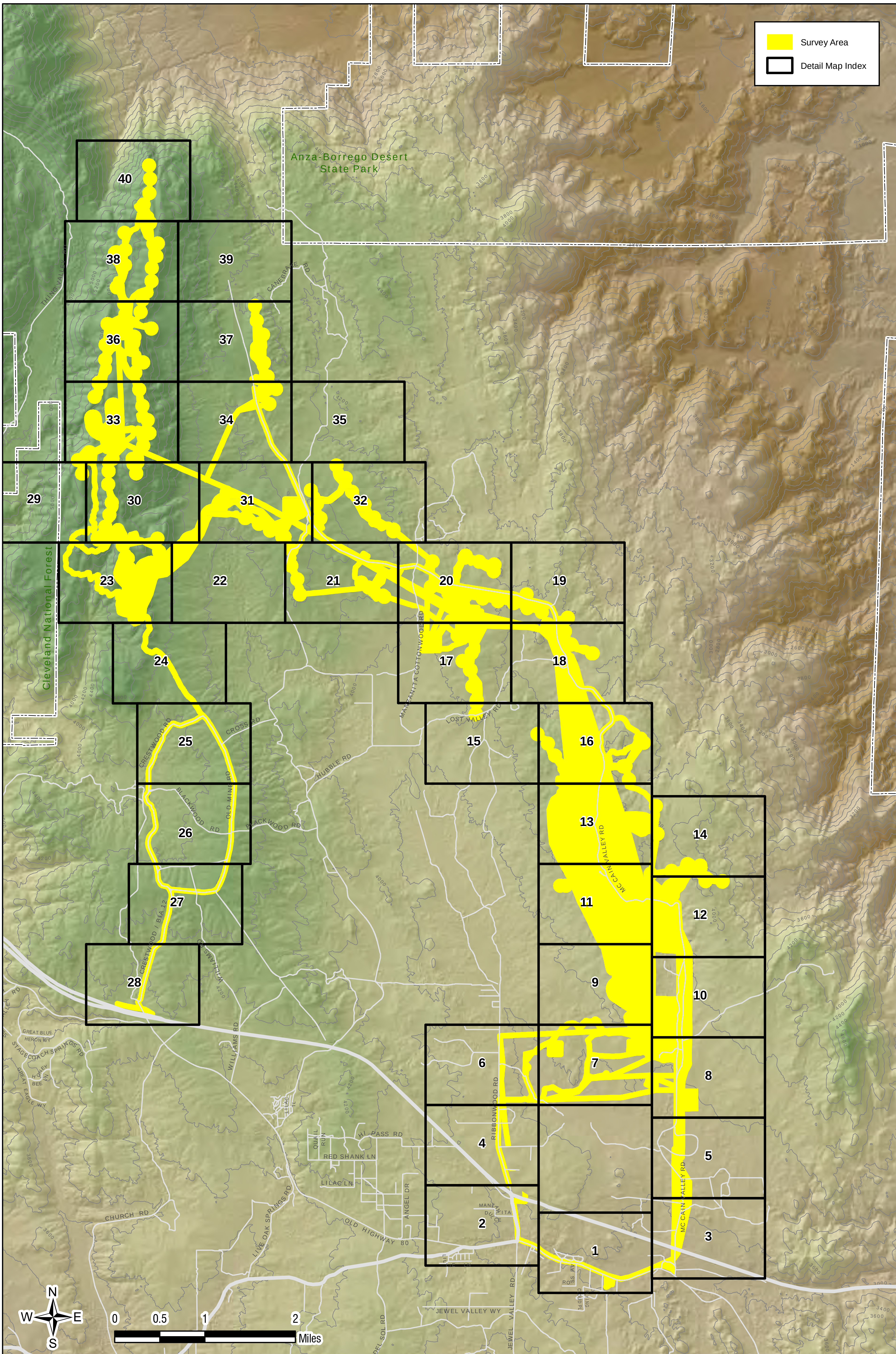
Scientific Name	Family	Common Name
Stelgidopteryx serripennis	Hirundinidae	Northern rough-winged swallow
Streptopelia decoacto	Hirundinidae	Eurasian collared dove
Tachycineta thalassina	Hirundinidae	Violet-green swallow
Thryomanes bewickii	Hirundinidae	Bewick's wren
Agelaius phoeniceus	Icteridae	Red winged blackbird
Euphagus cyanocephalus	Icteridae	Brewer's blackbird
Icterus bullockii	Icteridae	Bullocks oriole
Icterus parisorum	Icteridae	Scott's oriole
Molothrus ater	Icteridae	Brown-headed cowbird
Sturnella neglecta	Icteridae	Western meadowlark
Lanius ludovicianus	Laniidae	Loggerhead shrike
Mimus polyglottos	Mimidae	Northern mockingbird
Toxostoma redivivum	Mimidae	California thrasher
Callipepla californica	Odontophoridae	California quail
Callipepla gambelii	Odontophoridae	Gambel's quail
Oreortyx pictus	Odontophoridae	Mountain quail
Baeolophus inornatus	Paridae	Oak titmouse
Poecile gambeli	Paridae	Mountain chickadee
Dendroica coronata	Parulidae	Yellow-rumped warbler
Dendroica nigrescens	Parulidae	Black-throated gray warbler
Dendroica petechia	Parulidae	Yellow warbler
Dendroica townsendi	Parulidae	Townsend's warbler
Oporornis tolmiei	Parulidae	MacGilliray’s warbler
Vermivora celata	Parulidae	Orange-crowned warbler
Vermivora ruficapilla	Parulidae	Nashville warbler
Wilsonia pusilla	Parulidae	Wilson's warbler
Phalacrocorax auritus	Phalacrocoracidae	Double-crested cormorant
Colaptes auratus	Picidae	Northern flicker
Melanerpes formicivorus	Picidae	Acorn woodpecker
Picoides nuttallii	Picidae	Nuttall's woodpecker
Picoides pubescens	Picidae	Downy woodpecker
Picoides scalaris	Picidae	Ladder-backed woodpecker
Phainopepla nitens	Ptilogonatidae	Phainopepla
Regulus calendula	Regulidae	Ruby-crowned kinglet
Sitta carolinensis	Sittidae	White-breasted nuthatch
Bubo virginianus	Strigidae	Great-horned owl

Scientific Name	Family	Common Name
Sturnus vulgaris	Sturnidae	European starling
Polioptila caerulea	Sylviidae	Blue-gray gnatcatcher
Polioptila melanura	Sylviidae	Black-tailed gnatcatcher
Chamaea fasciata	Timaliidae	Wrentit
Archilochus alexandri	Trochilidae	Black-chinned hummingbird
Calypte anna	Trochilidae	Anna’s hummingbird
Catherpes mexicanus	Troglodytidae	Canyon wren
Salpinctes obsoletus	Troglodytidae	Rock wren
Troglodytes aedon	Troglodytidae	House wren
Sialia currucoides	Turdidae	Mountain bluebird
Sialia mexicana	Turdidae	Western bluebird
Contopus cooperi	Tyrannidae	Olive-sided flycatcher
Contopus sordidulus	Tyrannidae	Western wood-pewee
Empidonax difficilis	Tyrannidae	Pacific-slope flycatcher
Empidonax hammondii	Tyrannidae	Hammond’s flycatcher
Myiarchus cinerascens	Tyrannidae	Ash-throated flycatcher
Sayornis nigricans	Tyrannidae	Black phoebe
Sayornis saya	Tyrannidae	Say's phoebe
Tyrannus verticalis	Tyrannidae	Western kingbird
Tyrannus vociferans	Tyrannidae	Cassin's kingbird
Vireo cassinii	Vireonidae	Cassin’s vireo
Vireo gilvus	Vireonidae	Warbling vireo
Mammals		
Bos taurus	Bovidae	Domestic cow
Canis latrans	Canidae	Coyote
Odocoileus hemionus fuliginatus	Cervidae	Mule deer
Neotoma lepida	Cricetidae	Desert woodrat
Peromyscus maniculatus	Cricetidae	Deer mouse
Felis concolor	Felidae	Mountain lion
Lynx rufus	Felidae	Bobcat
Thomomys bottae	Geomyidae	Botta's pocket gopher
Dipodomys sp.	Heteromyidae	Kangaroo rat (sign)
Lepus californicus	Leporidae	Black-tailed jackrabbit
Sylvilagus audubonii	Leporidae	Desert cottontail
Sylvilagus bachmanii	Leporidae	Bush rabbit
Mustela frenata	Mustelidae	Long tailed weasel

Scientific Name	Family	Common Name
Procyon lotor	Procyonidae	Raccoon
Ammospermophilus leucurus leucurus	Sciuridae	Antelope ground squirrel
Spermophilus beecheyi	Sciuridae	California ground squirrel
Lasiurus cinereus	Vespertilionidae	Hoary bat
Myotis ciliolabrum	Vespertilionidae	Western small-footed bat

APPENDIX D

Biological Resources Impacts Map



Map Index

FIGURE 1

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 1)

Figure 2

Tule, LLC | Tule Wind Project | BTA

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- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Permanent Impacts
- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
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- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix D: Biological Resource Impact Maps (Index Map 2)

Figure 3

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 3)

Figure 4

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™

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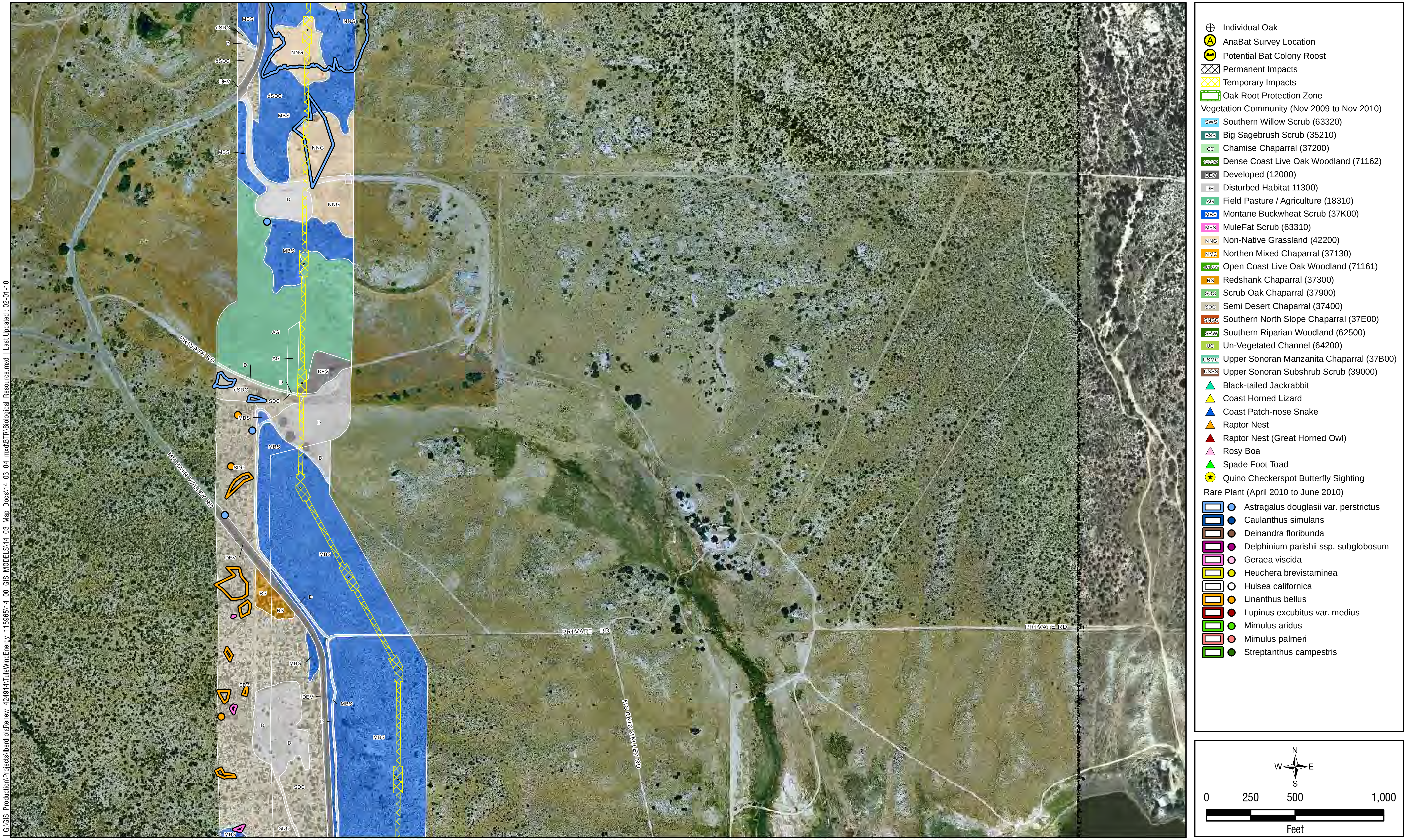
Appendix D: Biological Resource Impact Maps (Index Map 4)

Figure 5

Tule, LLC | Tule Wind Project | BTA



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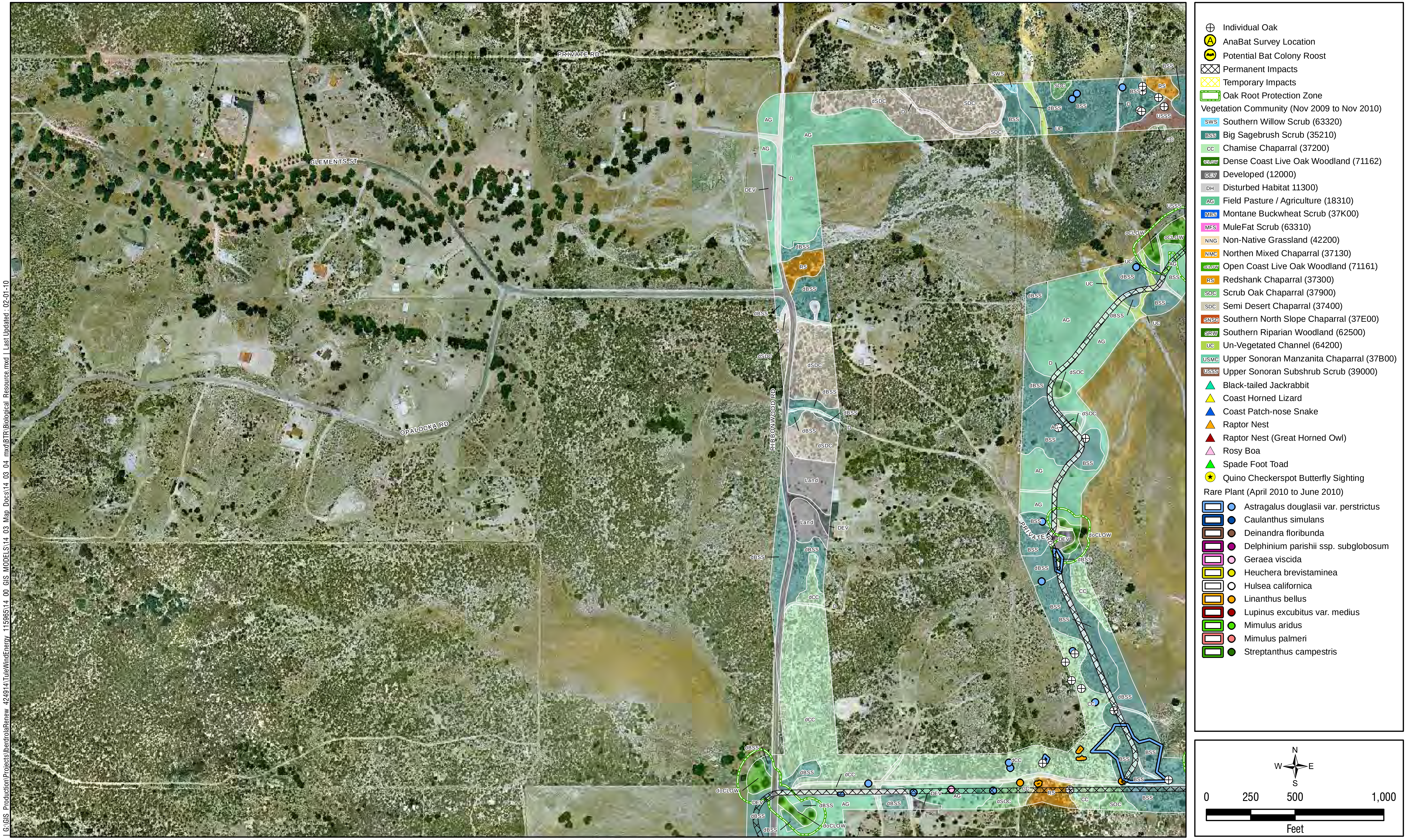
Appendix D: Biological Resource Impact Maps (Index Map 5)

Figure 6

Tule, LLC | Tule Wind Project | BTA



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Appendix D: Biological Resource Impact Maps (Index Map 6)

Figure 7

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 7)

Figure 8

Tule, LLC | Tule Wind Project | BTA

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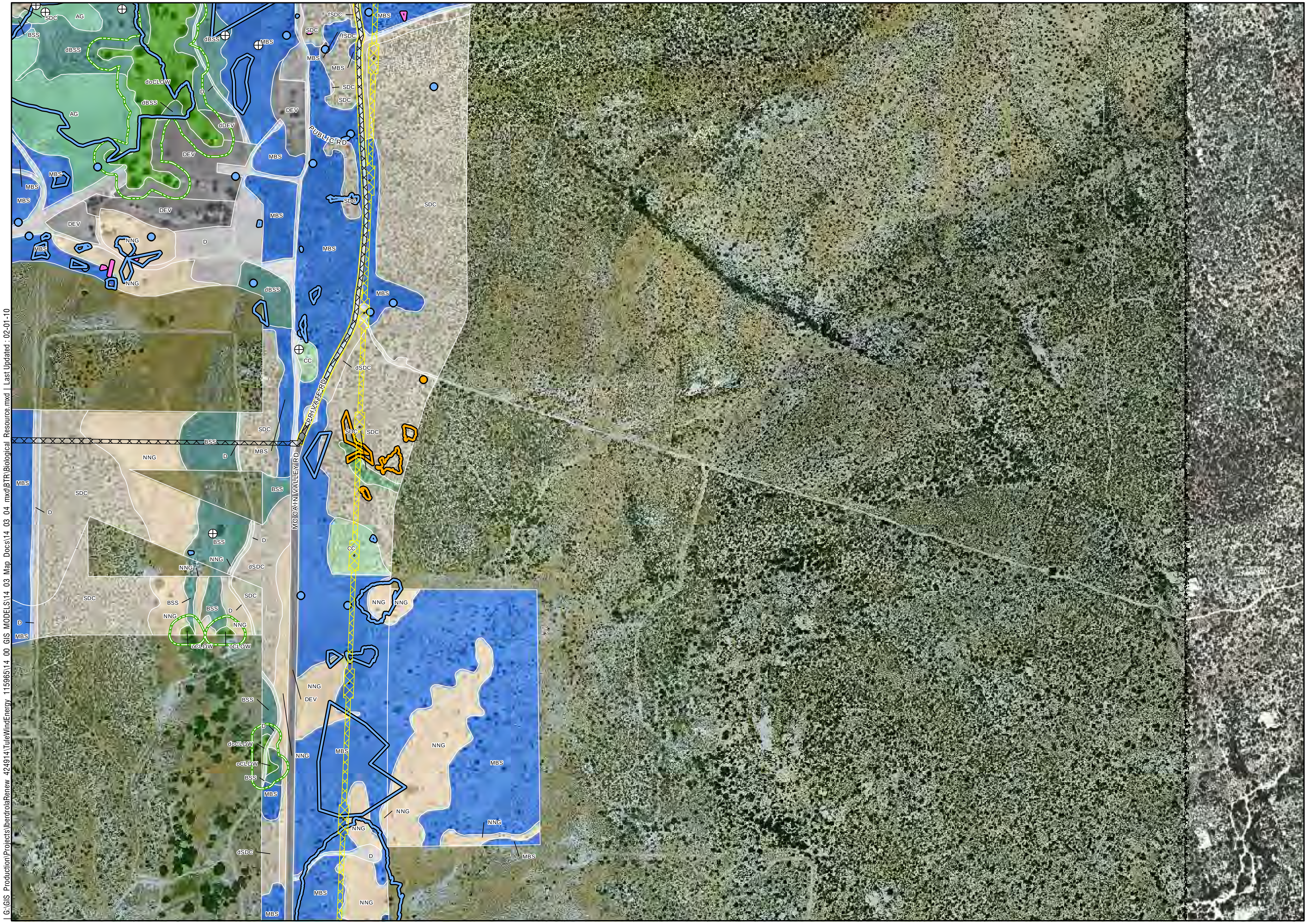

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- Linanthus bellus
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- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Feet

Appendix D: Biological Resource Impact Maps (Index Map 8)

Figure 9

Tule, LLC | Tule Wind Project | BTA

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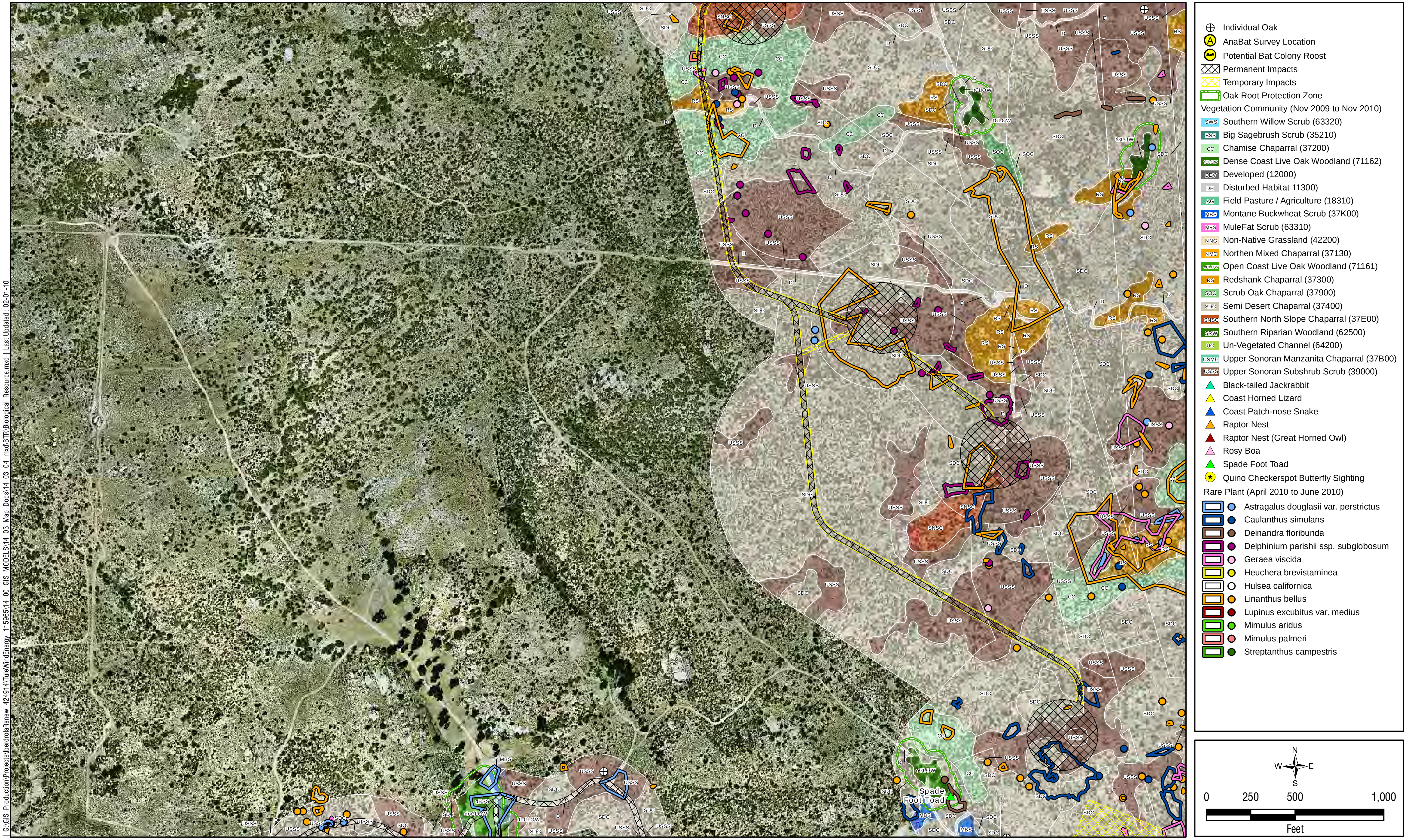

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Appendix D: Biological Resource Impact Maps (Index Map 9)

Figure 10

Tule, LLC | Tule Wind Project | BTA

Appendix D: Biological Resource Impact Maps (Index Map 10)

Figure 11

Tule, LLC | Tule Wind Project | BTA

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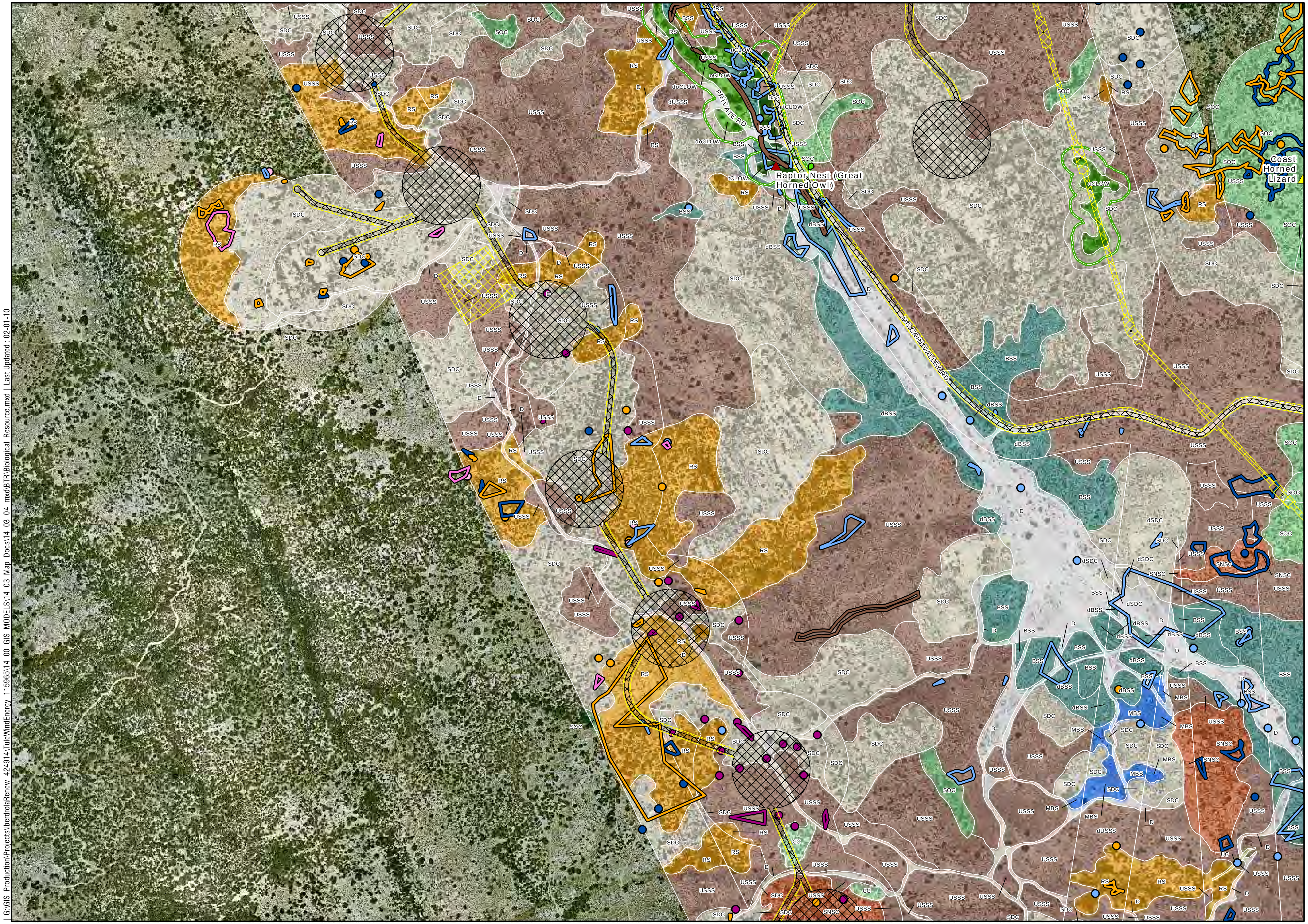

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- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N E S W

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Feet

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Appendix D: Biological Resource Impact Maps (Index Map 11)

Figure 12

Tule, LLC | Tule Wind Project | BTA

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- oCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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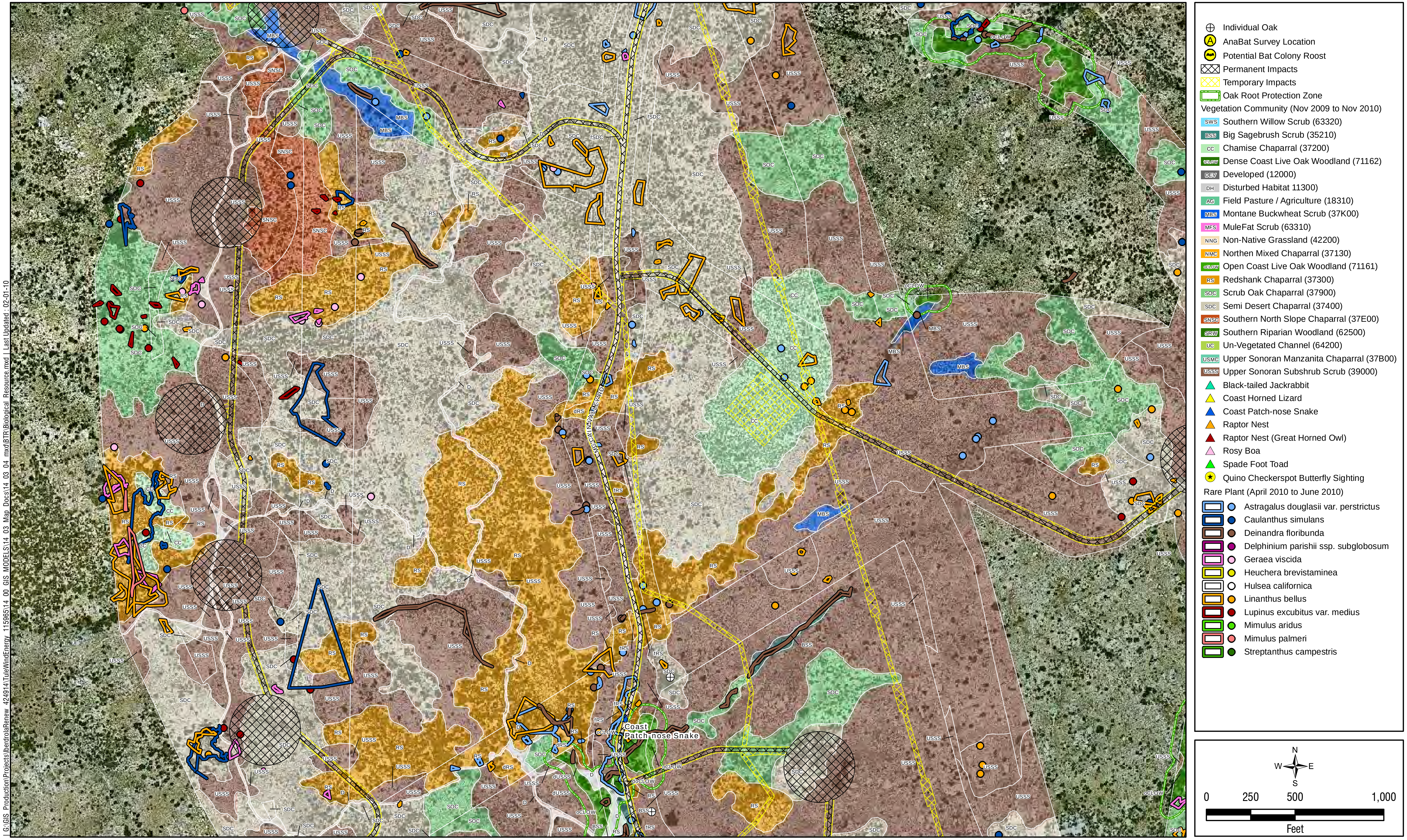
Appendix D: Biological Resource Impact Maps (Index Map 12)

Figure 13

Tule, LLC | Tule Wind Project | BTA



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Appendix D: Biological Resource Impact Maps (Index Map 13)

Figure 14

Tule, LLC | Tule Wind Project | BTA

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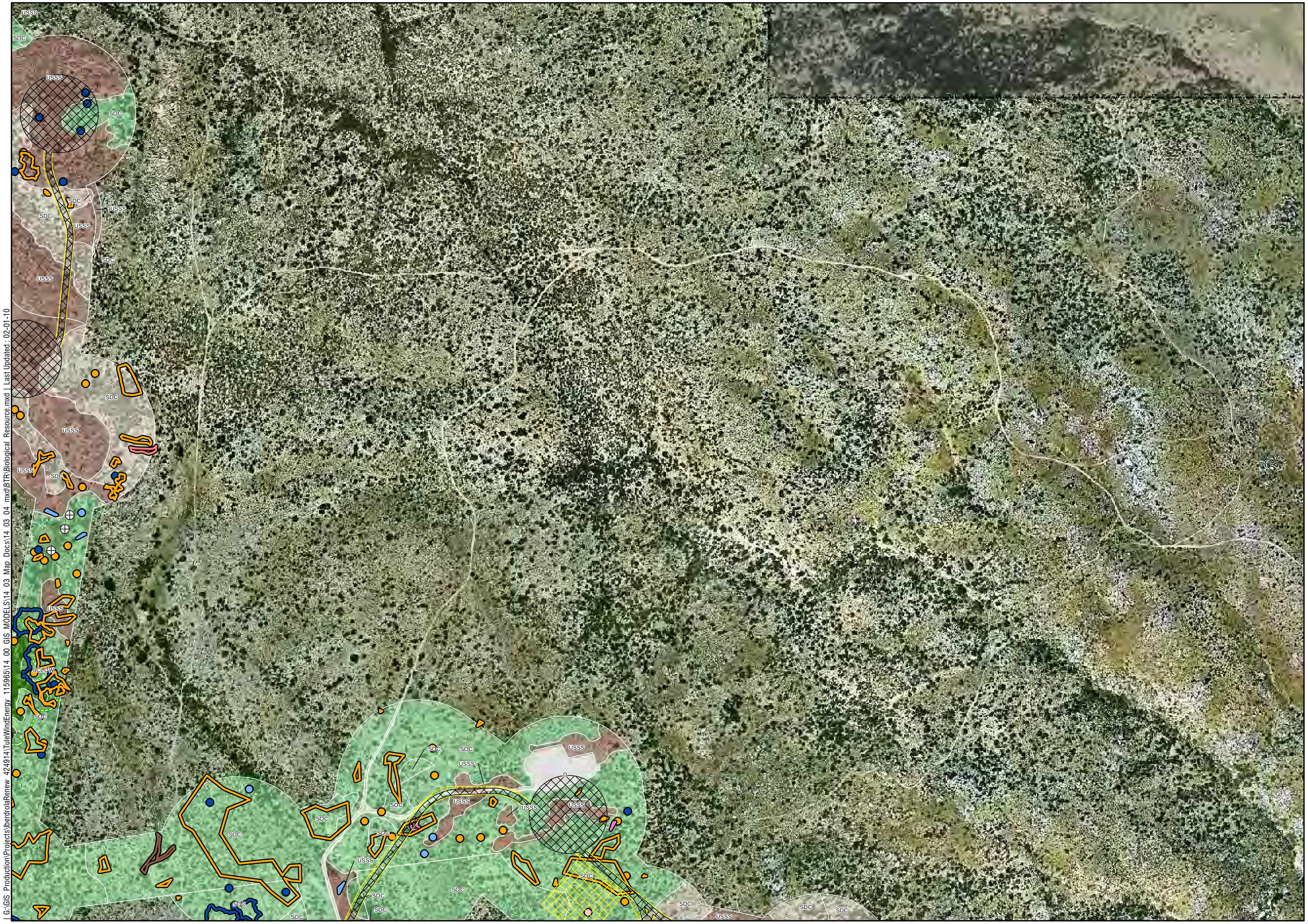
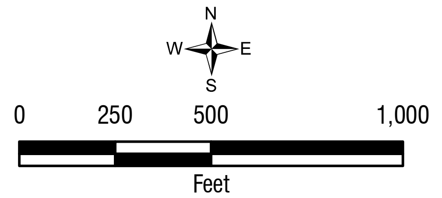


Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Permanent Impacts
Temporary Impacts
Oak Root Protection Zone
Vegetation Community (Nov 2009 to Nov 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
DCLOW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
DH Disturbed Habitat 11300)
AG Field Pasture / Agriculture (18310)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
NMC Northern Mixed Chaparral (37130)
OCLOW Open Coast Live Oak Woodland (71161)
RS Redshank Chaparral (37300)
SOC Scrub Oak Chaparral (37900)
SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)
Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting
Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris



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Appendix D: Biological Resource Impact Maps (Index Map 14)

Figure 15

Tule, LLC | Tule Wind Project | BTA

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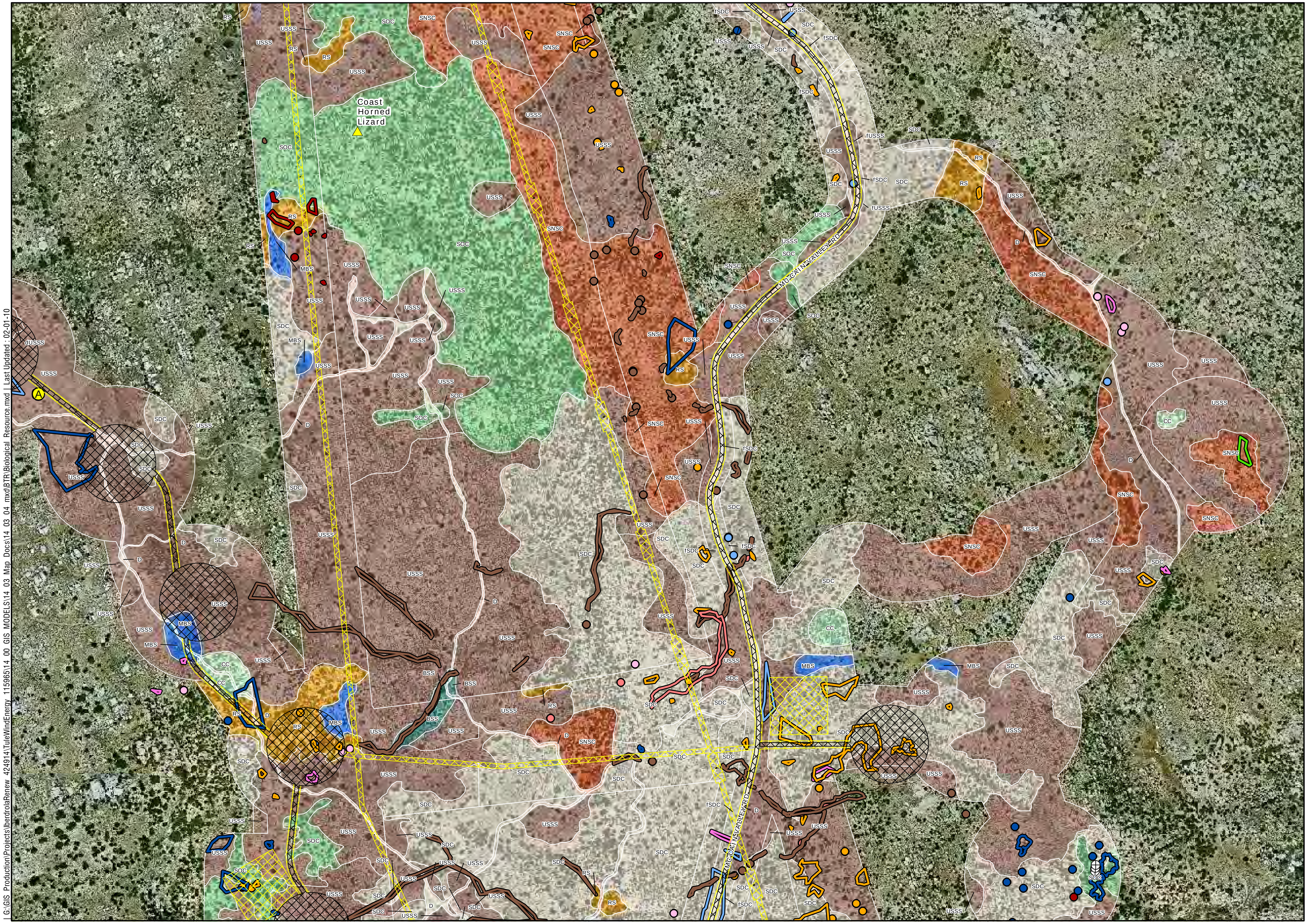
Appendix D: Biological Resource Impact Maps (Index Map 15)

Figure 16

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Permanent Impacts
- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

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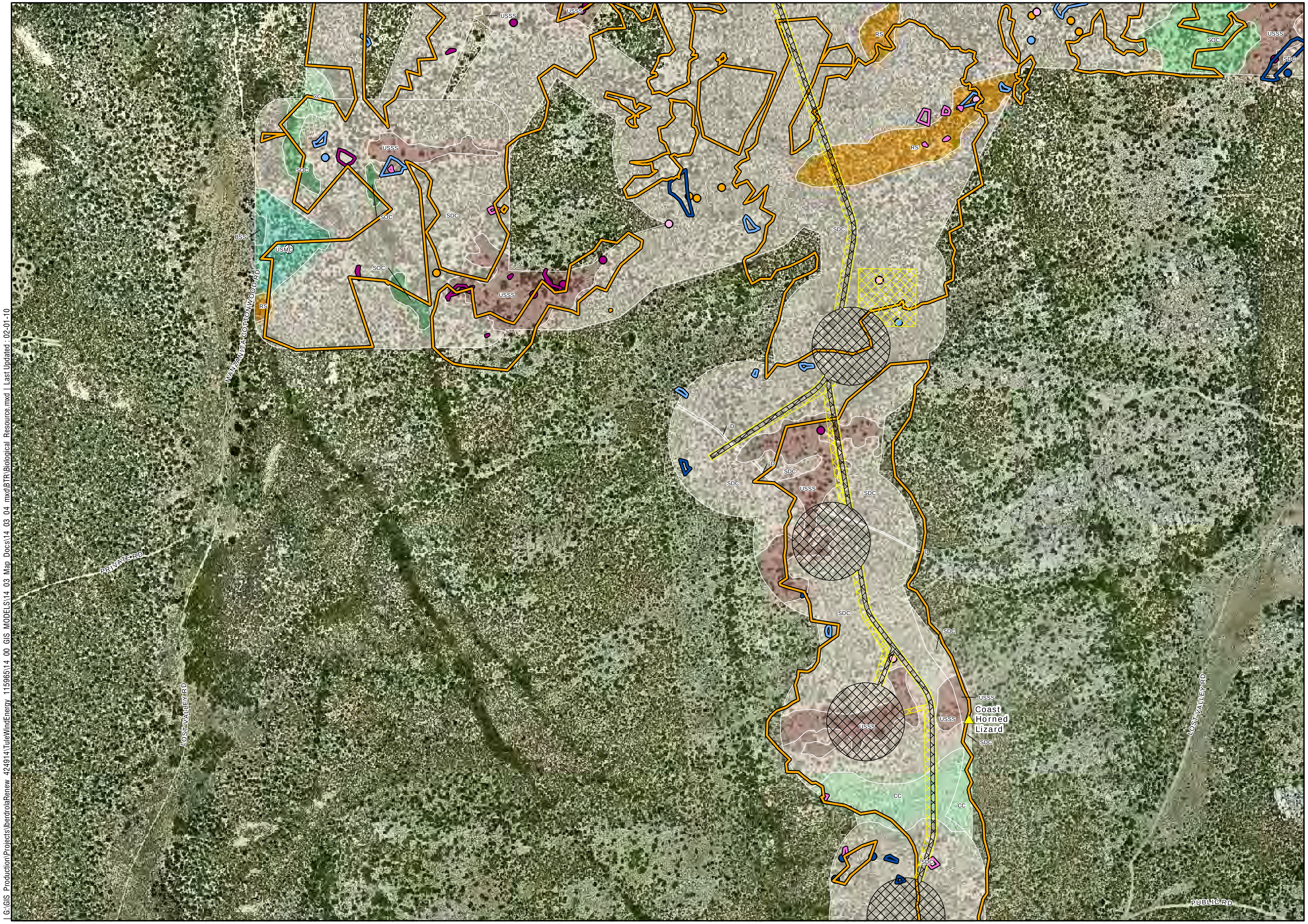
Appendix D: Biological Resource Impact Maps (Index Map 16)

Figure 17

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions™



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Permanent Impacts
- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- Coast Horned Lizard
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- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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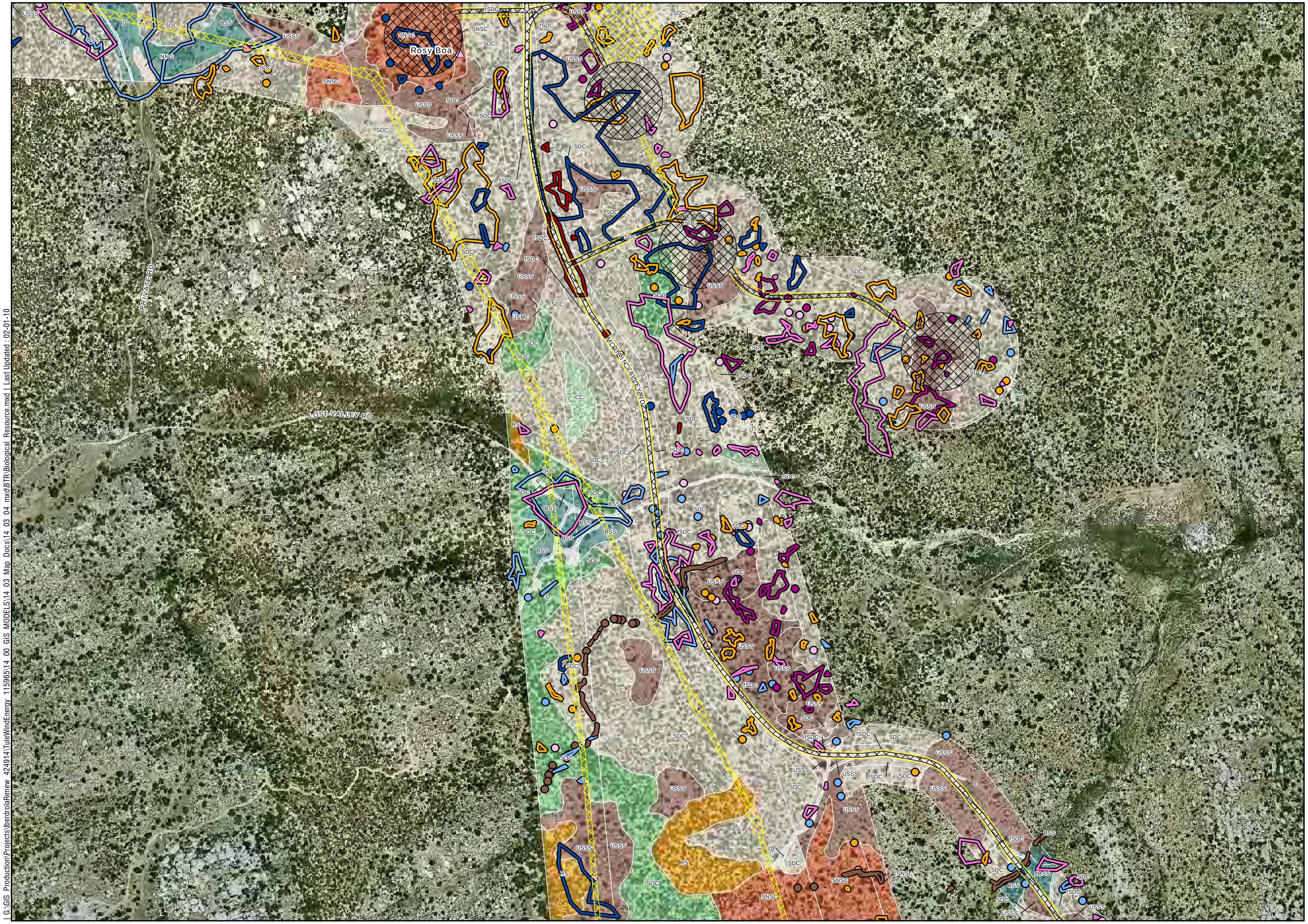
Appendix D: Biological Resource Impact Maps (Index Map 17)

Figure 18

Tule, LLC | Tule Wind Project | BTA



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Permanent Impacts
Temporary Impacts
Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
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- DH Disturbed Habitat 11300)
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- MFS MuleFat Scrub (63310)
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- UC Un-Vegetated Channel (64200)
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- USSS Upper Sonoran Subshrub Scrub (39000)

Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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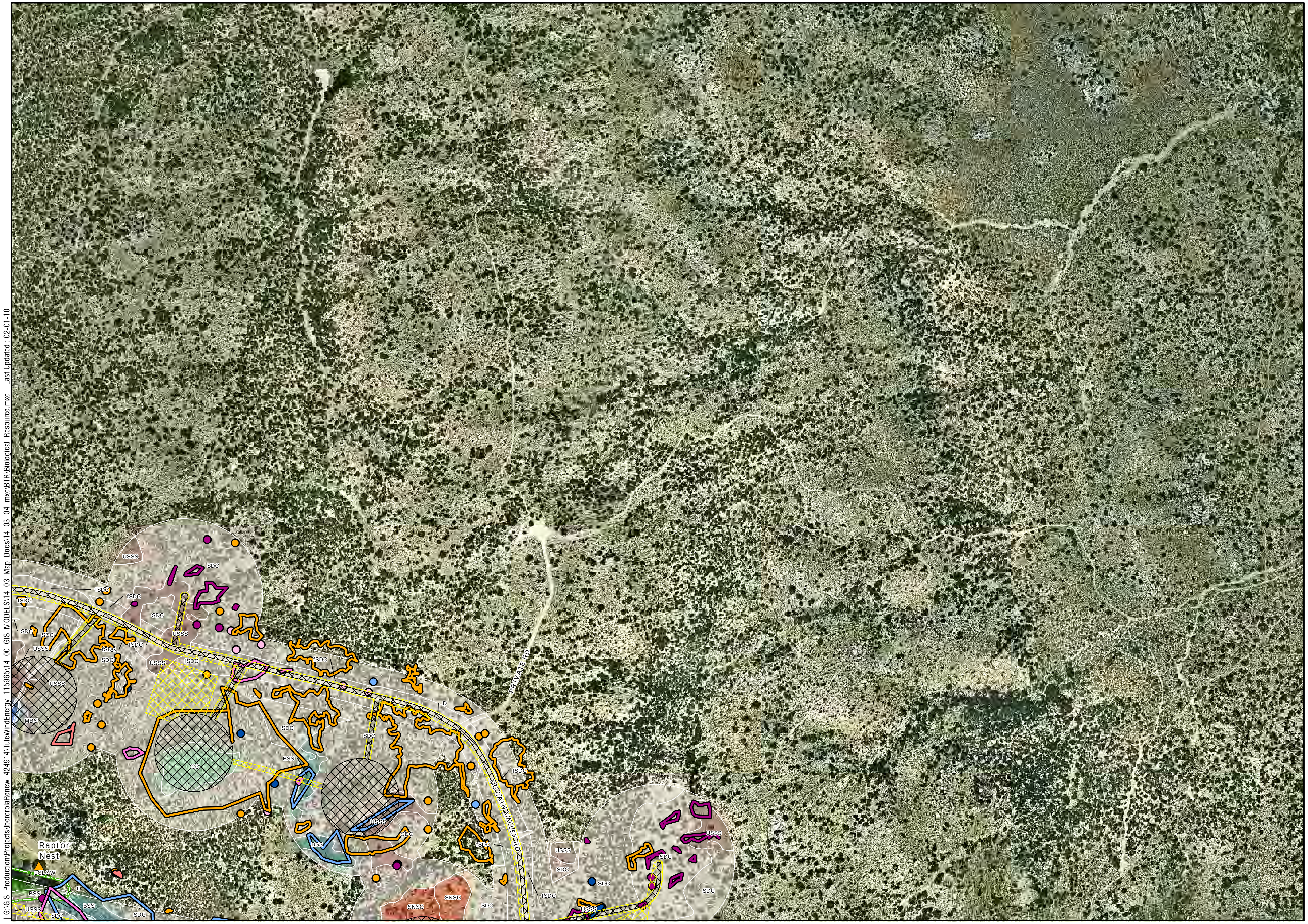
Appendix D: Biological Resource Impact Maps (Index Map 18)

Figure 19

Tule, LLC | Tule Wind Project | BTA



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Permanent Impacts
- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
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- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
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- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix D: Biological Resource Impact Maps (Index Map 19)

Figure 20

Tule, LLC | Tule Wind Project | BTA

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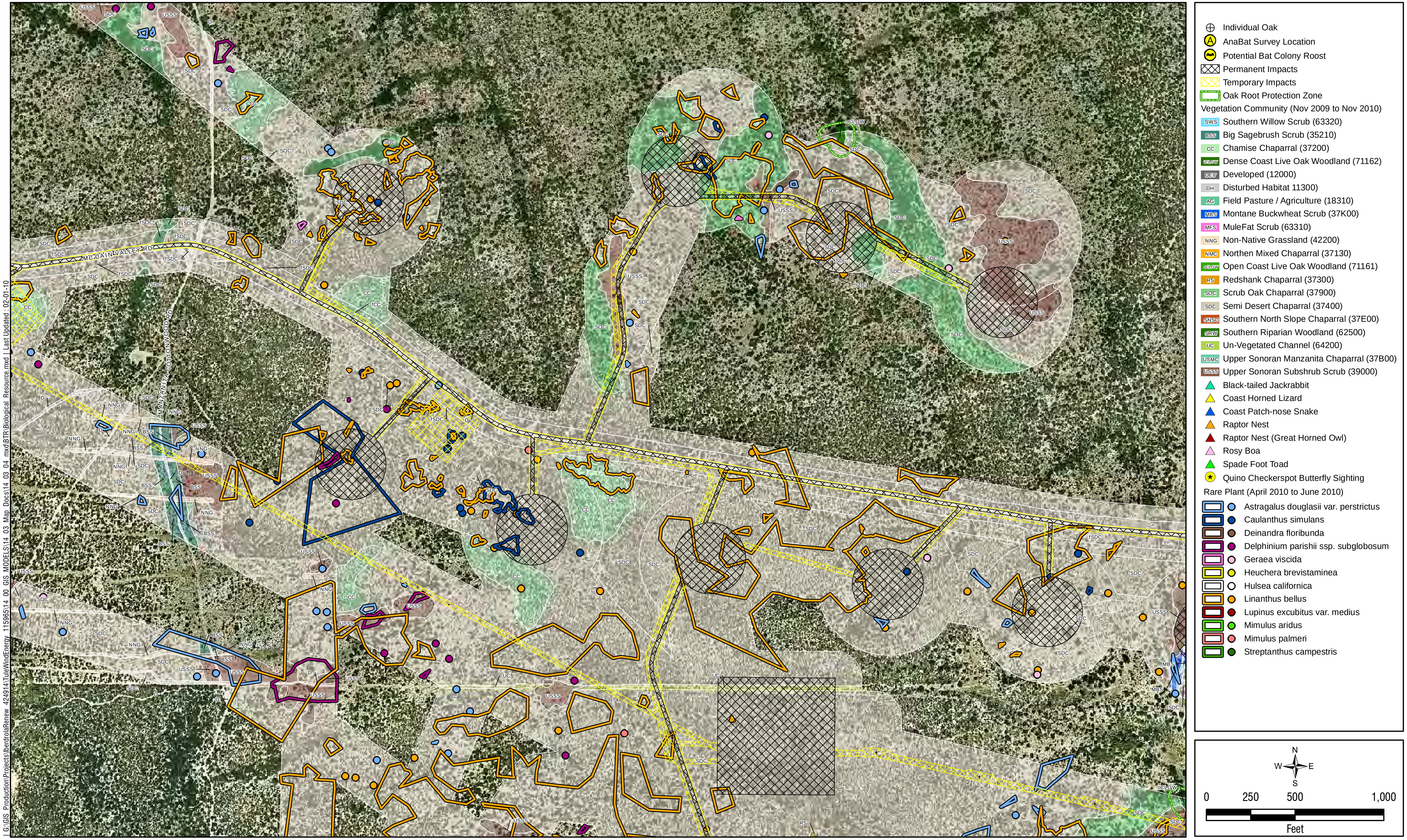
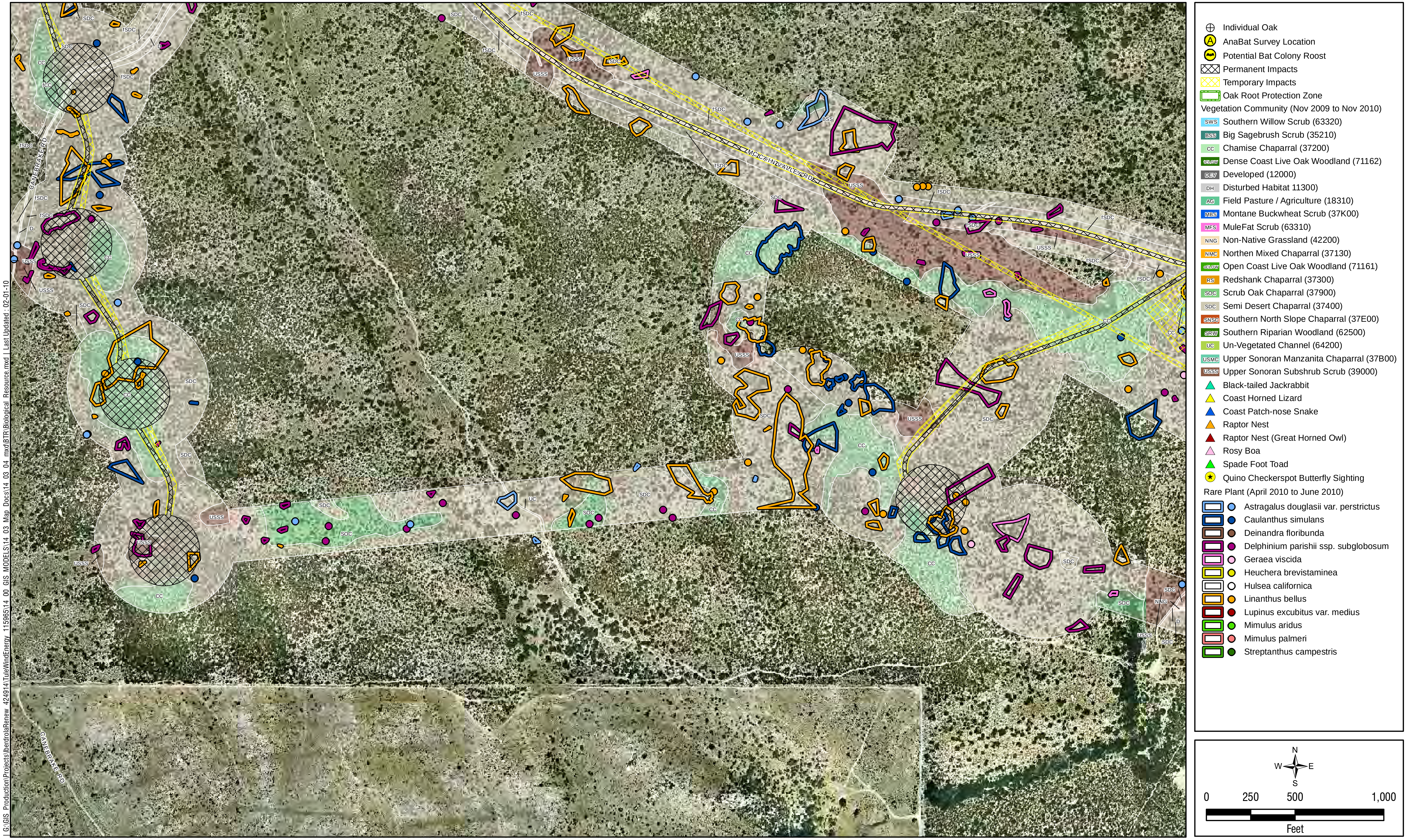


Appendix D: Biological Resource Impact Maps (Index Map 20)

Figure 21

Tule, LLC | Tule Wind Project | BTA

HDR ONE COMPANY | Many Solutions



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Appendix D: Biological Resource Impact Maps (Index Map 21)

Figure 22

Tule, LLC | Tule Wind Project | BTA

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Permanent Impacts
Temporary Impacts
Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- UC Un-Vegetated Channel (64200)
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Black-tailed Jackrabbit
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix D: Biological Resource Impact Maps (Index Map 22)

Figure 23

Tule, LLC | Tule Wind Project | BTA

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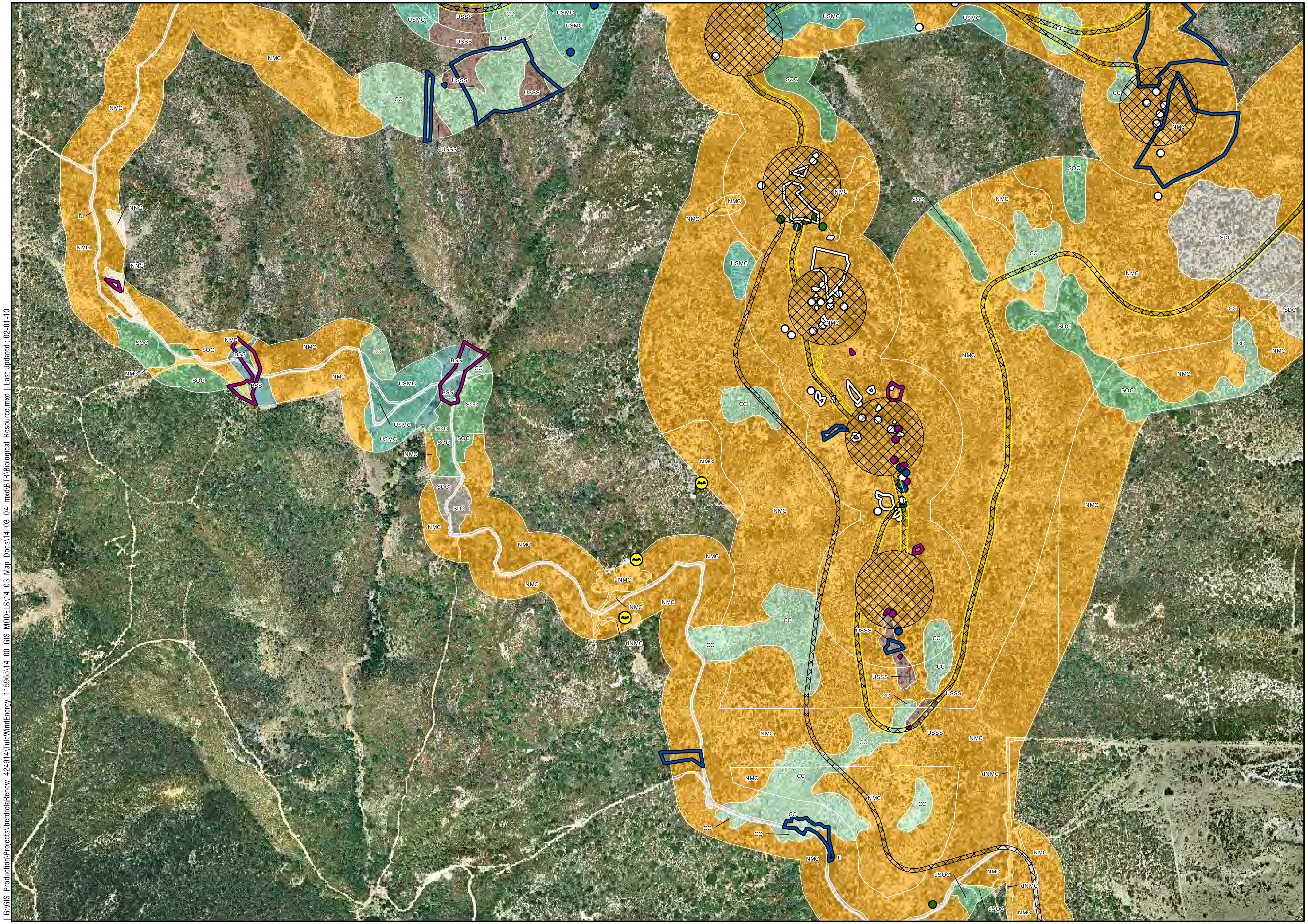

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Permanent Impacts
- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- DEV Developed (12000)
- DH Disturbed Habitat 11300)
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- MFS MuleFat Scrub (63310)
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- Coast Patch-nose Snake
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- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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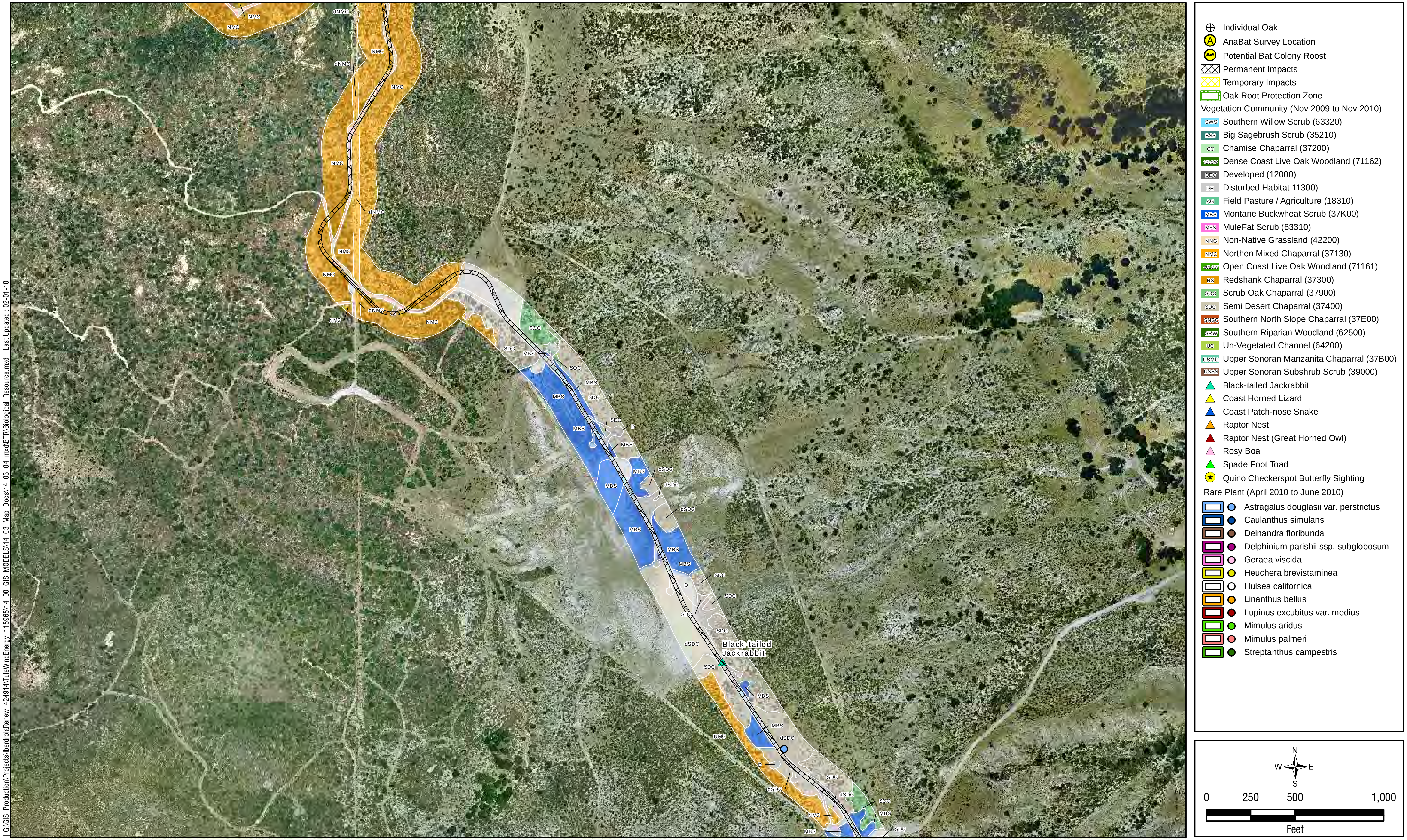
Appendix D: Biological Resource Impact Maps (Index Map 23)

Figure 24

Tule, LLC | Tule Wind Project | BTA



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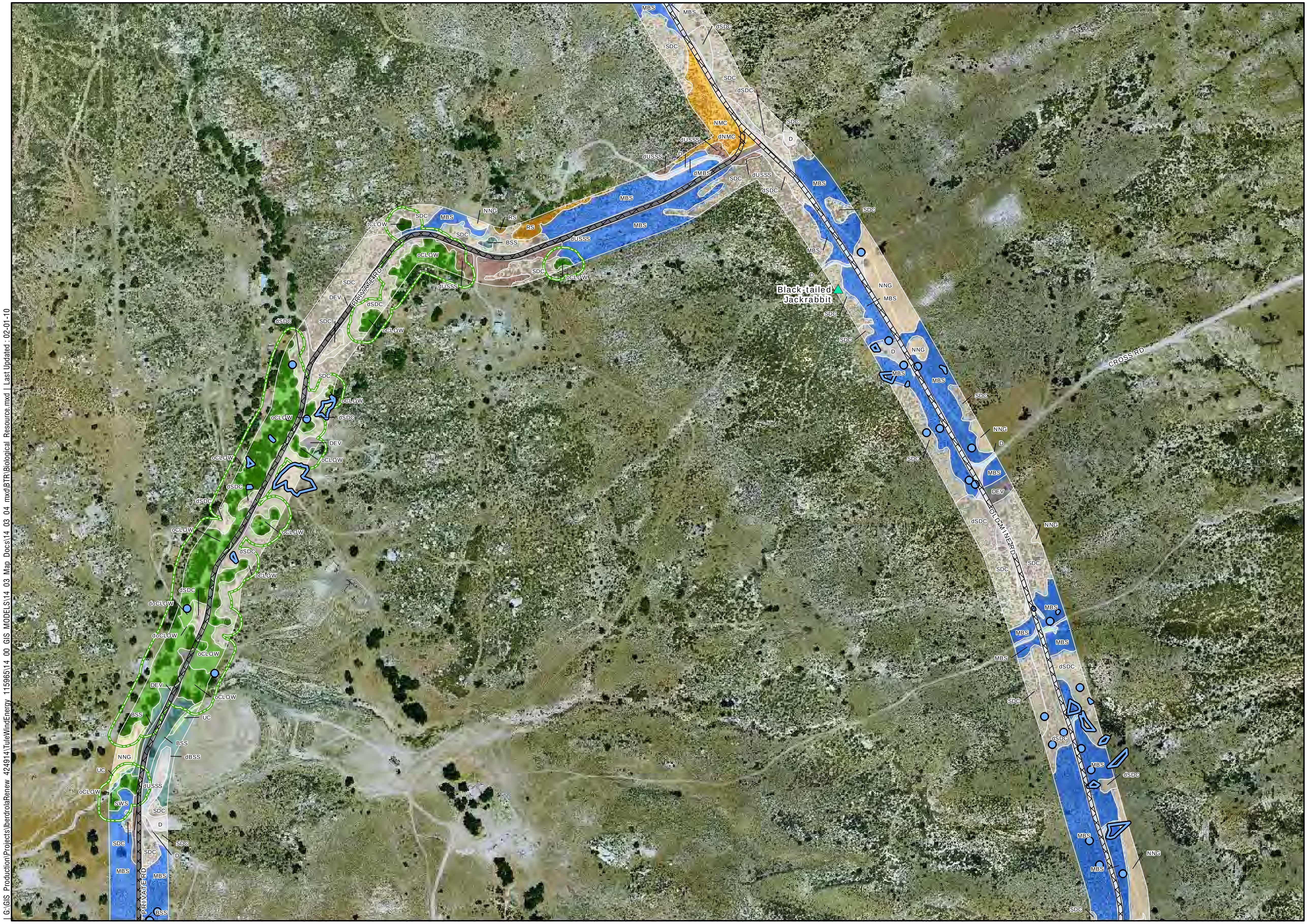
Appendix D: Biological Resource Impact Maps (Index Map 24)

Figure 25

Tule, LLC | Tule Wind Project | BTA



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- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Permanent Impacts
- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

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- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

N W E S

0 250 500 1,000

Feet

Appendix D: Biological Resource Impact Maps (Index Map 25)

Figure 26

Tule, LLC | Tule Wind Project | BTA

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- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
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- Temporary Impacts
- Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

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- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
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- USSS Upper Sonoran Subshrub Scrub (39000)
- Black-tailed Jackrabbit
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix D: Biological Resource Impact Maps (Index Map 26)

Figure 27

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 27)

Figure 28

Tule, LLC | Tule Wind Project | BTA

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⊕ Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Permanent Impacts
Temporary Impacts
Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

- SWS Southern Willow Scrub (63320)
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Appendix D: Biological Resource Impact Maps (Index Map 28)

Figure 29

Tule, LLC | Tule Wind Project | BTA

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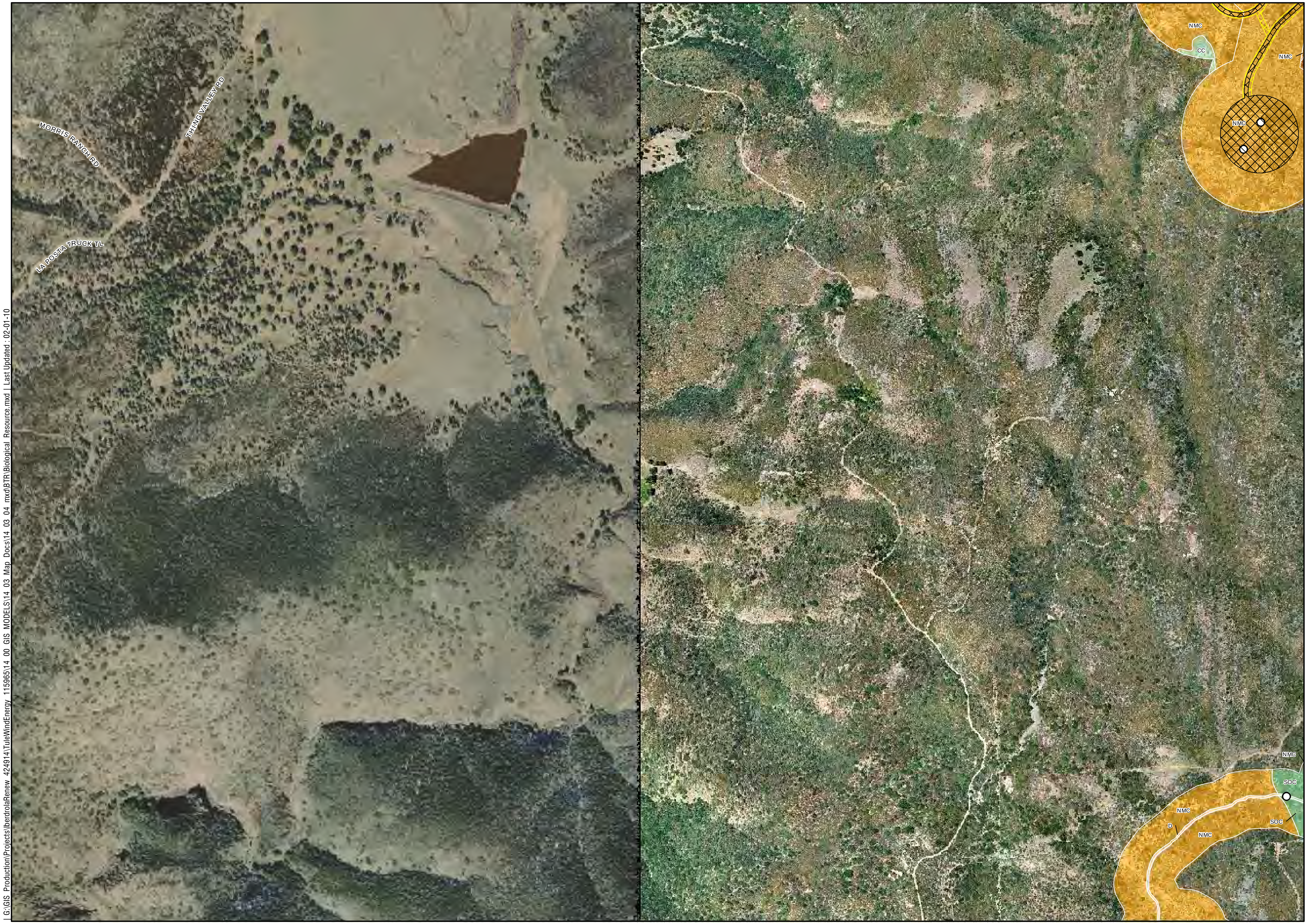

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Appendix D: Biological Resource Impact Maps (Index Map 29)

Figure 30

Tule, LLC | Tule Wind Project | BTA

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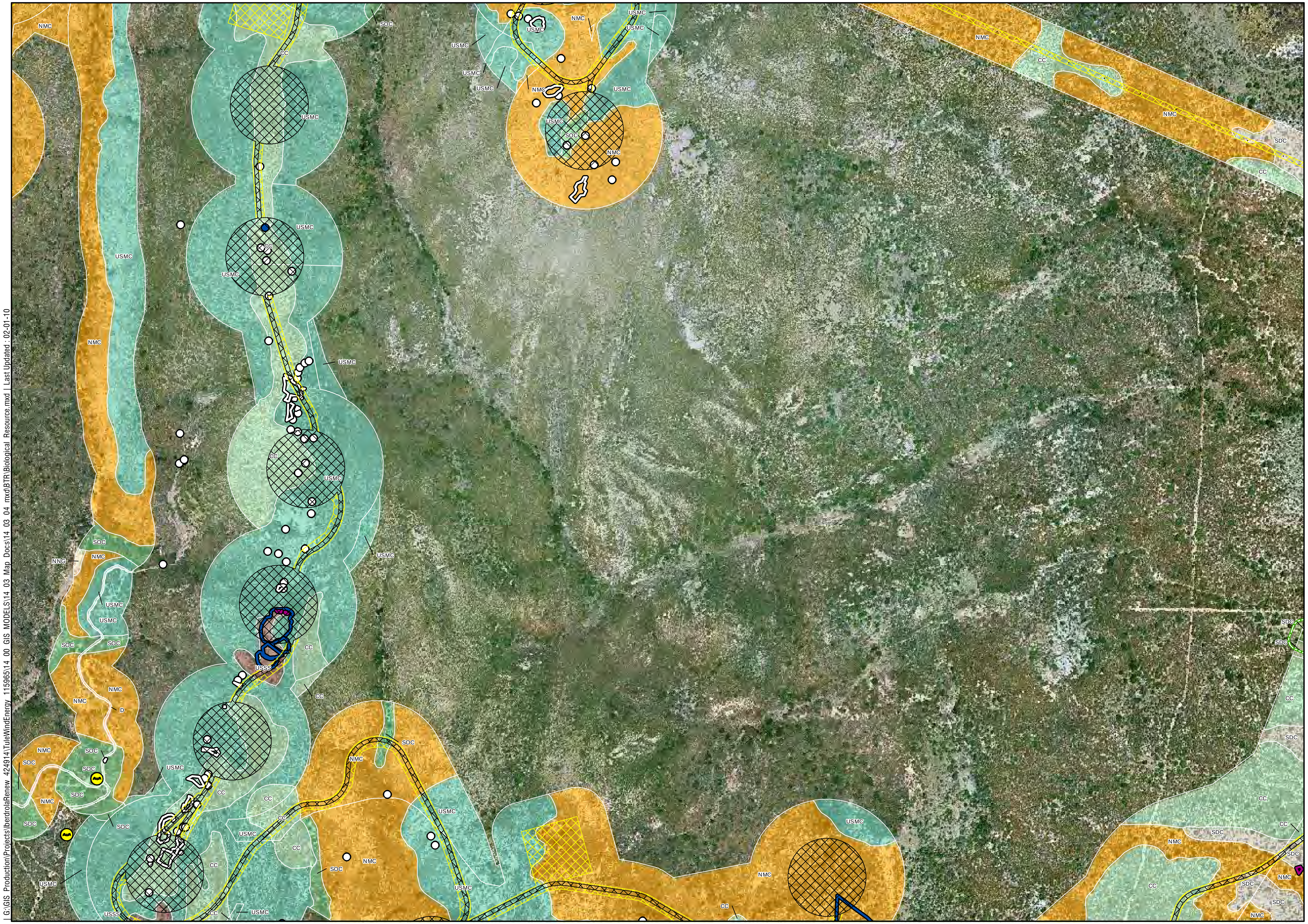

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- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Appendix D: Biological Resource Impact Maps (Index Map 30)

Figure 31

Tule, LLC | Tule Wind Project | BTA

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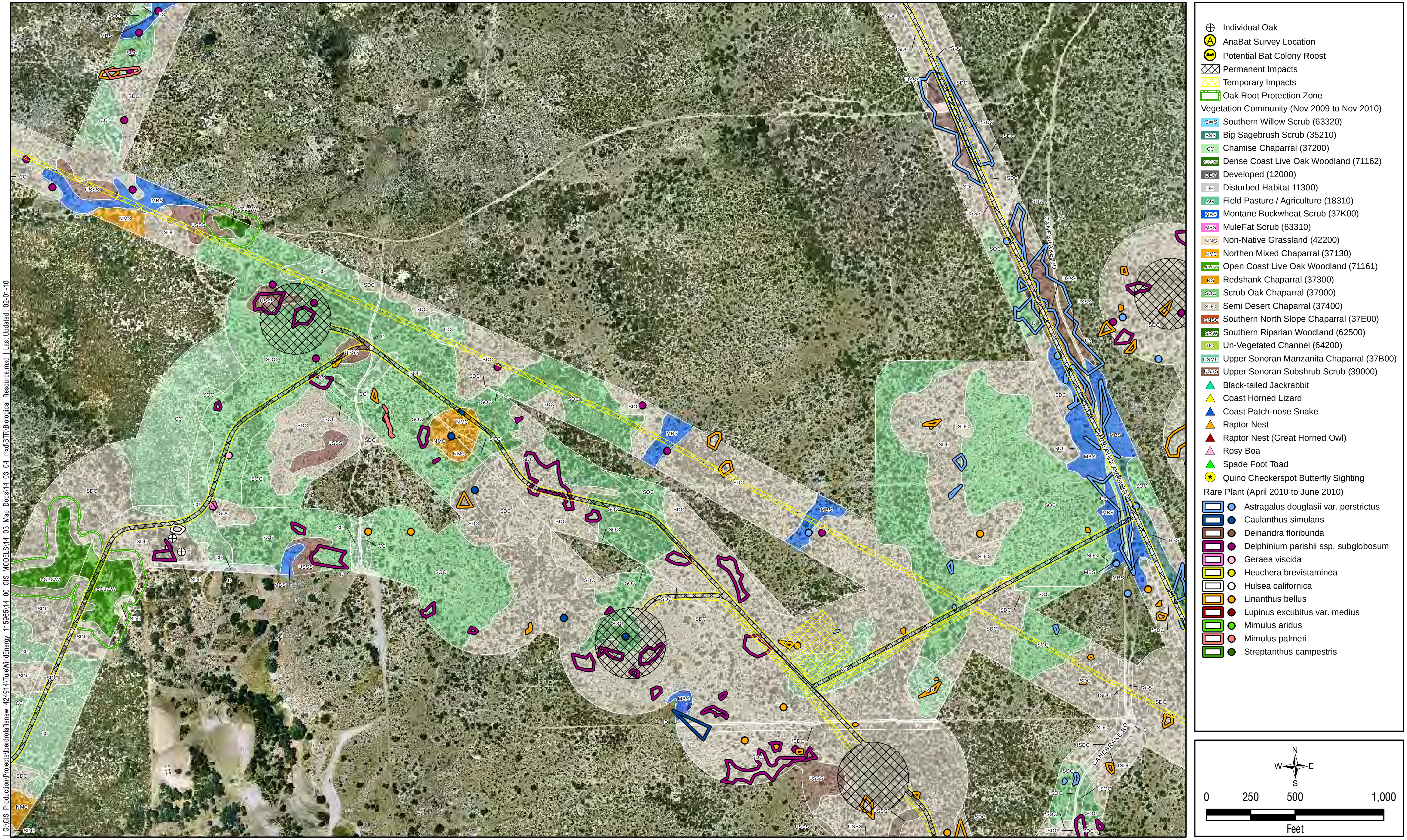

Appendix D: Biological Resource Impact Maps (Index Map 31)

Figure 32

Tule, LLC | Tule Wind Project | BTA

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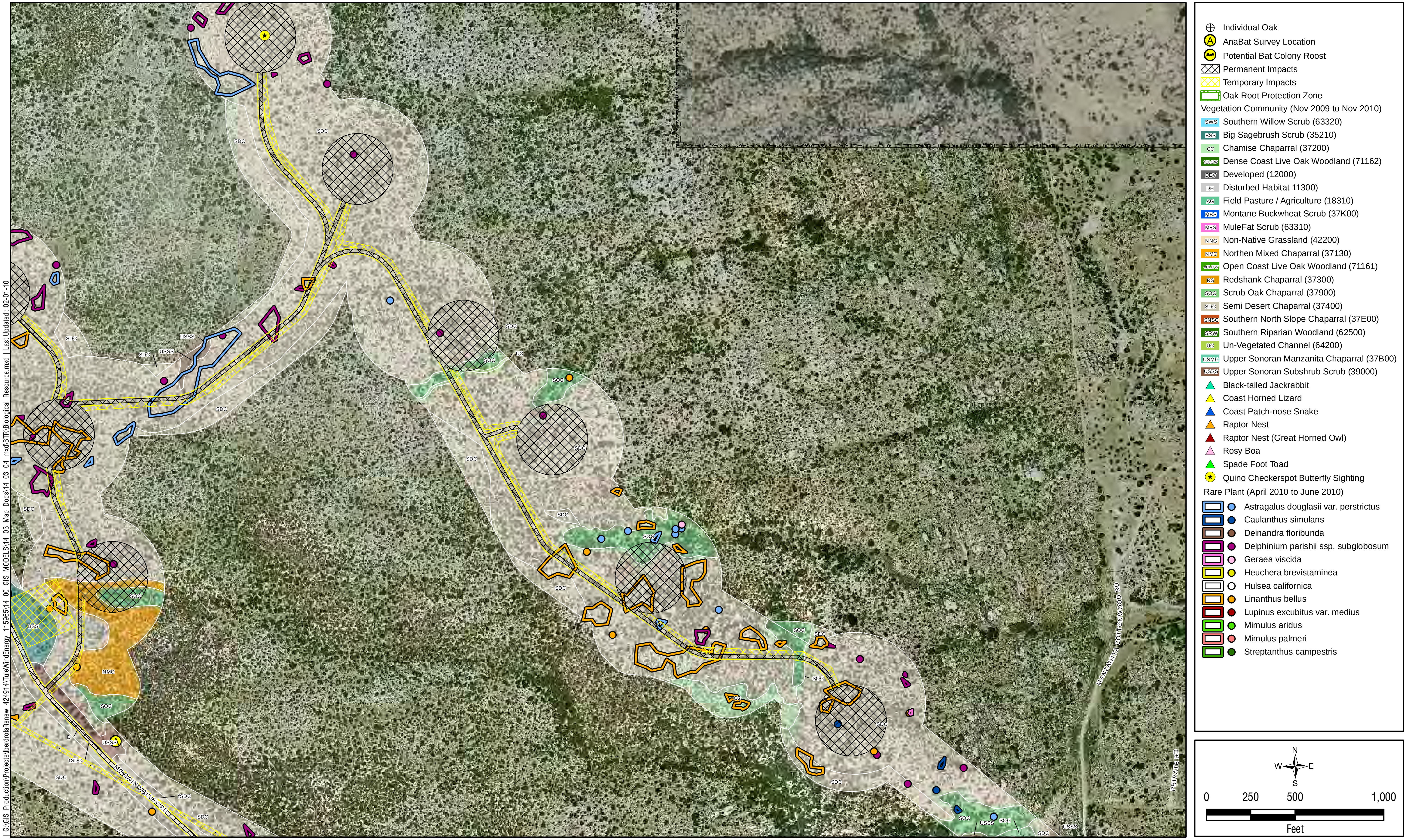

Appendix D: Biological Resource Impact Maps (Index Map 32)

Figure 33

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 33)

Figure 34

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 34)

Figure 35

Tule, LLC | Tule Wind Project | BTA

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Permanent Impacts
Temporary Impacts
Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)
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Appendix D: Biological Resource Impact Maps (Index Map 35)

Figure 36

Tule, LLC | Tule Wind Project | BTA

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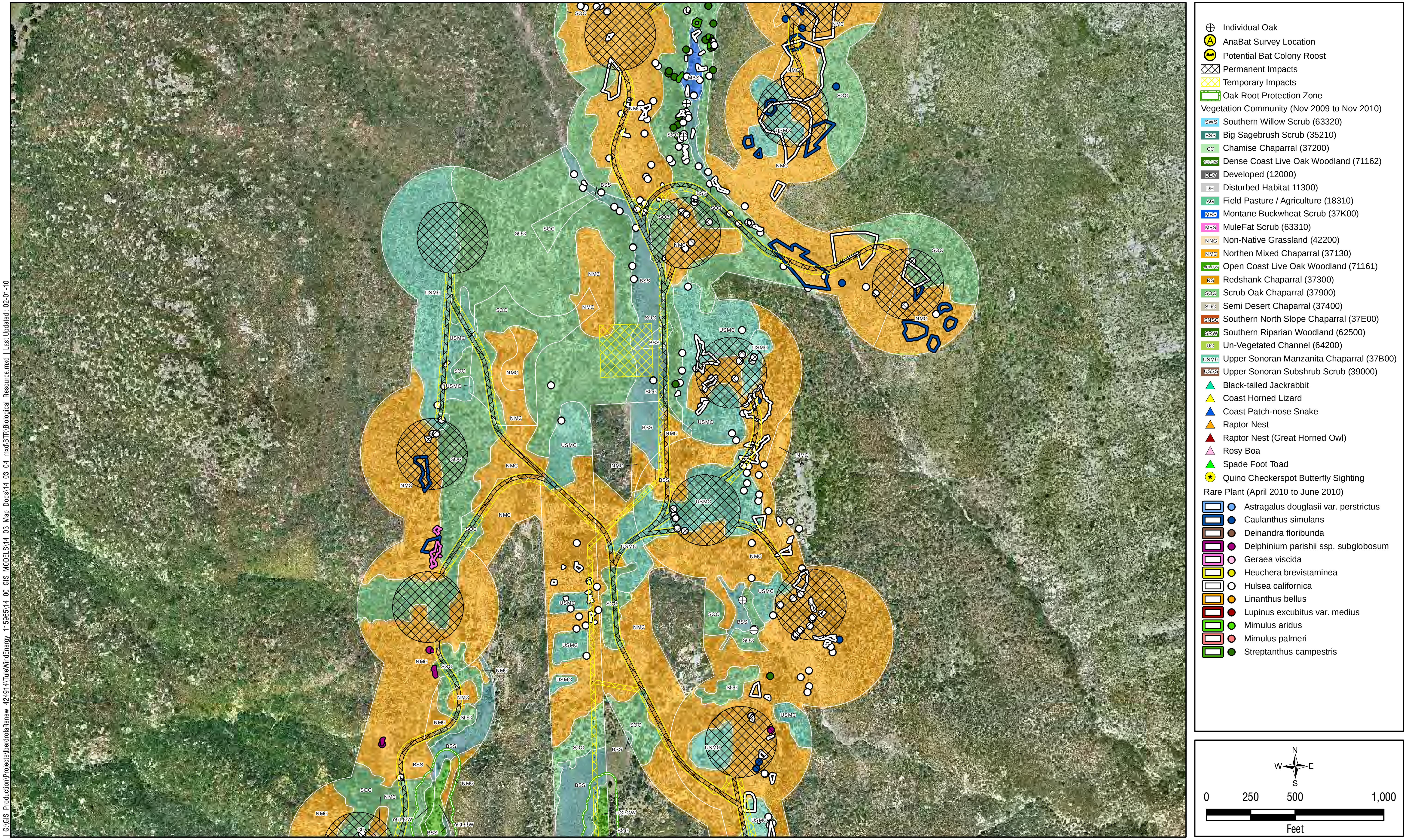

Appendix D: Biological Resource Impact Maps (Index Map 36)

Figure 37

Tule, LLC | Tule Wind Project | BTA

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Appendix D: Biological Resource Impact Maps (Index Map 37)

Figure 38

Tule, LLC | Tule Wind Project | BTA

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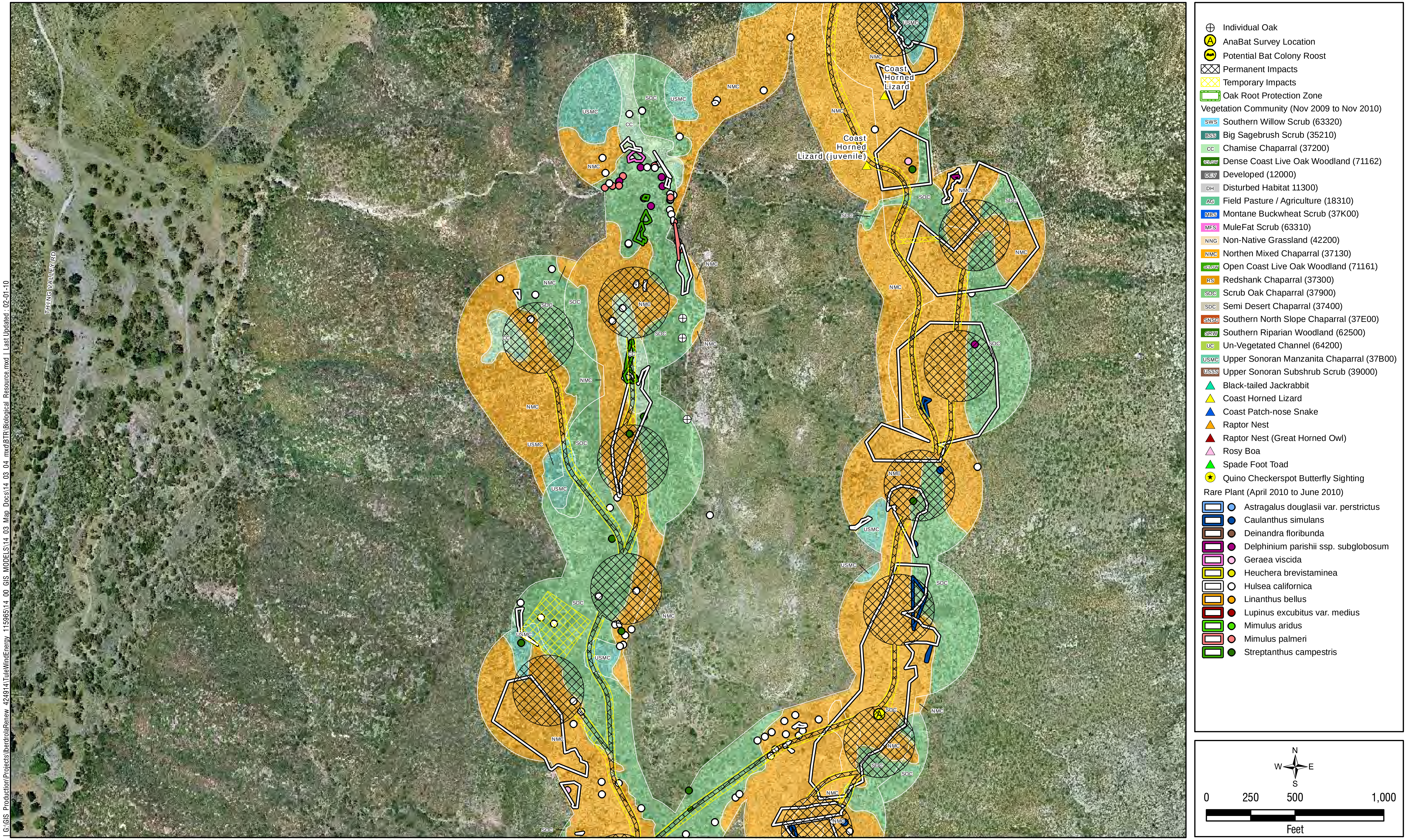

Appendix D: Biological Resource Impact Maps (Index Map 38)

Figure 39

Tule, LLC | Tule Wind Project | BTA

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Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Permanent Impacts
Temporary Impacts
Oak Root Protection Zone

Vegetation Community (Nov 2009 to Nov 2010)

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Raptor Nest (Great Horned Owl)
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Quino Checkerspot Butterfly Sighting

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- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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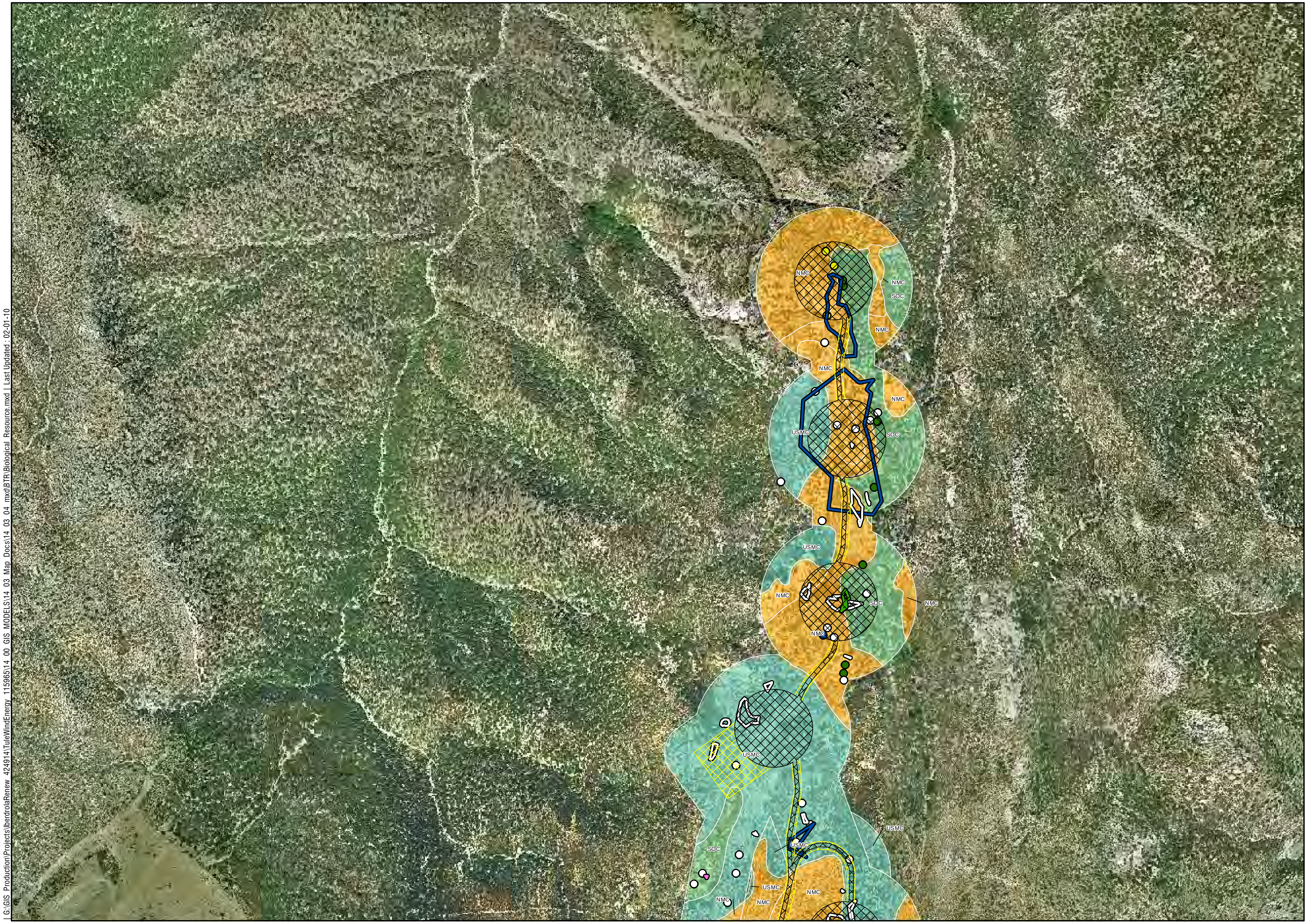
Appendix D: Biological Resource Impact Maps (Index Map 39)

Figure 40

Tule, LLC | Tule Wind Project | BTA



- Individual Oak
- AnaBat Survey Location
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Appendix D: Biological Resource Impact Maps (Index Map 40)

Figure 41

Tule, LLC | Tule Wind Project | BTA

APPENDIX E

Tule Wind Project Jurisdictional Delineation Report

Amendment to the Jurisdictional Wetland Delineation Report

Tule Wind Project
County of San Diego, CA

February 2011

Prepared for

Iberdrola Renewables, Inc.
1125 NW Couch Street, Suite 700
Portland, OR 97209

Prepared by

HDR Engineering, Inc.
8690 Balboa Ave, Suite 200
San Diego, CA 92123

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HDR

Amendment to Jurisdictional Wetland Delineation Report
Tule Wind Project

February 2011

Prepared for

Iberdrola Renewables
1125 NW Couch Street, Suite 700
Portland, Oregon 97209
Contact: Jeffrey Durocher

Prepared by

HDR Engineering, Inc.
8690 Balboa Avenue, Suite 200
San Diego, California 92123
Contact: Scot Chandler, Associate Biologist

Betty Dehoney

Betty Dehoney
Deputy Project Manager

Ingrid Chlup
Senior Biologist

Scot Chandler

Scot Chandler
Associate Biologist

Brynne L. Mulrooney

Brynne Mulrooney
Biologist

Allegra Simmons

Allegra Simmons
Biologist

TABLE OF CONTENTS

APPENDICES

FIGURES

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1.0 INTRODUCTION

Tule Wind, LLC, a wholly owned subsidiary of Iberdrola Renewables' (IRI) is proposing to construct and operate the Tule Wind Project (proposed project) located in the eastern desert region of San Diego County, as shown on **Figure 1**, Region and Vicinity. This amendment to the August 2010 HDR Draft Jurisdictional Delineation Report for the Tule Wind Project has been prepared to incorporate previously inaccessible areas and additional survey areas resulting from modifications to the proposed project as described below.

1.1 BACKGROUND

The proposed project is located in eastern San Diego County, California on a combination of lands administered by the Bureau of Land Management (BLM), tribal lands of the Ewiiaapaayp Band of Kumeyaay Indians, tribal lands of the Manzanita and Campo Indian Reservations (access only), the California State Lands Commission (CSLC), and private land under the jurisdiction of the County of San Diego (County). As part of the proposed project, Tule Wind, LLC, is requesting right-of-way (ROW) for a term of at least 30 years from the BLM.

The proposed project will consist of: (1) up to 128 wind turbines; (2) access roads between turbines, including improvements to existing roadways and new roadways; (3) a 138 kilovolt (kV) overhead transmission line; (4) a 34.5 kV overhead and underground electrical collector cable system; (5) a 5-acre collector substation site; (6) a 5-acre operation and maintenance site; (7) a temporary 5-acre concrete batch plant site; (8) a temporary 10-acre parking area; (9) 19 two-acre temporary laydown areas; (10) three permanent meteorological towers; (11) a Sonic Detection and Ranging System unit or one light detecting and ranging (LIDAR) unit and (12) a sand and rock quarry (**Figure 2**).

The current layout of the project footprint includes 96 wind turbines located on BLM land, 18 turbines on tribal lands, 7 turbines on State lands, and 7 wind turbines on private parcels.

1.2 MODIFIED LAYOUT

Iberdrola Renewables' (IRI) is proposing modifications to portions of the proposed project facilities (**Figures 1 and 2**). These changes are necessitated by several circumstances, primarily updated information regarding sensitive resources or conditions on the ground. The following is a summary of those circumstances below.

A licensed California surveyor recently conducted a land survey of the real property associated with the Tule project to identify monuments and exact property boundaries. These modifications require modifications to some facilities so that they will conform to exact property boundaries.

The SDG&E Sunrise Powerlink Project recently commenced construction. A portion of that project crosses the lands that are also part of the proposed project. One design feature of the primary proposed project transmission line is to parallel the Sunrise line to the extent feasible to reduce environmental impacts. However, the exact location of the Sunrise features are subject to some modifications, which necessarily require modifications to certain features of the proposed project. Additionally, since the environmental review of the proposed project commenced, the Sunrise project leased and constructed a temporary laydown yard of significant size coincident with proposed features of the proposed project. This requires that certain features be modified to account for the occupancy of that land. Because the proposed project is eligible for the Investment Tax Credit by virtue of completing construction before December 12, 2012, and construction of the Sunrise line is not expected to be completed before that date, features such as access roads and the alternate substation proposed for the area occupied by the Sunrise laydown yard must be relocated.

IRI conducts field verification of proposed wind turbine and access road locations to ensure the proper placement of the wind turbines for optimum meteorological conditions and to accommodate specific topographical constraints. Meteorological data is being compiled on an ongoing basis through the existing meteorological towers (METs) located in various locations throughout the project area. IRI's development team, including meteorologists, permitting managers, civil engineers, and project developers, completed the preliminary field verification process for the proposed project in Fall 2010.

The field verification process takes into consideration numerous factors that include electrical engineering, civil engineering and grading requirements associated with planned access roads and turbines, avoidance of cultural resource sites, and avoidance and minimization of impacts to sensitive biological resources. Based on the results of this field verification, some project design modifications are implicated. Project design modifications reflect civil engineering and grading necessary to accommodate the highly variable topography in the project area, avoidance of cultural sites, and avoidance of sensitive biological resources.

The exact route of the primary transmission route for the proposed project has been refined. Landowner negotiations and the availability of the County ROW allow modifications to the exact path of the line, though the general route remains unchanged.

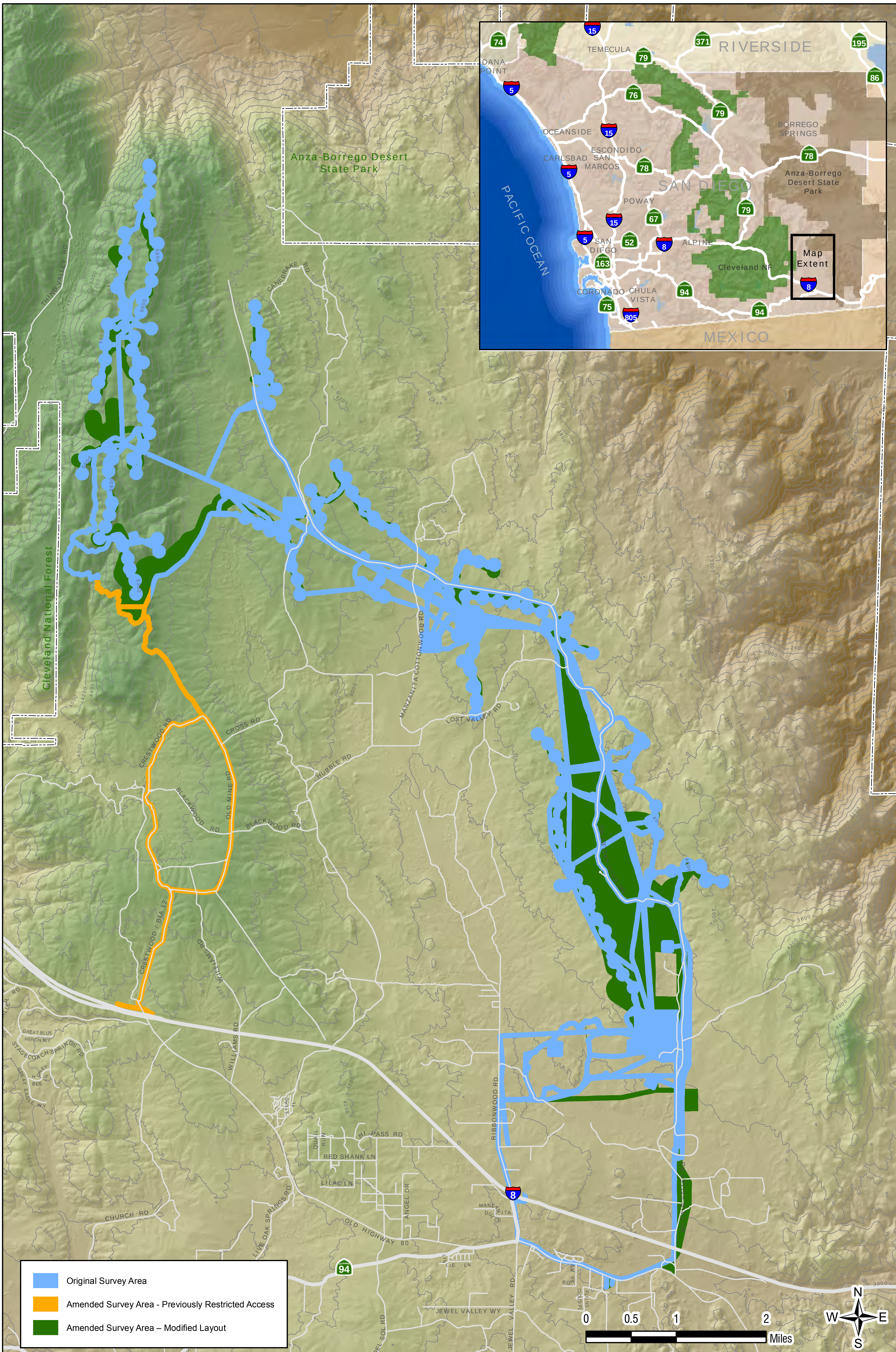
In anticipation of such project design modifications, IRI conducted additional cultural and biological resources surveys on lands that may be impacted by relocated wind turbines, access roads, and resource avoidance. **Figure 1** identifies the additional land area surveyed for biological resources.

As described in the Draft EIR/EIS, the proposed project (including anticipated modifications) will be constructed and operated to avoid impacts to sensitive biological resources. Taking a conservative approach, IRI surveyed a larger area than is needed in an effort to encompass all land area that could potentially be affected by project modifications (e.g., wind turbine and/or access roads). As compared to the proposed project, the modified project design (based on the new surveys) demonstrates that no new significant impacts or changes to the mitigation identified in the Draft EIR/EIS are anticipated to occur as a result of the modified project design.

1.2.1 Existing Conditions

Previously restricted areas addressed in this Jurisdictional Wetland Delineation Report (JWDR) include access corridors along existing roads on the Campo and Manzanita Reservations and private parcels adjacent to the extreme southern segment of McCain Valley Road and Old Highway 80. The Modified Layout consists of a revised version of the original layout located within McCain Valley and on the ridges that comprise the valley's western border (**Figure 2**).

Within the areas addressed in this JWDR, elevation ranges from about 3251 feet (991 meters) above mean sea level along Old Highway 80 to about 5807 feet (1770 meters) along the ridge in the northwestern portion of the survey corridor. The existing conditions, regional context, and land use within the project area are described in the *Tule Wind Project BTR.*



Region and Vicinity

FIGURE 1

Tule, LLC | Tule Wind Project | JWA

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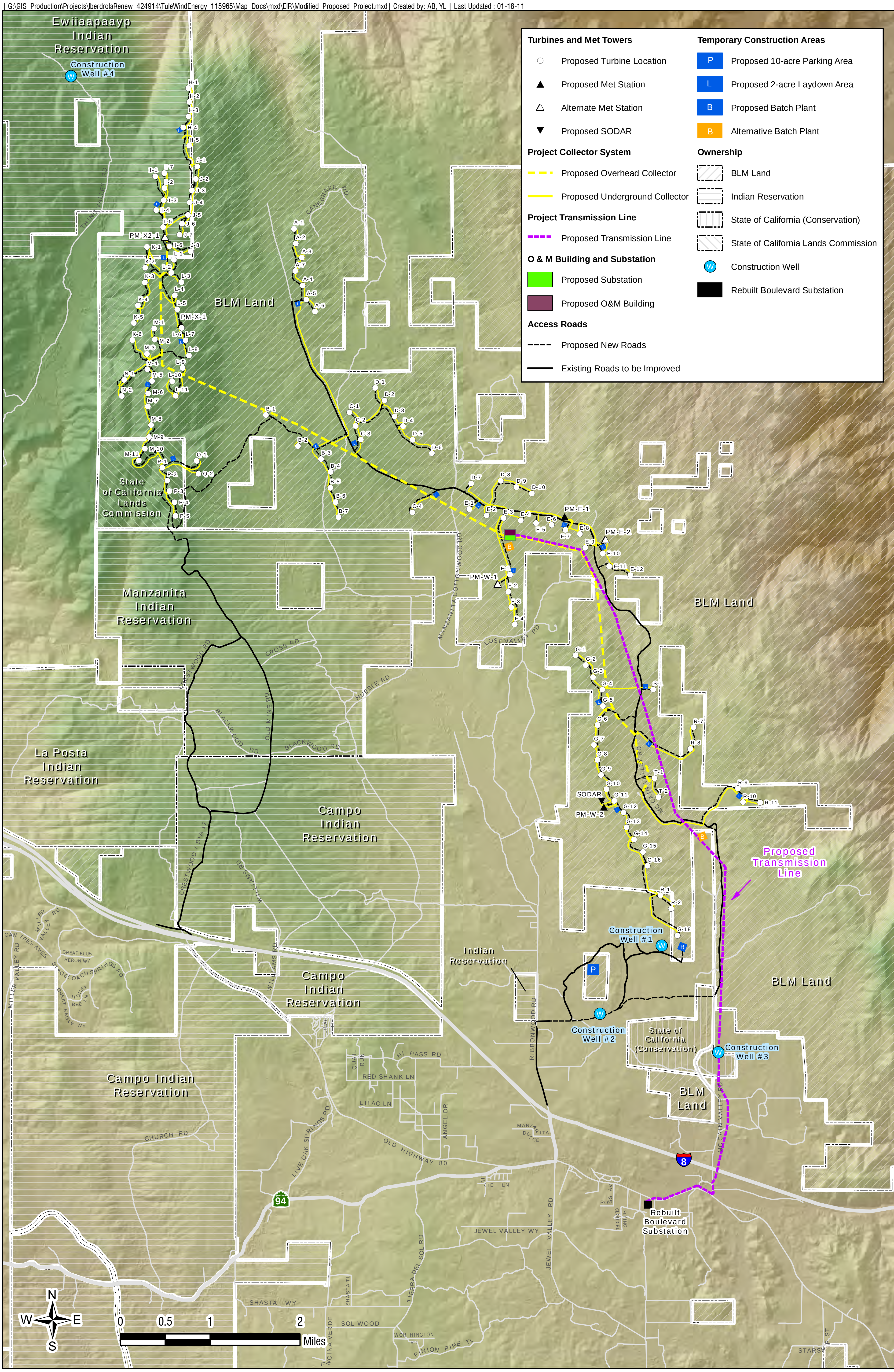

Modified Project Layout

FIGURE 2

Tule Wind, LLC | Tule Wind Project | JWA

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The amended survey area occurs primarily within undeveloped land. On-site soils are well drained and are generally located on alluvial fans, or were formed in material weathered from granitic rock. No new soil units occur within the amended survey area. On-site vegetation is a result of a Mediterranean-type climate characterized by long, hot, dry summers and mild winters. No new vegetation communities occur within the amended project area. Soil and vegetation community descriptions are located in the *Tule Wind Project BTR*.

The project site is located within the Salton Sea and Tijuana River watersheds. Several blue-line streams transect the project site and are identified on the following United States Geologic Survey Quadrangles: Live Oak Springs, Jacumba, Sombrero Peak, and Mount Laguna.

2.0 METHODS

Field surveys of the amended survey areas were conducted by HDR biologists Allegra Simmons, Brynne Mulrooney, Scot Chandler, and Ingrid Chlup over a period of five weeks between October 4, 2010 and November 18, 2010. Weather conditions during delineation fieldwork were conducive for surveying with generally clear skies. Temperatures ranged from 44 degrees to 79 degrees Fahrenheit and winds ranged from 0-15 mph. Individual survey dates, times, and conditions are located in Appendix A.

Survey methods for the delineation of federal, state, and County Resource Protection Ordinance (RPO) jurisdictional areas were conducted in accordance with those identified in **Section 4.0 Methods** of the *Draft Jurisdictional Wetland Delineation Report*. However, unlike the original survey area, wetlands were encountered in the amended project area and required that surveyors conduct soil test pits. Test pits were established, as recommended and in accordance with the Unified Federal Method for Wetland Delineation (USACE 1987), to measure and assess these wetland indicators. The delineation followed protocol requiring the use of the recently instated Regional Supplement to the USACE Wetland Delineation Manual: Arid West (USACE 2008c). Once jurisdictional boundaries were established, changes in topography, vegetation, and soil texture were used to identify a linear boundary. Delineation field forms are located in Appendix B**.**

3.0 RESULTS

The original delineation survey identified Waters of the U.S. (USACE), Waters of the State (CDFG and RWQCB) and County RPO wetlands. No federal wetlands were identified at that time. All jurisdictional areas occurring within the original survey area are ephemeral. The amended survey area supports Waters of the U.S., including wetlands, Waters of the State, and County RPO wetlands. New acreage to totals are summarized in **Table 1**. Jurisdictional boundaries mapped within the amended survey area are discussed below and the discussion is arranged by agency. Jurisdictional areas are identified in **Figure 3**, Maps 1 through 40 and detailed characteristics for each drainage are included in Appendix C. Representative photographs of drainages located within the survey area are located in Appendix D and a list of additional botanical species identified within the drainages within the amended survey area is included in **Appendix E**.

3.1 U.S. ARMY CORPS OF ENGINEERS AND REGIONAL WATER QUALITY CONTROL BOARD JURISDICTIONAL AREAS

On-site drainages are primarily ephemeral and discharge only during and immediately following storm events with the exception of Drainages 207b-c, 208, and 209, which exhibit perennial flows. Evidence of ordinary high water mark (OHWM) was indicated by sediment deposits, shelving, destruction of terrestrial vegetation, and a change in substrate. USACE wetlands occur in Drainages 200a, 207b-c, 209, and 224f (**Figure 3**, Maps 25, 26, and 28). A brief summary of the perennial waters of the U.S. and wetlands is as follows:

Drainage 200a: Drainage 200a is a 30-foot wide seasonal pond draining from an upstream drainage (off-site) and draining to Drainage 200b.The dominant hydrophytic vegetation included salt heliotrope (*Heliotropium curassavicum*), toad rush (*Juncus bufonius*), and common purslane (*Portulaca oleracea*). Hydric soil was indicated by a redox dark surface, and hydrology was indicated through surface soil cracks.

Drainage 207b-c: Drainage 207b-c is a perennial/intermittent wetland with standing water in the lower reach of the wetland. It is drained from Drainage 207a and drains to Drainage 207d. The dominant hydrophytic vegetation included yerba mansa, Mexican rush, willow herb and watercress (*Rorripa nasturtium aquaticum*). Based upon conversations with a local resident, soils met hydric soils criteria based upon ponding for long duration during the growing season. Inundation and saturation to the surface was observed.

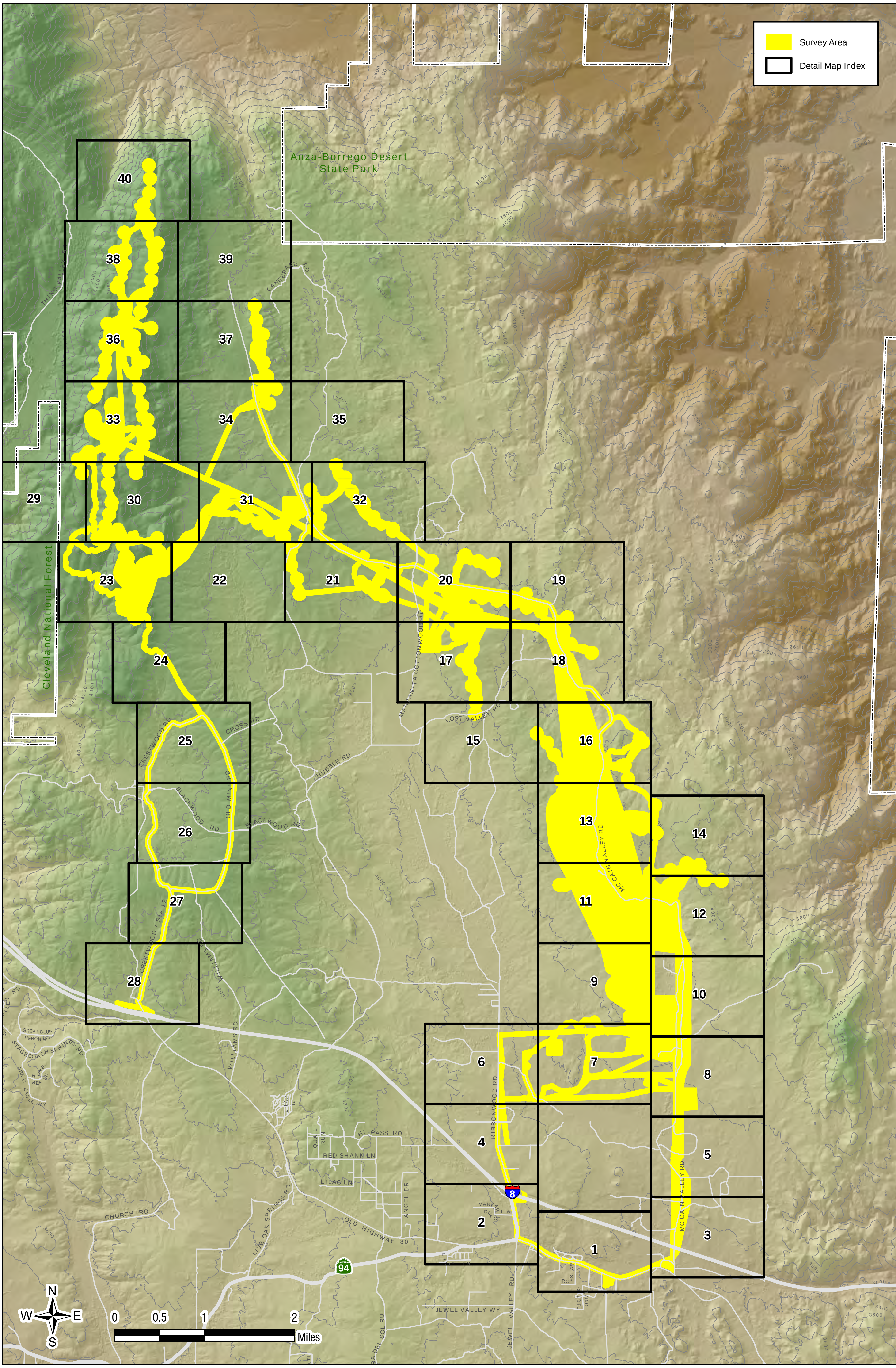
Drainage 208: Drainage 208 is a perennial seep tributary to Drainage 207. The channel exhibits a sandy bed and is generally unvegetated.

Drainage 209: Drainage 209 is a perennial seep tributary to Drainage 207. Dominant vegetation includes watercress, willow herb and Mexican rush.

Drainage 224f: Drainage 224f is an ephemeral wetland in the downstream reach of Drainage 224. The dominant hydrophytic vegetation included seep monkey flower (*Mimulus guttatus*) and horseweed (*Conyza canadensis*). Based upon conversations with a local resident, soils met hydric soils criteria based upon ponding for long duration during the growing season. Inundation and saturation to the surface was observed.

Wetland determination field forms are summarized below and included in **Appendix B**. A table of all drainages mapped within the amended survey area is included in **Appendix C** and representative drainage photographs are located in **Appendix D.** Waters of the U.S., including wetlands occur within the survey area and are summarized in **Table 1**.

The RWQCB jurisdiction is equivalent to that of the USACE since there are no isolated waters within the survey area. Waters of the State under the jurisdiction of the RWQCB occur within the survey area and are summarized in **Table 1**.



Map Index

FIGURE 1

Tule, LLC | Tule Wind Project | BTA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

N
W E
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0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 1)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary

Impacts
Permanent Impacts
Temporary Impacts

Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

N
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S

0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 2)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 3)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 4)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Survey Area
Ownership Boundary

Impacts

Permanent Impacts
Temporary Impacts

Jurisdiction

CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 5)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 6)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 7)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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W E
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0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 8)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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Feet

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Jurisdictional Delineation Maps (Index Map 9)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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0 250 500 1,000

Feet

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Jurisdictional Delineation Maps (Index Map 10)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 11)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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W E
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0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 12)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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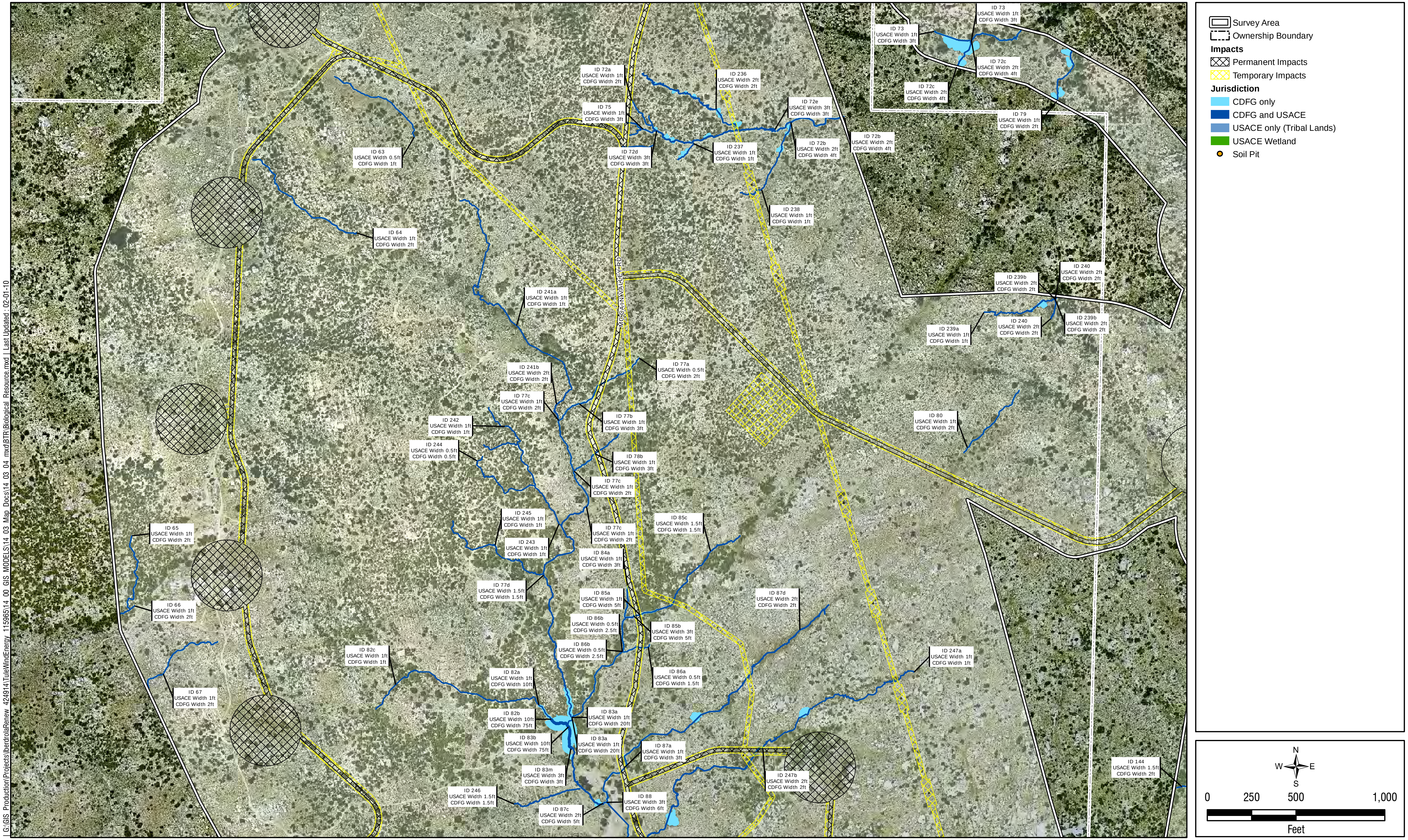

Jurisdictional Delineation Maps (Index Map 13)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 14)

Figure 3

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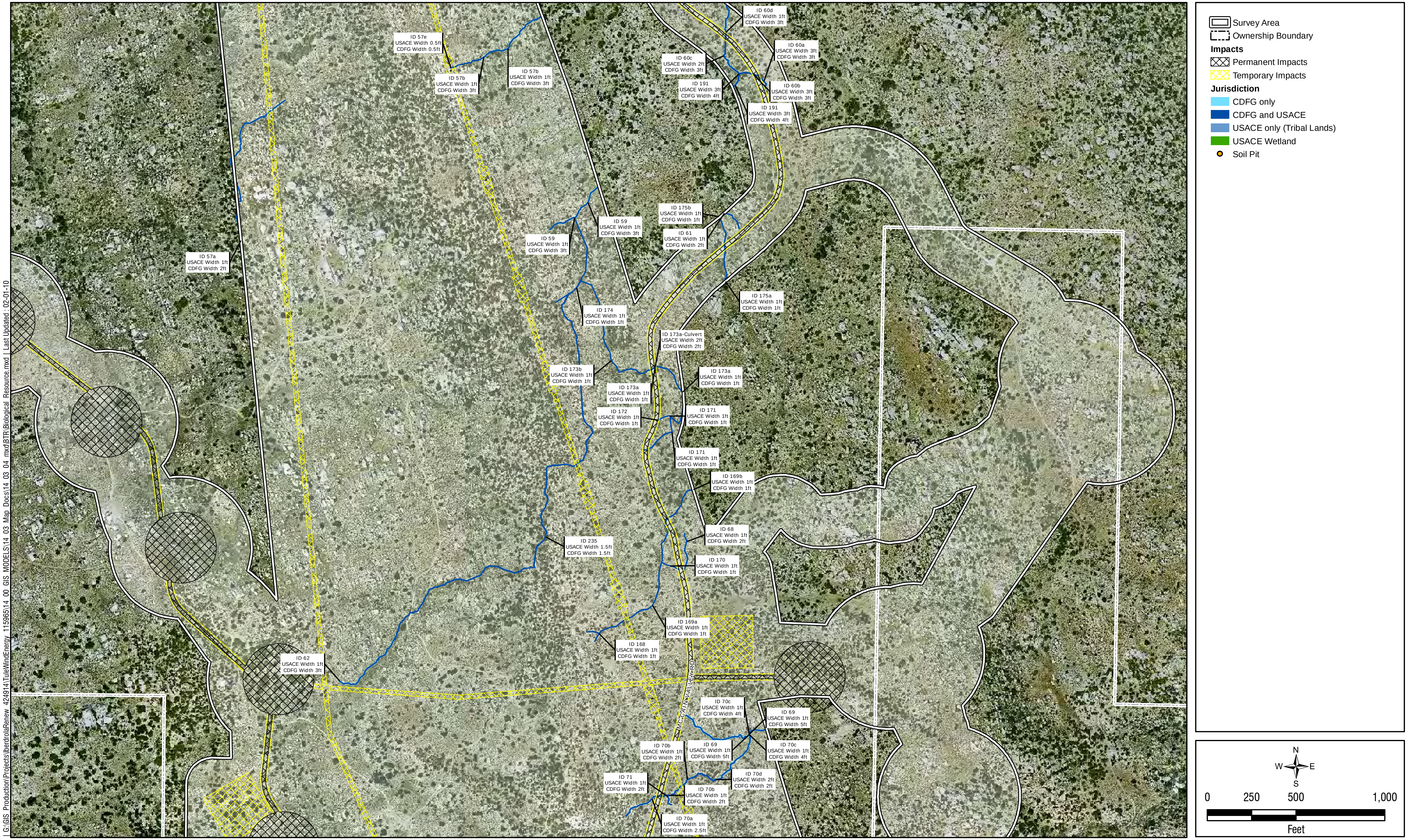
Jurisdictional Delineation Maps (Index Map 15)

Figure 3

Tule, LLC | Tule Wind Project | JWA



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Jurisdictional Delineation Maps (Index Map 16)

Figure 3

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Jurisdictional Delineation Maps (Index Map 17)

Figure 3

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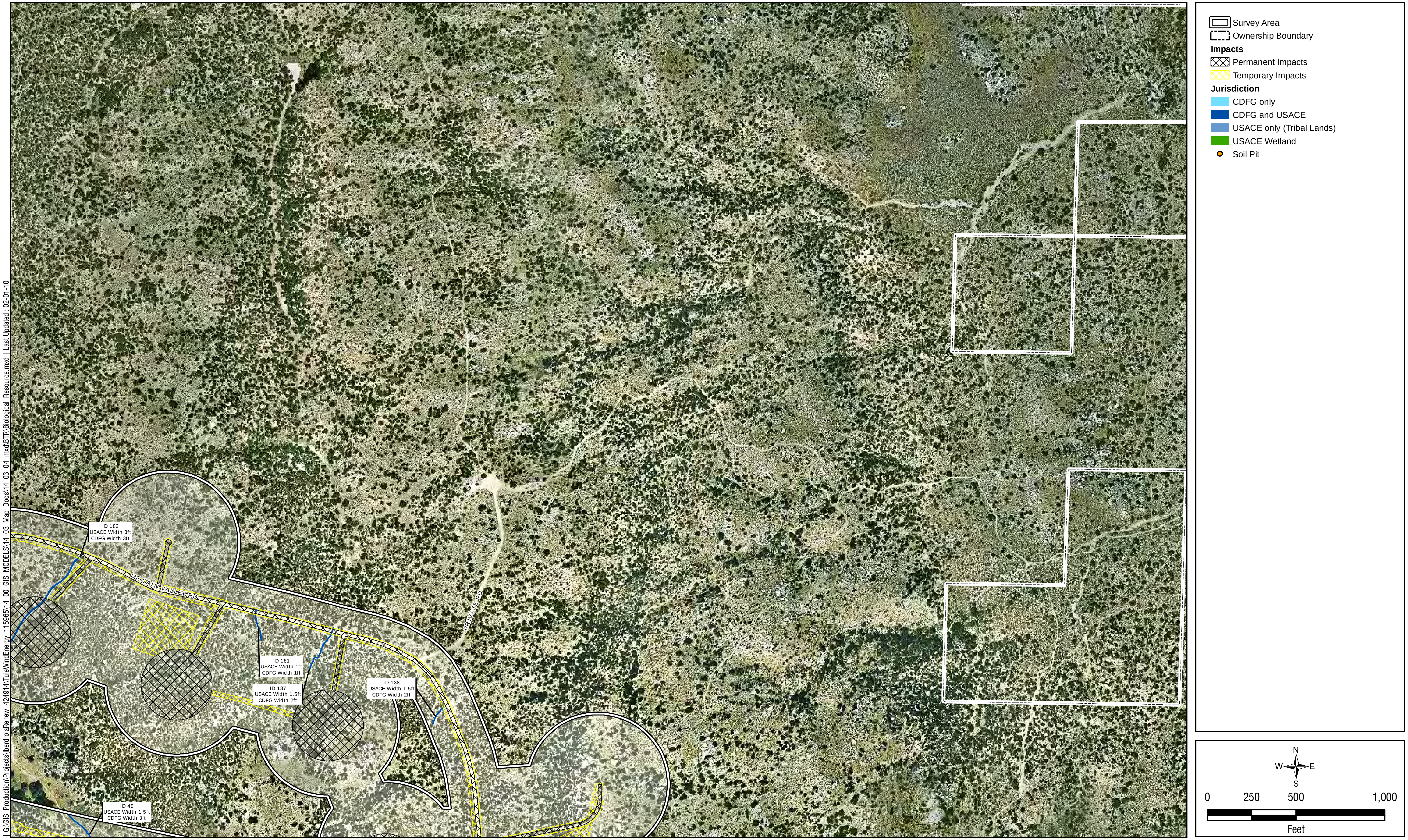
Jurisdictional Delineation Maps (Index Map 18)

Figure 3

Tule, LLC | Tule Wind Project | JWA



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Jurisdictional Delineation Maps (Index Map 19)

Figure 3

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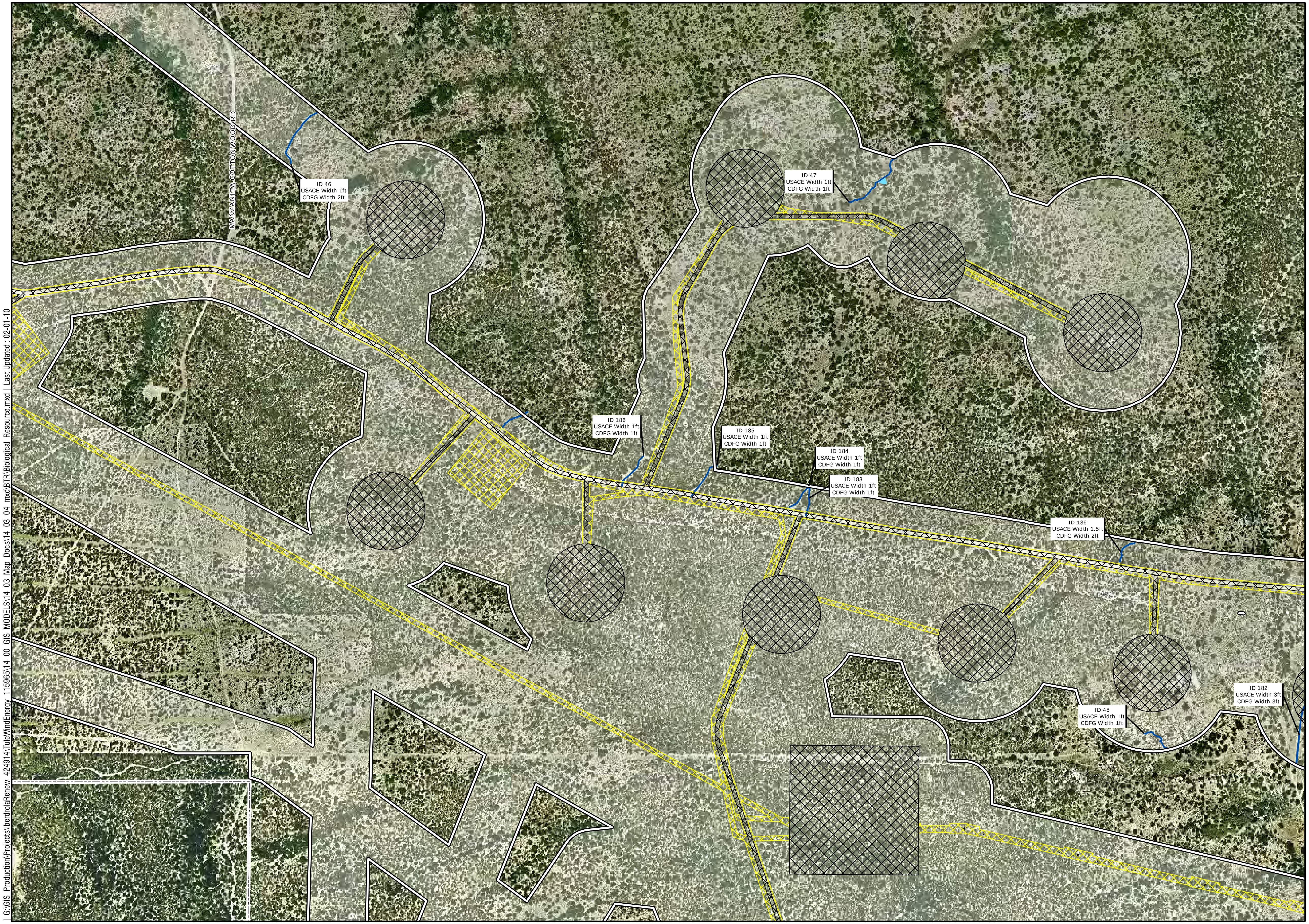

Survey Area
Ownership Boundary

Impacts

Permanent Impacts
Temporary Impacts

Jurisdiction

CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

N
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0 250 500 1,000

Feet

Jurisdictional Delineation Maps (Index Map 20)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 21)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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Feet

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Jurisdictional Delineation Maps (Index Map 22)

Figure 3

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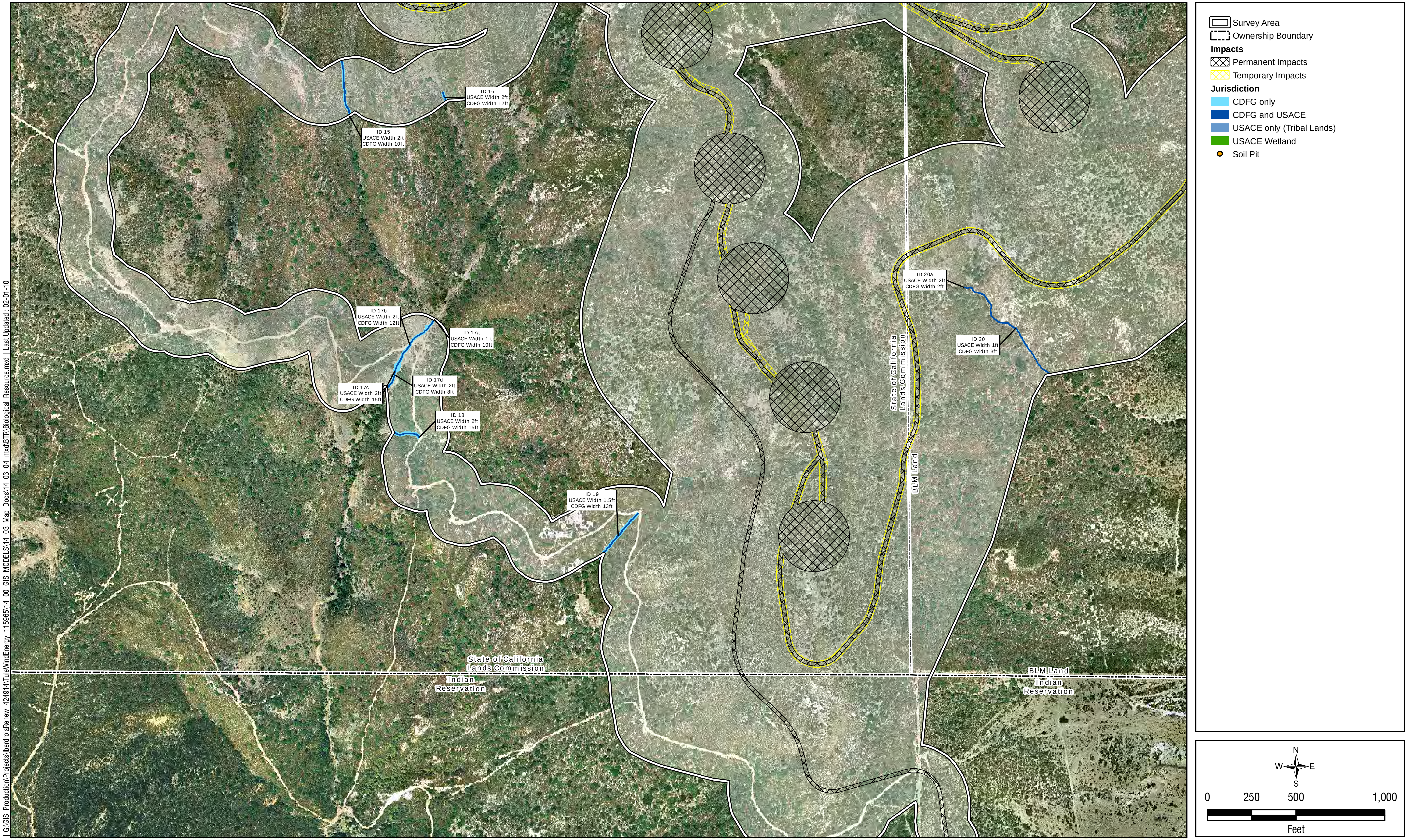

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Jurisdictional Delineation Maps (Index Map 23)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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Feet

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Jurisdictional Delineation Maps (Index Map 24)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 25)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 26)

Figure 3

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Survey Area
Ownership Boundary

Impacts

Permanent Impacts
Temporary Impacts

Jurisdiction

CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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W E
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0 250 500 1,000

Feet

Jurisdictional Delineation Maps (Index Map 27)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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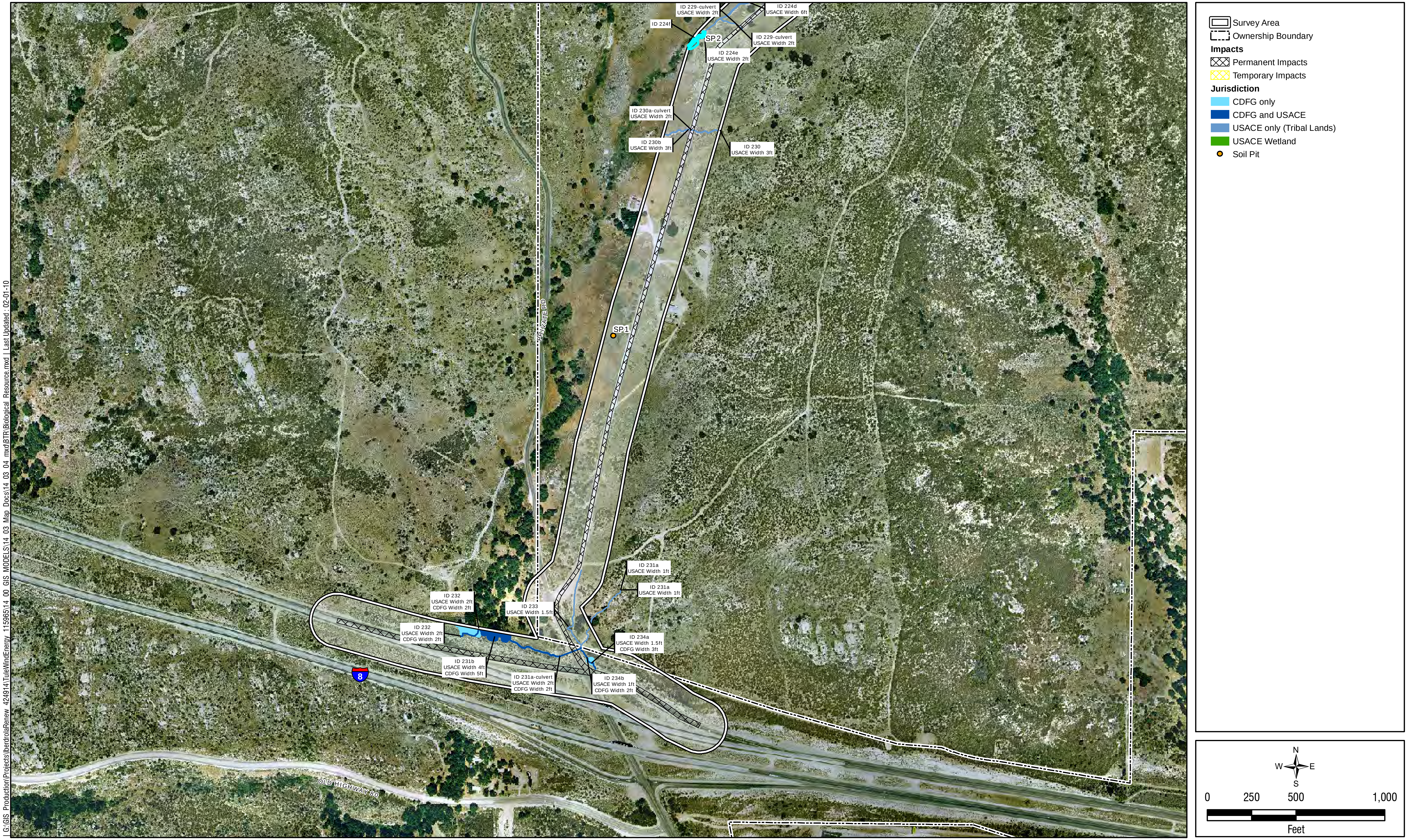

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Jurisdictional Delineation Maps (Index Map 28)

Figure 3

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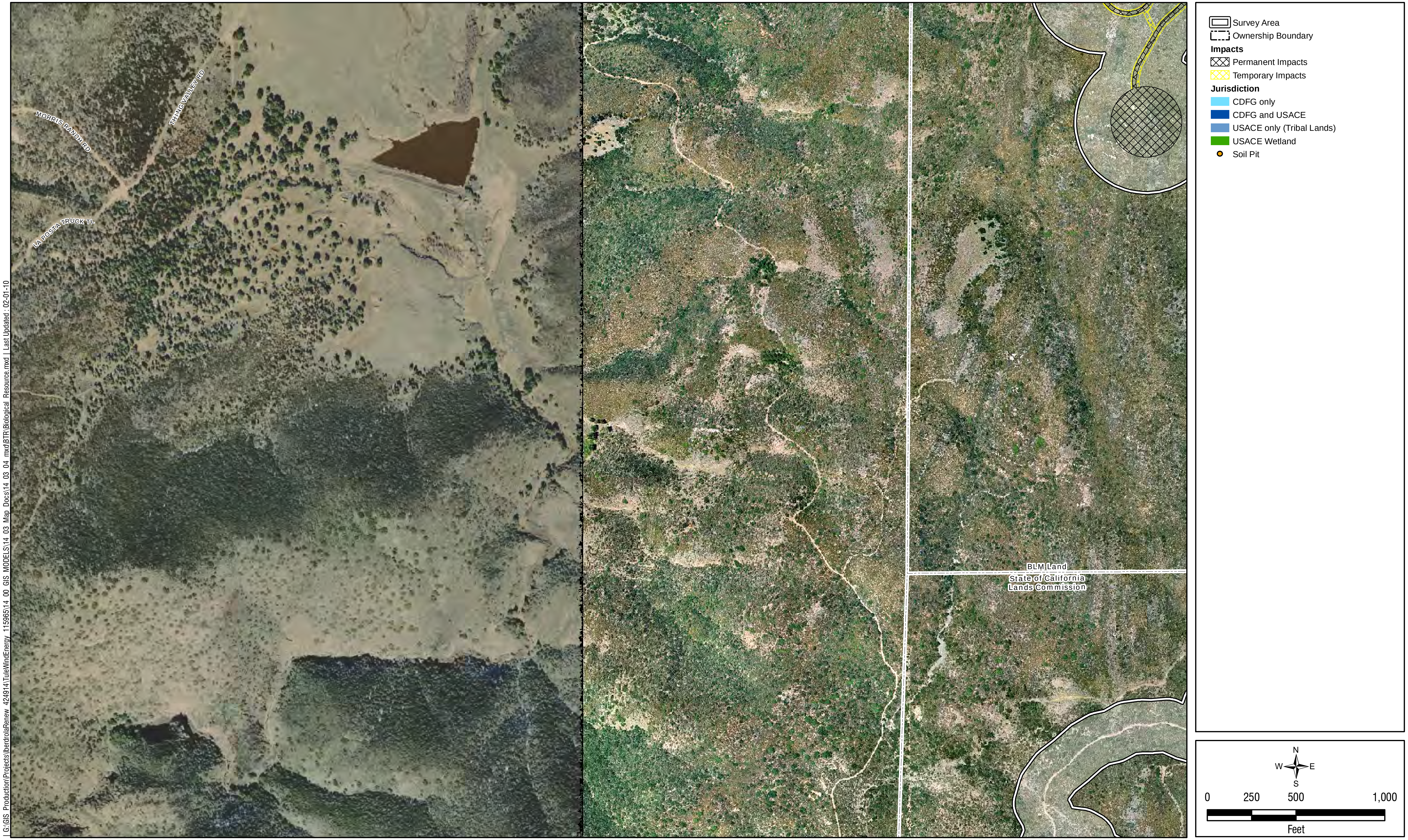

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Jurisdictional Delineation Maps (Index Map 29)

Figure 3

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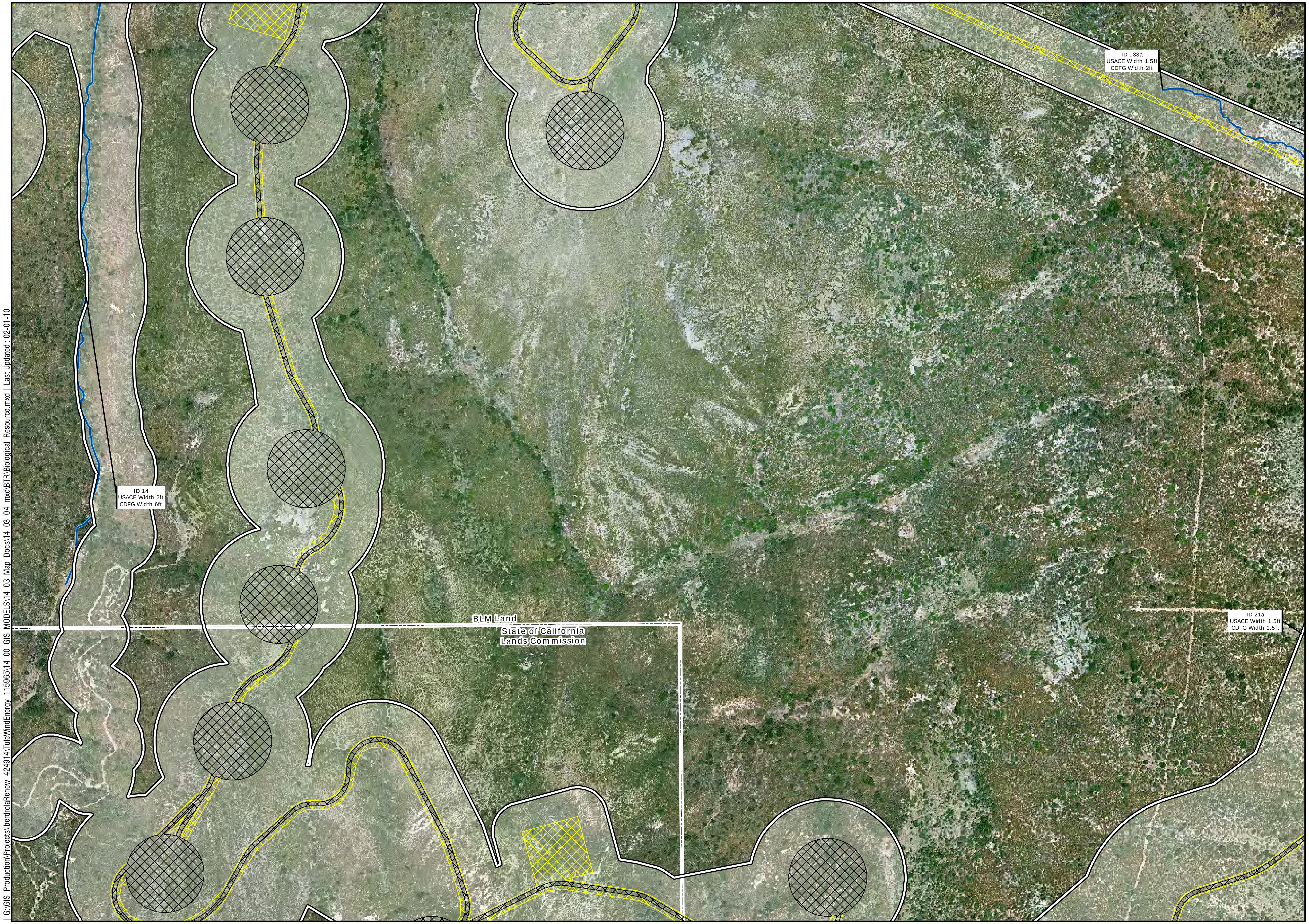

Survey Area
Ownership Boundary

Impacts

Permanent Impacts
Temporary Impacts

Jurisdiction

CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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Jurisdictional Delineation Maps (Index Map 30)

Figure 3

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Jurisdictional Delineation Maps (Index Map 31)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Survey Area
Ownership Boundary

Impacts

Permanent Impacts
Temporary Impacts

Jurisdiction

CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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0 250 500 1,000
Feet

Jurisdictional Delineation Maps (Index Map 32)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 33)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 34)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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Feet

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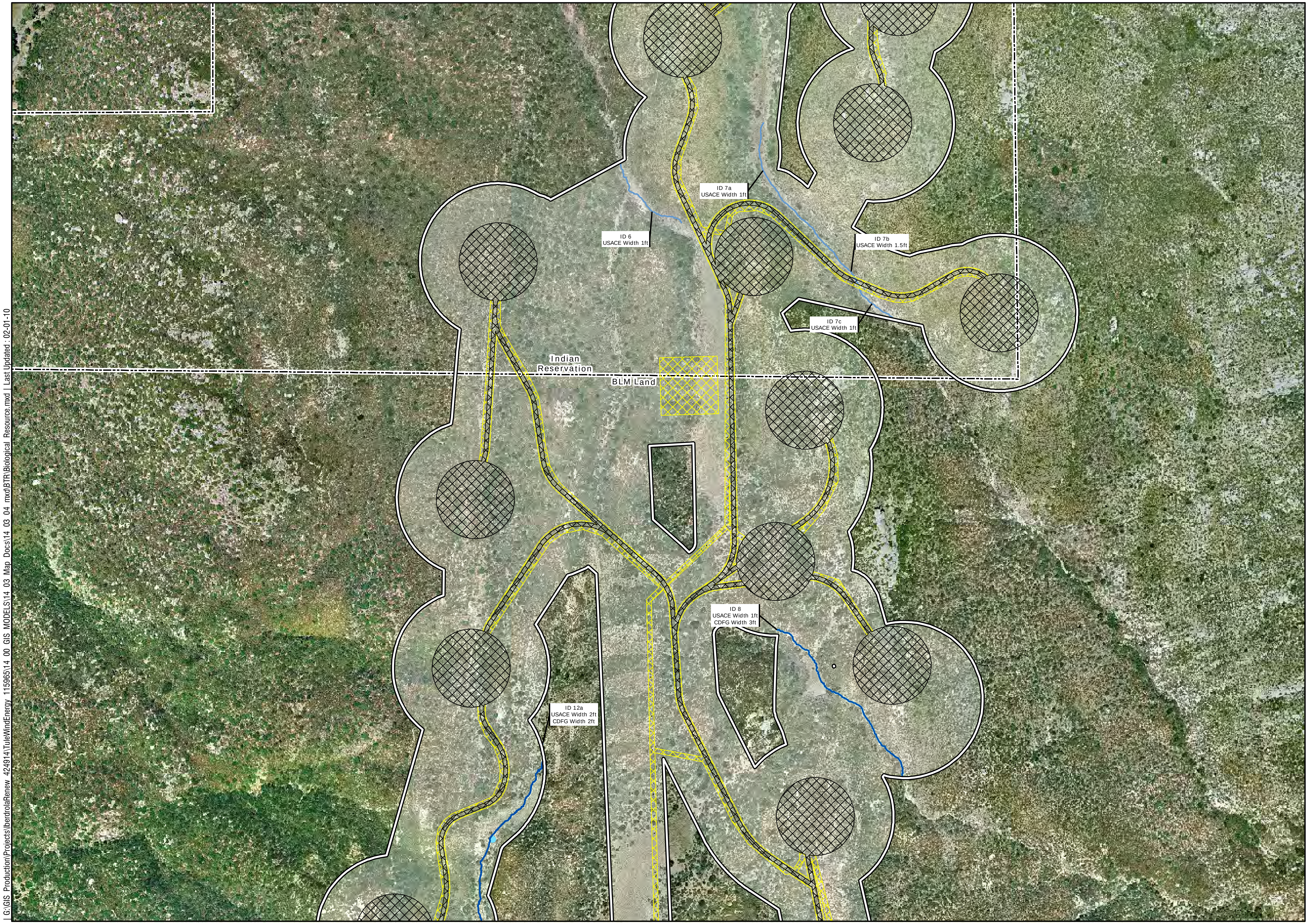
Jurisdictional Delineation Maps (Index Map 35)

Figure 3

Tule, LLC | Tule Wind Project | JWA



Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

N
W E
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0 250 500 1,000
Feet

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Jurisdictional Delineation Maps (Index Map 36)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

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Feet

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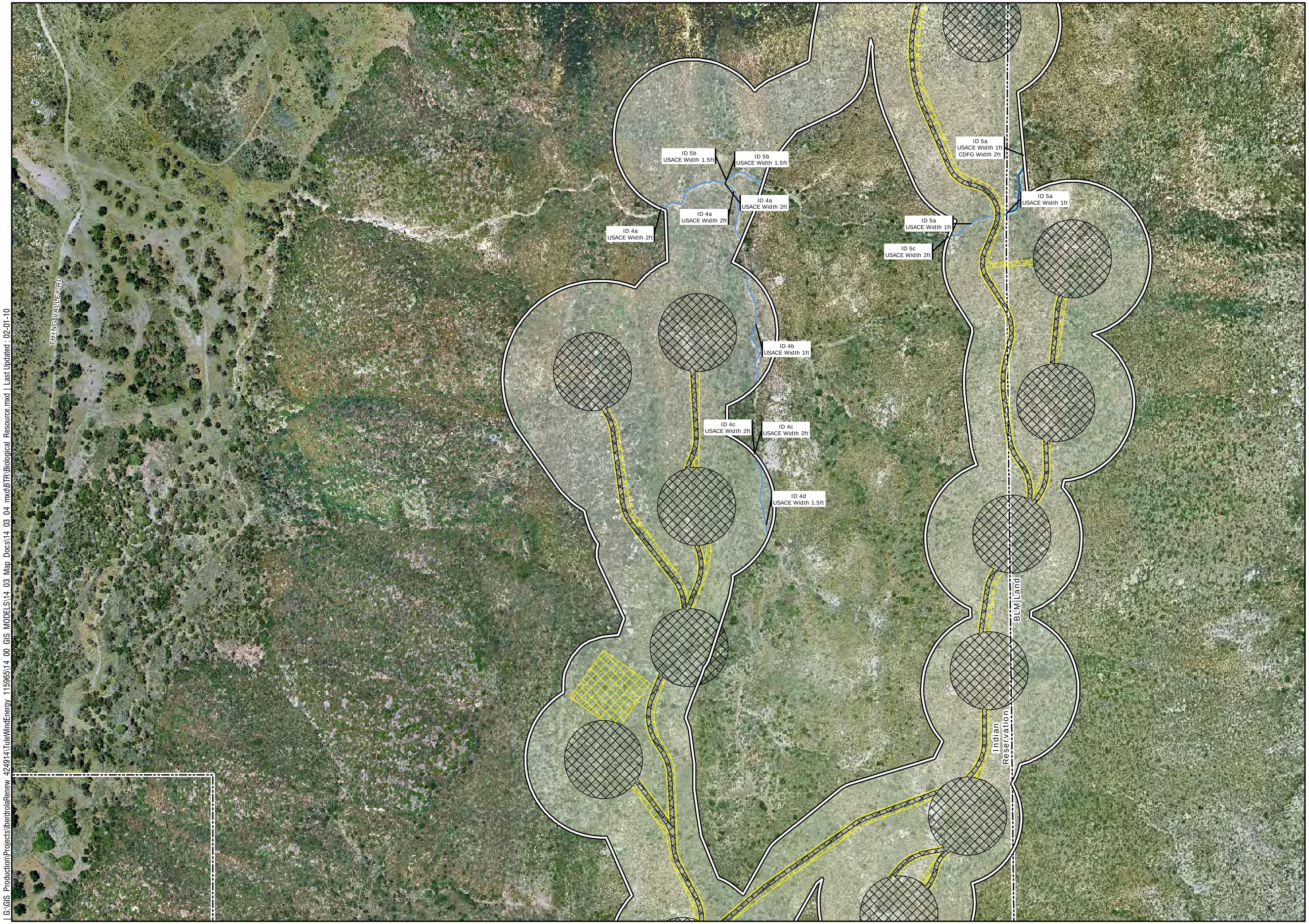
Jurisdictional Delineation Maps (Index Map 37)

Figure 3

Tule, LLC | Tule Wind Project | JWA



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Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit

N W E S

0 250 500 1,000
Feet

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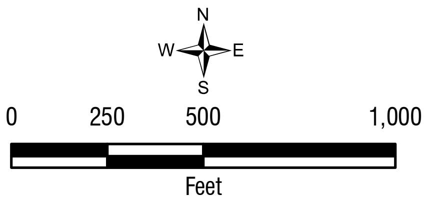
Jurisdictional Delineation Maps (Index Map 38)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Survey Area
Ownership Boundary
Impacts
Permanent Impacts
Temporary Impacts
Jurisdiction
CDFG only
CDFG and USACE
USACE only (Tribal Lands)
USACE Wetland
Soil Pit



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Jurisdictional Delineation Maps (Index Map 39)

Figure 3

Tule, LLC | Tule Wind Project | JWA

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Jurisdictional Delineation Maps (Index Map 40)

Figure 3

Tule, LLC | Tule Wind Project | JWA

Table 1. Jurisdictional Areas Located within the Survey Area (Original and Amended Survey Areas Combined)

Land Ownership	USACE Wetlands	Total USACE Waters of the U.S. (Including Wetlands)	RWQCB Waters of the State	CDFG Jurisdictional Areas	County RPO Wetlands[1]
BLM	-	6.52	6.52	12.10	-
State	-	0.35	0.35	0.82	-
County/Private	-	3.46	3.46	11.72	3.46
Campo Reservation	0.03	0.28	0.28	-	-
Manzanita Reservation	0.40	1.22	1.22	-	-
Ewiiaapaayp Reservation	-	0.16	0.16	-	-
Total	0.43	11.99	11.99	24.64	3.46

[1] The various jurisdictional areas overlap with each other.

The following is a summary of soil test pits dug within the amended survey area.

Soil Pit 1

Soil Pit 1 (SP1) is located on an upland terrace adjacent to a private road within the Campo Indian Reservation (**Figure 3**, Map 28). Hydrophytic vegetation is dominant at SP1 and includes: field sedge (*Carex praegracilis*) (FACW), golden yarrow (*Eriophyllum confertiflorum*) (FACU), prickly lettuce (*Lactuca serriola*) (FAC), bull thistle (*Cirsium vulgare*) (FACU), stinging nettle (*Urtica dioica*) (FACW), curly dock (*Rumex crispus*) (FACW), and western ragweed (*Ambrosia psilostachya*) (FACW). SP1 soil exhibited a loamy brown matrix (7.5YR 2.5/1) with no redoxymorphic features. No hydrologic indicators were present. Hydrophytic vegetation is present at SP1; however, hydric soils and hydrology are not. Therefore, SP1 does not meet all the wetland criteria.

Soil Pit 2

Soil Pit 2 (SP2) was located in channel bottom of Drainage 224f within the Campo Indian Reservation (**Figure 3**, Map 28). Hydrophytic vegetation is dominant at SP2 and includes: seep monkey flower (OBL), horseweed (FAC), hedge nettle (*Stachys ajugoides* Benth. var. *rigida*) (OBL), everlasting cudweed (*Gnaphalium stramineum*) (UPL), stinging nettle (*Urtica dioica*) (FACW), and watercress (OBL). Although SP2 sandy loam brown (10YR 3/2) exhibited no redoxymorphic features, based on conversation with a local resident, soils meet the definition for hydric soils based on Hydric Soils Criteria 3 (ponding for long duration). Hydrologic indicators at SP2 included surface water and saturation. SP2 meets all three criteria for wetlands.

Soil Pit 3

Soil Pit 3 (SP3) was located in the channel bottom of Drainage 224a within the Campo Indian Reservation (**Figure 3**, Map 27). Hydrophytic vegetation is dominant at SP3 and includes: seep monkey flower, toad rush (FACW), and rabbitfoot grass (*Polypogon monspilensis*) (FACW). SP3 silty loam brown (2.5Y 4/2) soils exhibited no redoxymorphic features. Therefore, soils do not meet the criteria for hydric soils. Surface soil cracks were observed, although no saturation or inundation was apparent within four days of a rain event. SP3 does not meet all three criteria for wetlands.

Soil Pit 4

Soil Pit 4 (SP4) was located in a perennial seep associated with Drainage 209 within the Manzanita Indian Reservation (**Figure 3**, Map 26). Hydrophytic vegetation is dominant at SP4 and includes: arroyo willow (FACW), yerba mansa (OBL), Mexican rush (FACW), willow herb (FACW), and watercress. SP4 sandy clay loam brown (10YR 3/1) soil exhibited no redoxymorphic features. However, based on conversations with a local resident, soils meet hydric soil criteria based on Hydric Soils Criteria 3 (ponding for long duration). Hydrologic indicators at SP4 included surface water, high water table, and soil saturation. SP4 meets the criteria for wetlands.

Soil Pit 5

Soil Pit 5 (SP5) was located in an impoundment of Drainage 200a within the Manzanita Indian Reservation (**Figure 3**, Map 25). Hydrophytic vegetation is dominant at SP 5 and includes: heliotrope (OBL), toad rush, and common purslane (FAC). SP5 silty clay loam brown (10YR 3/2) soils exhibited 10 percent redox concentrations (7.5YR 4/4). SP5 soils meet the hydric soils criteria for Redox Dark Surface. Surface soil cracks satisfy the criteria for hydrology. SP5 meets all three wetland criteria.

3.2 CALIFORNIA DEPARTMENT OF FISH AND GAME JURISDICTIONAL AREAS

All USACE jurisdictional drainages on BLM, state, and county (private) lands are considered jurisdictional by the CDFG. CDFG jurisdiction is similar to that of USACE jurisdiction, but also extends to the top of the bank and encompasses riparian vegetation when present. CDFG jurisdictional areas occurring within the survey area are summarized in **Table 1**.

3.3 COUNTY OF SAN DIEGO RESOURCE PROTECTION ORDINANCE JURISDICTIONAL AREAS

County wetlands occur throughout the survey area and directly correspond to all USACE Waters of the U.S. occurring on county/private lands. County RPO jurisdictional areas occurring within the survey area are summarized in **Table 1**.

4.0 IMPACTS TO JURISDICTIONAL AREAS

Implementation of the proposed project would result in temporary and permanent impacts to federal, state, and County jurisdictional areas and are summarized in **Table 2** below. Impacts are also identified on **Figure 3**, Maps 1 through 40.

Table 2. Proposed Project Impacts to Jurisdictional Areas

Land Ownership	Impacts	Agency				
		USACE Wetlands	Total USACE Waters of the U.S.	RWQCB Waters of the State	CDFG Jurisdictional Areas*	County RPO Wetlands[1]
BLM	Temp	-	0.29	0.29	0.57	-
	Perm	-	0.22	0.22	0.31	-
	Total	-	0.51	0.51	0.88	-
State	Temp	-	-	-	-	-
	Perm	-	0.00	0.00	0.00	-
	Total	-	0.00	0.00	0.00	-
County/Private	Temp	-	0.06	0.06	0.17	0.06
	Perm	-	0.04	0.04	0.07	0.04
	Total	-	0.10	0.10	0.24	0.10
Campo Reservation	Temp	-	-	-	-	-
	Perm	-	0.01	0.01	-	-
	Total	-	0.01	0.01	-	-
Manzanita Reservation	Temp	-	-	-	-	-
	Perm	-	0.02	0.02	-	-
	Total	-	0.02	0.02	-	-
Ewiiaapaayp Reservation	Temp	-	0.00	0.00	-	-
	Perm	-	0.01	0.01	-	-
	Total	-	0.02	0.02	-	-
Total	Temp	-	0.36	0.36	0.75	-
	Perm	-	0.30	0.30	0.38	-
	Total	-	0.65	0.65	1.13	0.10

[1] The various jurisdictional areas overlap with each other.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This report presents HDR's best effort at determining the jurisdictional boundaries using the most recent regulations, policy, and guidance from the regulatory agencies. However, as with any jurisdictional delineation, only the regulatory agencies can make a final determination of jurisdictional boundaries.

The proposed project may involve impacting on-site jurisdictional drainages and, therefore, authorizations from the USACE, RWQCB, and CDFG may be required. These requirements are identified in Sections 7.1 through 7.3 of the *Draft Jurisdictional Delineation Report.*

6.0 REFERENCES

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APPENDIX A

Survey Dates, Times, and Conditions

Appendix A
Survey Dates, Times, and Conditions

Date	Surveyors*	Times	Temp (start/end)	Cloud Cover (start/end)	Wind (start/end)	Task	Notes
10/4/2010	AS/BM/IC	Start: 0800 End: 1600	60°/ 56°	0%/ 100%	3-5 mph/ 10-12 mph	Wetland Delineation	__
10/5/2010	AS/SC	Start: 0800 End: 1300	50°/ 71°	100%/ 0%	8-10mph	Wetland Delineation	__
10/6/2010	IC/SC	Start: 0800 End: 1530	45°/ 65°	100%/ 0%	8-10 mph/ 3-5 mph	Wetland Delineation	__
10/7/2010	BM/SC	Start: 0815 End: 1145	44°/ 65°	0%/ 0%	5-10 mph	Wetland Delineation	__
11/3/2010	AS/SC	Start: 0800 End: 1145	NR/ 77°	0%/ 0%	5-6 mph	Wetland Delineation	__
11/4/2010	AS/BM	Start: 0815 End: 1600	73°/ 76°	0%/ 0%	0 mph/ 2-4 mph	Wetland Delineation	__
11/5/2010	BM/SC	Start: 0815 End: 1620	NR/ 79°	0%/ 0%	3-4 mph	Wetland Delineation	__
11/8/2010	AS/BM	Start: 0945 End: 1545	50°/ 47°	100%/50%	10-12 mph	Wetland Delineation	__
11/9/2010	AS/BM	Start: 0900 End: 1500	51°/ 60°	0%/ 0%	3-5 mph/ 0 mph	Wetland Delineation	__
11/10/2010	IC/SC	NR	NR	NR	NR	Wetland Delineation	
11/11/2010	AS/BM	Start: 0945 End: 1530	55°/ 58°	0%/ 5%	6-9 mph/ 12-15 mph	Wetland Delineation	__
11/12/2010	AS/BM	Start: 0900 End: 1530	52°/60°	0%/ 0%	4-6 mph	Wetland Delineation	__
11/16/2010	AS/BM	Start: 1030 End: 1400	62°/ 65°	0%/ 0%	7-10 mph/ 7-10 mph	Wetland Delineation	__
11/17/2010	AS/SC	NR	NR	NR	NR	Wetland Delineation	__
11/18/2010	AS/SC	NR	NR	NR	NR	Wetland Delineation	__

* Surveyor acronyms: (AS) Allegra Simmons, (BM) Brynne Mulrooney, (IC) Ingrid Chlup, (SC) Scot Chandler.
NR- not recorded

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APPENDIX B
Delineation Field Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tule Wind Farm City/County: Campo Reservation, San Diego County Sampling Date: 10/04/10
Applicant/Owner: Iberdrola Renewables State: CA Sampling Point: P1
Investigator(s): Brynne Mulrooney, Allegra Simmons, Ingrid Chlup Section, Township/Range: 10, 17 S, 6E
Landform (hillside, terrace, fan, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): C Lat: 32° 42' 41.64" N Long: 116° 21' 39.98" W Datum: NAD 83

Soil Map Unit Name: :Loamy alluvial land NWI classification: Freshwater emergent wetland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area Within a Wetland?** **Yes ____ No X**
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Photo 2187 - 88

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Carex praegracilis*	90	Y	FACW
2. *Eriophyllum confertiflorum*	10	N	FACU
3. *Lactuca serriola*	10	N	FAC
4. *Circium vulgare*	5	N	FACU
5. *Urtica dioica*	5	N	FACW
6. *Rumex crispus*	1	N	FACW
7. *Ambrosia psilostachya*	1	N	FACW
8.			
9.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

SOIL

Sampling Point: P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 2.5/1						Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ Red Parent Material (TF2)
- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2) (**Nonriverine)**
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation on Aerial Imagery (B7)
- ___ Water-stained Leaves (B8)
- ___ Biotic Crust (B10)
- ___ Aquatic Invertebrates (B11)
- ___ Crayfish Burrows (B12)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soil (C8)
- ___ Muck Surface (C7)
- ___ Saturation on Aerial Imagery (C8)
- ___ Shallow Aquitard (D4)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B9)
- ___ Dry Season Water Table (C3)
- ___ Salt Deposits (C5)
- ___ Mud Casts (C9)
- ___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): >14"

Water Table Present? Yes ___ No X Depth (inches): >14"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >14"

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tule Wind Farm City/County: Campo Reservation, San Diego County Sampling Date: 10/04/10

Applicant/Owner: Iberdrola Renewables State: CA Sampling Point: SP 2

Investigator(s): Brynne Mulrooney, Allegra Simmons, Ingrid Chlup Section, Township/Range: 10, 17 S, 6 E

Landform (hillside, terrace, fan, etc.): streambank Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C Lat: **32° 42' 58.35" N** Long: **116° 21' 34.22" W** Datum: NAD 83

Soil Map Unit Name: Mottsville loamy coarse sand NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area Within a Wetland?**	**Yes X No _____**
Hydric Soil Present:	Yes X No _____		
Wetland Hydrology Present:	Yes X No _____		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Artemisia tridentata ssp. tridentata*	15	N	UPL
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Mimulus guttatus*	45	Y	OBL
2. *Conyza canadensis*	30	Y	FAC
3. *Stachys ajugoides* Benth. var *rigida*	5	N	OBL
4. *Gnaphalium stramineum*	5	N	UPL
5. *Urtica dioica*	10	N	FACW
6. *Rorripa nasturtium aquaticum*	1	N	OBL
7.			
8.			
9.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum __________ % Cover of Biotic Crust __________

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = __________

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: Distinct change in vegetation

SOIL

Sampling Point: SP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ Red Parent Material (TF2)
___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
X Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks: Meets the definition for hydric soils based on the Criteria 3 of inundation duration.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2) (**Nonriverine)**
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation on Aerial Imagery (B7)
___ Water-stained Leaves (B8)
___ Biotic Crust (B10)
___ Aquatic Invertebrates (B11)
___ Crayfish Burrows (B12)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C2)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soil (C8)
___ Muck Surface (C7)
___ Saturation on Aerial Imagery (C8)
___ Shallow Aquitard (D4)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B9)
___ Dry Season Water Table (C3)
___ Salt Deposits (C5)
___ Mud Casts (C9)
___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes X No ___ Depth (inches): >4"
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): <2"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tule Wind Farm City/County: Campo Reservation/San Diego County Sampling Date: 10/04/10

Applicant/Owner: Iberdrola Renewables State: CA Sampling Point: P3- TH2-12

Investigator(s): Ingrid Chlup, Brynne Mulrooney, Allegra Simmons Section, Township/Range: 10, 17 S, 6 E

Landform (hillside, terrace, fan, etc.): Streambed Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: **32° 43' 2.40" N** Long: **116° 21' 26.15" W** Datum: NAD 83

Soil Map Unit Name: La Posta loamy coarse sand NWI classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area Within a Wetland? Yes _____ No X**
Hydric Soil Present:	Yes _____ No X	
Wetland Hydrology Present:	Yes X No _____	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Mimulus guttatus*	50	Y	OBL
2. *Juncus bufonius*	10	N	FACW
3. *Polypogon monspeliensis*	10	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: P3 – TH2-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 4/2		None				Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

_____ Histosol (A1)
_____ Histic Epipedon (A2)
_____ Black Histic (3)
_____ Hydrogen Sulfide (A4)
_____ Stratified Layers (A5) (**LRR C**)
_____ 1 cm Muck (A9) (**LRR D**)
_____ Depleted Below Dark Surface (A11)
_____ Thick Dark Surface (A12)
_____ Sandy Mucky Mineral (S1)
_____ Sandy Gleyed Matrix (S4)
_____ Sandy Redox (S5)
_____ Stripped Matrix (S6)
_____ Loamy Mucky Mineral (F1)
_____ Loamy Gleyed Matrix (F2)
_____ Depleted Matrix (F3)
_____ Redox Dark Surface (F6)
_____ Depleted Dark Surface (F7)
_____ Redox Depressions (F8)
_____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

_____ Red Parent Material (TF2)
_____ 1 cm Muck (A9) (**LRR C**)
_____ 2 cm Muck (A10) (**LRR B**)
_____ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____________________

Depth (inches): ________________

Hydric Soil Present? Yes___ No X_____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

_____ Surface Water (A1)
_____ High Water Table (A2)
_____ Saturation (A3)
_____ Water Marks (B1)
_____ Sediment Deposits (B2) (**Nonriverine)**
_____ Drift Deposits (B3) (**Nonriverine**)
X Surface Soil Cracks (B6)
_____ Inundation on Aerial Imagery (B7)
_____ Water-stained Leaves (B8)
_____ Biotic Crust (B10)
_____ Aquatic Invertebrates (B11)
_____ Crayfish Burrows (B12)
_____ Hydrogen Sulfide Odor (C1)
_____ Oxidized Rhizospheres on Living Roots (C2)
_____ Presence of Reduced Iron (C4)
_____ Recent Iron Reduction in Plowed Soil (C8)
_____ Muck Surface (C7)
_____ Saturation on Aerial Imagery (C8)
_____ Shallow Aquitard (D4)
_____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

_____ Water Marks (B1) (**Riverine**)
_____ Sediment Deposits (B2) (**Riverine**)
_____ Drift Deposits (B3) (**Riverine**)
_____ Drainage Patterns (B9)
_____ Dry Season Water Table (C3)
_____ Salt Deposits (C5)
_____ Mud Casts (C9)
_____ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):__________
Water Table Present? Yes _____ No X Depth (inches):__________
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):__________

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tule Wind Farm City/County: Manzanita Reservation/San Diego County Sampling Date: 10/06/10

Applicant/Owner: Iberdrola Renewables State: CA Sampling Point: SP4 (TH1-11)

Investigator(s): Scot Chandler, Ingrid Chlup Section, Township/Range: 34, 16 S, 6 E

Landform (hillside, terrace, fan, etc.): seep Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: 32° 44' 19.89" N Long: 116° 21' 34.43" W Datum: NAD 83

Soil Map Unit Name: Mottsville loamy coarse sand NWI classification: Riverine

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area Within a Wetland?**	**Yes X No ____**
Hydric Soil Present:	Yes X No ____		
Wetland Hydrology Present:	Yes X No ____		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	30	Y	FACW
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Anemopsis californica*	40	Y	OBL
2. *Juncus mexicanus*	40	Y	FACW
3. *Epilobium ciliatum*	5	N	FACW
4. *Rorippa nasturtium-aquaticum*	5	N	OBL
5.			
6.			
7.			
8.			
9.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Vegetation is confined to streambanks.

SOIL

Sampling Point: SP4 (TH1-11)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/1						Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

____ Histosol (A1)
____ Histic Epipedon (A2)
____ Black Histic (3)
____ Hydrogen Sulfide (A4)
____ Stratified Layers (A5) (**LRR C**)
____ 1 cm Muck (A9) (**LRR D**)
____ Depleted Below Dark Surface (A11)
____ Thick Dark Surface (A12)
____ Sandy Mucky Mineral (S1)
____ Sandy Gleyed Matrix (S4)
____ Sandy Redox (S5)
____ Stripped Matrix (S6)
____ Loamy Mucky Mineral (F1)
____ Loamy Gleyed Matrix (F2)
____ Depleted Matrix (F3)
____ Redox Dark Surface (F6)
____ Depleted Dark Surface (F7)
____ Redox Depressions (F8)
____ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

____ Red Parent Material (TF2)
____ 1 cm Muck (A9) (**LRR C**)
____ 2 cm Muck (A10) (**LRR B**)
X Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes X No ____

Remarks: Meets Criteria 3 for hydric soils, inundation duration.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
____ Water Marks (B1)
____ Sediment Deposits (B2) (**Nonriverine)**
____ Drift Deposits (B3) (**Nonriverine**)
____ Surface Soil Cracks (B6)
____ Inundation on Aerial Imagery (B7)
____ Water-stained Leaves (B8)
____ Biotic Crust (B10)
____ Aquatic Invertebrates (B11)
____ Crayfish Burrows (B12)
____ Hydrogen Sulfide Odor (C1)
____ Oxidized Rhizospheres on Living Roots (C2)
____ Presence of Reduced Iron (C4)
____ Recent Iron Reduction in Plowed Soil (C8)
____ Muck Surface (C7)
____ Saturation on Aerial Imagery (C8)
____ Shallow Aquitard (D4)
____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

____ Water Marks (B1) (**Riverine**)
____ Sediment Deposits (B2) (**Riverine**)
____ Drift Deposits (B3) (**Riverine**)
____ Drainage Patterns (B9)
____ Dry Season Water Table (C3)
____ Salt Deposits (C5)
____ Mud Casts (C9)
____ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1”

Water Table Present? Yes X No ____ Depth (inches): 1”

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): surface

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Tule Wind Farm City/County: Manzanita Reservation/San Diego County Sampling Date: 10/06/10

Applicant/Owner: Iberdrola Renewables State: CA Sampling Point: SP-5 (TH1-25)

Investigator(s): Scot Chandler, Ingrid Chlup Section, Township/Range: 27, 16 S, 6 E

Landform (hillside, terrace, fan, etc.): streambed Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): C Lat: **32° 45' 8.82" N** Long: **116° 21' 16.92" W** Datum: NAD 83

Soil Map Unit Name: Kitchen Creek loamy coarse sand NWI classification: Freshwater pond

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area Within a Wetland?** **Yes X No _____**
Hydric Soil Present:	Yes X No _____	
Wetland Hydrology Present:	Yes X No _____	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Heliotropium curassavicum*	3	Y	OBL
2. *Juncus bufonius*	3	Y	FACW
3. *Portulaca oleracea*	3	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No _____**

Remarks:

SOIL

Sampling Point: SP-5 (TH1-25)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-12	10YR 3/2		7.5YR 4/4	10	C	M	Silty clay loam	
12-18	7.5YR 2.5/1		None				Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ Red Parent Material (TF2)
___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2) (**Nonriverine)**
___ Drift Deposits (B3) (**Nonriverine**)
X Surface Soil Cracks (B6)
___ Inundation on Aerial Imagery (B7)
___ Water-stained Leaves (B8)
___ Biotic Crust (B10)
___ Aquatic Invertebrates (B11)
___ Crayfish Burrows (B12)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C2)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Plowed Soil (C8)
___ Muck Surface (C7)
___ Saturation on Aerial Imagery (C8)
___ Shallow Aquitard (D4)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B9)
___ Dry Season Water Table (C3)
___ Salt Deposits (C5)
___ Mud Casts (C9)
___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Seasonal pond.

APPENDIX C
Drainage Table

Appendix C
Drainage Table

USACE Waters of the U.S./USACE Wetland*/ CDFG (only) Jurisdictional Area**	Substrate	Slope Type	Dominant Vegetation	Bank Height	Length (feet)	Photo Number	USACE Waters of the U.S./USACE Wetland*		CDFG Jurisdictional Areas		RPO Jurisdictional Areas		Land Ownership
							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
5c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with birch-leaf mountain-mahogany, holly-leaf cherry, chamise, scrub oak and cup-leaf lilac.	1.0	158	--	2.0	0.007	--	--	--	--	Indian Reservation (Ewiiaapaayp)
12a	Sandy Loam with Cobble	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, live oak, chamise, cup leaf ceanothus and deergrass.	1.5	1495	--	2.0	0.068	2.0	0.082	--	--	Federal (BLM)
12b	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush and birch-leaf mountain-mahogany.	1.0	35	--	2.0	0.002	2.0	0.002	--	--	Federal (BLM)
12c	Sandy Loam	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, birch-leaf mountain-mahogany, live oak and deergrass.	1.5	2002	--	2.0	0.088	2.0	0.126	--	--	Federal (BLM)
20a	Sandy Loam with Cobble	Steeply sloping	Channel is unvegetated. Banks vegetated with chamise, birch-leaf mountain-mahogany, California buckwheat, scrub oak, white sage and desert baccharis.	2.0	438	--	2.0	0.020	2.0	0.020	--	--	Federal (BLM)
21a	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with scrub oak, birch-leaf mountain-mahogany, tarragon, California buckwheat and sugar bush.	2.0	480	--	1.5	0.016	1.5	0.073	--	--	Federal (BLM)
22a	Sandy Cobble	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, chamise, wild oat and big sagebrush.	1.0	572	--	2.0	0.025	2.0	0.025	--	--	Federal (BLM)
23a	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with chamise, California buckwheat, birch-leaf mountain-mahogany and tarragon.	1.0	529	--	1.5	0.017	1.5	0.017	--	--	Federal (BLM)
51b	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with scrub oak, big sagebrush and California buckwheat.	1.0	323	--	1.0	0.015	2.0	0.007	--	--	Federal (BLM)
57e	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, California buckwheat and sugar bush.	0.5	207	--	0.5	0.002	0.5	0.002	--	--	Federal (BLM)
70d	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with scrub oak, deergrass, desert baccharis, Tecate tarplant, bromes, big sagebrush, chamise and tarragon.	1.0	175	--	2.0	0.008	2.0	0.008	--	--	Federal (BLM)
72d	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat, scrub oak, tarragon, bromes, boundary goldenbush, bromes and birch-leaf mountain-mahogany.	1.0	576	--	3.0	0.039	3.0	0.077	--	--	Federal (BLM)
72e	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat, scrub oak, tarragon, bromes, boundary goldenbush and birch-leaf mountain-mahogany.	1.0	344	1	3.0	0.022	3.0	0.022	--	--	Federal (BLM)
75a	Sand	Gently to steeply sloping	Channel is unvegetated. Banks vegetated with boundary goldenbush, scrub oak, California matchweed and California buckwheat.	0.0	34	--	1.0	0.001	1.0	0.001	--	--	Federal (BLM)
77d	Sand	Gently to steeply sloping	Channel is unvegetated. Banks vegetated with red shank, desert baccharis and manzanita.	1.0	1497	--	1.5	0.051	1.5	0.051	--	--	Federal (BLM)
82c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with red shank, big sagebrush, desert baccharis, California buckwheat and bromes.	0.5	1166	--	1.0	0.027	1.0	0.027	--	--	Federal (BLM)
83m	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, live oak, tarragon and desert baccharis.	2.0	503	--	3.0	0.033	3.0	0.063	--	--	Federal (BLM)
83n	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with desert baccharis, annual beard grass, big sagebrush and Tecate tarplant.	1.0	526	--	2.0	0.023	2.0	0.048	--	--	Federal (BLM)
83o	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California ephedra and tarragon.	0.5	759	--	15.0	0.259	15.0	0.259	--	--	Federal (BLM)
83p	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, California ephedra and tarragon.	0.5	379	--	40.0	0.347	40.0	0.347	--	--	Federal (BLM)
83q	Sand	Gently sloping to vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California ephedra and tarragon.	0.5	133	--	20.0	0.061	20.0	0.061	--	--	Federal (BLM)
83r	Sand	Gently sloping to vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California ephedra, tarragon and live oak.	0.5	1257	--	10.0	0.284	10.0	0.449	10.0	0.160	Federal (BLM)/ County (Private)

USACE Waters of the U.S./USACE Wetland*/ CDFG (only) Jurisdictional Area**	Substrate	Slope Type	Dominant Vegetation	Bank Height	Length (feet)	Photo Number	USACE Waters of the U.S./USACE Wetland*		CDFG Jurisdictional Areas		RPO Jurisdictional Areas		Land Ownership
							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
83s	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush and Goodding's black willow.	0.5	130	--	3.0	0.009	3.0	0.009	3.0	0.009	County (Private)
83t	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, tarragon, bromes and live oak.	0.0	710	--	20.0	0.325	20.0	0.381	20.0	0.325	County (Private)
85c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, Tecate tarplant, annual beard grass, Jacumba milkvetch, cane cholla, California matchweed, California buckwheat, scrub oak and big sagebrush.	1.0	749	2	1.5	0.025	1.5	0.025	--	--	Federal (BLM)
87d	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with Tecate tarplant, holly-leaf cherry, big sagebrush, seep monkey flower, annual beard grass, bromes, scrub oak, live oak and tarragon.	1.0	1624	--	2.0	0.070	2.0	0.120	--	--	Federal (BLM)
91d	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with holly-leaf cherry, bromes, annual beard grass, scrub oak and seep monkey flower.	0.5	147	--	1.0	0.003	1.0	0.003	--	--	Federal (BLM)
91e	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with foothill buckwheat, California buckwheat, big sagebrush, desert baccharis, annual beard grass and seep monkey flower.	1.0	1604	--	1.5	0.055	1.5	0.126	--	--	Federal (BLM)
91f	Sandy Loam	Steeply sloping to vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush and foothill buckwheat.	0.5	236	--	1.0	0.005	1.0	0.005	--	--	Federal (BLM)
94d	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with foothill buckwheat, scrub oak and bromes.	0.5	274	--	1.0	0.006	1.0	0.006	1.0	0.000	Federal (BLM)/ County (Private)
95d	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, big sagebrush, desert baccharis, bromes, Tecate tarplant and annual beard grass.	3.0	1440	3	2.0	0.062	2.0	0.062	2.0	0.017	Federal (BLM)/ County (Private)
95e	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with Tecate tarplant, big sagebrush, California matchweed, tarragon, desert baccharis, California buckwheat and horseweed.	3.0	2765	--	3.0	0.189	3.0	0.379	3.0	0.164	Federal (BLM)/ County (Private)
100a	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, shiny-leaf yerba santa, California buckwheat and desert woolly-star.	3.0	92	--	1.0	0.002	1.0	0.002	0.002	0.002	County (Private)
101c	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, big sagebrush, foothill buckwheat and Jacumba milkvetch.	1.0	143	--	1.0	0.003	1.0	0.003	1.0	0.003	County (Private)
102c	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with Davidson's buckwheat, big sagebrush and California buckwheat.	1.0	458	--	1.0	0.010	1.0	0.010	1.0	0.010	County (Private)
103a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California ephedra, shiny-leaf yerba santa, California buckwheat, long-stem golden-yarrow and cane cholla.	0.5	202	--	1.0	0.004	1.0	0.004	--	--	Federal (BLM)
104c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with chamise, red shank and big-berry manzanita.	1.0	246	--	2.0	0.009	2.0	0.009	--	--	Federal (BLM)
106d	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with red shank, California buckwheat and desert woolly-star.	1.0	398	4	3.0	0.023	3.0	0.023	--	--	Federal (BLM)
108f	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with stork's bill, bromes, short-pod mustard, tarragon and big sagebrush.	1.0	250	--	3.0	0.017	3.0	0.017	3.0	0.017	County (Private)
112a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, red shank and desert woolly-star.	0.5	245	--	0.5	0.003	0.5	0.003	--	--	Federal (BLM)
113c	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with bromes, big sagebrush and scrub oak.	2.0	171	--	1.0	0.004	1.0	0.008	1.0	0.004	County (Private)
115e	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat and desert woolly-star.	0.5	337	--	4.0	0.029	4.0	0.029	--	--	Federal (BLM)
117f	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, stork's bill, western ragweed, western tansy-mustard and big sagebrush.	2.0	242	--	1.0	0.006	1.0	0.006	--	--	State
117g**	--	--	Channel is unvegetated. Banks vegetated with Goodding's black willow, bromes, big sagebrush, short-pod mustard and tamarisk.	--	162	--	--	--	11.0**	0.02**	--	--	Federal (BLM)
129a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with chamise, shiny-leaf yerba santa, California buckwheat, sugar bush, foothill buckwheat, tarragon and big sagebrush.	3.0	991	--	1.0	0.022	1.0	0.022	--	--	Federal (BLM)
129b	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with sugar bush, California buckwheat, California matchweed, foothill buckwheat, Tecate tarplant, tarragon and scrub oak.	3.0	618	--	1.0	0.014	1.0	0.036	--	--	Federal (BLM)

USACE Waters of the U.S./USACE Wetland*/ CDFG (only) Jurisdictional Area**	Substrate	Slope Type	Dominant Vegetation	Bank Height	Length (feet)	Photo Number	USACE Waters of the U.S./USACE Wetland* Width (feet)	USACE Waters of the U.S./USACE Wetland* Area (acres)	CDFG Jurisdictional Areas Width (feet)	CDFG Jurisdictional Areas Area (acres)	RPO Jurisdictional Areas Width (feet)	RPO Jurisdictional Areas Area (acres)	Land Ownership
129c	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with sugar bush, California matchweed, scrub oak and chamise.	4.0	179	--	2.0	0.008	2.0	0.015	--	--	Federal (BLM)
130a	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, holly-leaf cherry, California buckwheat and red shank.	1.0	840	--	1.0	0.019	1.0	0.019	--	--	Federal (BLM)
130b	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat, California ephedra, pine goldenbush and desert woolly-star.	0.5	646	--	3.0	0.044	3.0	0.044	3.0	0.019	Federal (BLM)/ County (Private)
131	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, scrub oak and coyote tobacco.	0.5	238	--	7.5	0.040	15.0	0.081	7.5	0.040	County (Private)
145a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with Tecate tarplant, bromes, foothill buckwheat, desert baccharis and big sagebrush.	1.0	1194	--	1.5	0.041	1.5	0.041	1.5	0.038	Federal (BLM)/ County (Private)
150c	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with Jacumba milkvetch, California buckwheat, California matchweed and California ephedra.	0.5	85	--	2.0	0.004	2.0	0.004	--	--	Federal (BLM)
151a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat and shiny-leaf yerba santa.	0.5	70	--	1.0	0.001	1.0	0.001	--	--	Federal (BLM)
152c	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, desert woolly-star and shiny-leaf yerba santa.	0.5	268	--	1.0	0.006	1.0	0.006	--	--	Federal (BLM)
153a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with shiny-leaf yerba santa, California buckwheat and big sagebrush.	0.5	101	--	1.0	0.002	1.0	0.002	--	--	Federal (BLM)
154a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with desert woolly-star, California buckwheat, California ephedra and shiny-leaf yerba santa.	0.5	127	--	1.0	0.003	1.0	0.003	--	--	Federal (BLM)
193	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with birch-leaf mountain-mahogany, desert baccharis and deergrass.	1.5	963	--	2.0	0.044	2.0	0.050	--	--	Federal (BLM)
194a	Sand	Steeply sloping	Channel and banks are unvegetated.	5.0	66	5	20.0	0.002	--	--	--	--	Indian Reservation (Manzanita)
194b	Sand	Steeply sloping	Channel and banks are unvegetated.	1.0	25	--	1.0	0.012	--	--	--	--	Indian Reservation (Manzanita)
195a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, live oak and coyote tobacco.	0.5	91	--	1.0	0.002	--	--	--	--	Indian Reservation (Manzanita)
195b	Sandy Loam	Steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, live oak and coyote tobacco.	5.0	53	6	15.0	0.019	--	--	--	--	Indian Reservation (Manzanita)
196	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, birch-leaf mountain-mahogany and bromes.	0.5	149	--	1.0	0.003	--	--	--	--	Indian Reservation (Manzanita)
197	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, chamise, birch-leaf mountain-mahogany and bromes.	3.0	187	--	1.0	0.004	--	--	--	--	Indian Reservation (Manzanita)
198a	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with chamise and birch-leaf mountain-mahogany.	0.5	200	--	1.0	0.004	--	--	--	--	Indian Reservation (Manzanita)
198a-culvert				2.0	62	--	2.0	0.003	--	--	--	--	Indian Reservation (Manzanita)
198b	Sandy Loam	Steeply sloping to vertically incised	Channel is unvegetated. Banks vegetated with arroyo willow, live oak, California buckwheat, foothill buckwheat, birch-leaf mountain-mahogany and bromes.	2.0	1414	--	2.0	0.063	--	--	--	--	Indian Reservation (Manzanita)
199	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, foothill buckwheat, big sagebrush, bromes, wild oat, chamise, manzanita and birch-leaf mountain-mahogany.	1.0	761	--	3.0	0.048	--	--	--	--	Indian Reservation (Manzanita)
200a*	Silty Clay Loam/Sandy Loam	Gently sloping	Channel and banks are vegetated with salt heliotrope, toad rush and common purslane.	--	95	7	30.0*	0.050*	--	--	--	--	Indian Reservation (Manzanita)

USACE Waters of the U.S./USACE Wetland*/ CDFG (only) Jurisdictional Area**	Substrate	Slope Type	Dominant Vegetation	Bank Height	Length (feet)	Photo Number	USACE Waters of the U.S./USACE Wetland*		CDFG Jurisdictional Areas		RPO Jurisdictional Areas		Land Ownership
							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
200b	Sandy Loam	Steeply sloping to vertically incised	Channel is unvegetated. Banks vegetated with chamise, live oak, California buckwheat, foothill buckwheat, birch-leaf mountain-mahogany, cane cholla and holly-leaf cherry.	1.5	785	--	2.0	0.035	--	--	--	--	Indian Reservation (Manzanita)
201	Sandy Loam	Steeply sloping to vertically incised	Channel is unvegetated. Banks vegetated with chamise, birch-leaf mountain-mahogany, bromes, California buckwheat and foothill buckwheat.	1.0	634	--	1.0	0.013	--	--	--	--	Indian Reservation (Manzanita)
202	Sand	Gently sloping to steeply sloping	Channel is unvegetated. Banks vegetated with wild oat, California buckwheat and boundary goldenbush.	5.0	525	--	2.0	0.023	--	--	--	--	Indian Reservation (Manzanita)
203a	Sand	Gently sloping to vertically incised	Channel is unvegetated. Banks vegetated with live oak, manzanita, chaparral whitethorn, California buckwheat and foothill buckwheat.	4.0	323	--	8.0	0.056	--	--	--	--	Indian Reservation (Manzanita)
203b	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with live oak, arroyo willow, California buckwheat and bromes.	6.0	511	8	11.0	0.104	--	--	--	--	Indian Reservation (Manzanita)
203c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, arroyo willow, California buckwheat and live oak.	6.0	1190	--	18.0	0.462	--	--	--	--	Indian Reservation (Manzanita)
203d	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, arroyo willow and California buckwheat.	6.0	1101	--	8.0	0.166	12.0	0.048	8.0	0.023	Indian Reservation (Manzanita)/ County (Private)
204	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, arroyo willow and California buckwheat.	3.0	140	--	3.0	0.02	3.0	0.02		0.02	County (Private)
205a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with chaparral whitethorn and California buckwheat.	3.0	200	--	2.0	0.008	--	--	--	--	Indian Reservation (Manzanita)
205a-culvert				2.0	57	--	2.0	0.003	--	--	--	--	Indian Reservation (Manzanita)
205b	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with tarragon, big sagebrush, boundary goldenbush, California buckwheat and chaparral whitethorn.	4.0	321	--	2.0	0.013	--	--	--	--	Indian Reservation (Manzanita)
206	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat and live oak.	0.0	278	--	5.0	0.025	--	--	--	--	Indian Reservation (Manzanita)
206-culvert				2.0	76	--	2.0	0.004	--	--	--	--	Indian Reservation (Manzanita)
207a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with live oak, watercress and big sagebrush.	2.0	393	9	5.0	0.035	--	--	--	--	Indian Reservation (Manzanita)
207b*	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with live oak, watercress and big sagebrush.	2.0	409	--	5.0	0.037	--	--	--	--	Indian Reservation (Manzanita)
207c*	Sandy Clay Loam	Steeply sloping to gently sloping	Channel is unvegetated. Banks vegetated with watercress, Mexican rush, arroyo willow and yerba mansa.	6.0	490	10	30.0	0.302	--	--	--	--	Indian Reservation (Manzanita)
207d	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with hoary nettle, big sagebrush, arroyo willow, manzanita, California buckwheat, foothill buckwheat, slender buckwheat, boundary goldenbush, bromes and live oak.	10.0	624	--	7.0	0.087	--	--	--	--	Indian Reservation (Manzanita)
208	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with watercress.	0.5	303	11	2.0	0.012	--	--	--	--	Indian Reservation (Manzanita)
209*	Sandy Clay Loam	Steeply sloping	Channel is unvegetated. Banks vegetated with watercress, California fuchsia, big sagebrush and Mexican rush.	0.0	30	12	0.01	0.012	--	--	--	--	Indian Reservation (Manzanita)
210	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush.	10.0	239	--	2.0	0.010	--	--	--	--	Indian Reservation (Manzanita)
211a	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with foothill buckwheat, California buckwheat and small wreath-plant.	1.0	331	--	2.0	0.015	--	--	--	--	Indian Reservation (Campo)

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							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
211b	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, foothill buckwheat, slender buckwheat, small wreath-plant and bromes.	1.0	472	--	1.0	0.011	--	--	--	--	Indian Reservation (Campo)
212	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, slender buckwheat, small wreath-plant and California aster.	1.0	114	13	1.0	0.003	--	--	--	--	Indian Reservation (Campo)
213	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with birch-leaf mountain-mahogany, California buckwheat, California aster, slender buckwheat and small wreath-plant.	4.0	231	--	1.0	0.005	--	--	--	--	Indian Reservation (Campo)
214	Sandy Loam	Vertically incised to steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, foothill buckwheat, birch-leaf mountain-mahogany, live oak and long-stem golden-yarrow.	1.0	336	14	2.0	0.015	--	--	--	--	Indian Reservation (Campo)
215	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with chamise, birch-leaf mountain-mahogany and California buckwheat.	2.0	197	--	2.0	0.009	--	--	--	--	Indian Reservation (Campo)
216	Loam	Vertically incised	Channel is unvegetated. Banks vegetated with chamise.	5.0	130	--	2.0	0.006	--	--	--	--	Indian Reservation (Manzanita)
217	Sandy Loam	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, foothill buckwheat and bromes.	1.0	89	--	1.0	0.002	--	--	--	--	Indian Reservation (Manzanita)
218	Sandy Loam	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, bromes and slender buckwheat.	4.0	181	15	1.0	0.004	--	--	--	--	Indian Reservation (Manzanita)
219	Sandy Loam	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat, bromes and chamise.	4.0	128	--	2.0	0.006	--	--	--	--	Indian Reservation (Manzanita)
220	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with dark-tipped bird's beak, California buckwheat, chamise and woolly blue curls.	3.0	137	--	1.0	0.003	--	--	--	--	Indian Reservation (Campo)
221	Sandy Loam	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, chamise and California buckwheat.	6.0	143	--	2.0	0.007	--	--	--	--	Indian Reservation (Campo)
222a	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with chamise, seep monkey flower, birch-leaf mountain-mahogany, bromes and California buckwheat.	5.0	498	--	2.0	0.023	--	--	--	--	Indian Reservation (Campo)
222a-culvert				2.0	33	--	2.0	0.002	--	--	--	--	Indian Reservation (Campo)
222b	Loam	Vertically incised	Channel is unvegetated. Banks vegetated with birch-leaf mountain-mahogany, hoary nettle, bromes, California buckwheat and live oak.	3.0	158	--	2.0	0.007	--	--	--	--	Indian Reservation (Campo)
223a	Sandy Loam	Vertically incised to gently sloping	Channel is unvegetated. Banks vegetated with chaparral whitethorn, California buckwheat, pine goldenbush and hoary nettle.	2.0	207	--	2.0	0.010	--	--	--	--	Indian Reservation (Campo)
223a-culvert				2.0	55	--	2.0	0.003	--	--	--	--	Indian Reservation (Campo)
223b	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with tarragon, live oak, California buckwheat, bromes and short-pod mustard.	1.0	304	16	4.0	0.028	--	--	--	--	Indian Reservation (Campo)
224a	Silty Loam	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, seep monkey flower, tumble mustard and Mexican rush.	1.5	125	--	1.0	0.003	--	--	--	--	Indian Reservation (Campo)
224b	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, seep monkey flower, tumble mustard, Mexican rush and tarragon.	1.5	128	--	3.0	0.009	--	--	--	--	Indian Reservation (Campo)
224c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with live oak, bromes and California buckwheat.	0.5	70	--	3.0	0.005	--	--	--	--	Indian Reservation (Campo)
224d	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, bromes, wild oat and tarragon.	1.0	394	--	6.0	0.054	--	--	--	--	Indian Reservation (Campo)

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							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
224e	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with bromes, wild oat, tarragon and California buckwheat.	1.0	147	--	2.0	0.007	--	--	--	--	Indian Reservation (Campo)
224f*	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, hoary nettle, horseweed and cudweed.	4.0	130	17	10.0	0.030	--	--	--	--	Indian Reservation (Campo)
225	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with tarragon and foothill buckwheat.	1.0	78	--	1.0	0.002	--	--	--	--	Indian Reservation (Campo)
226	Sandy Loam	Vertically incised	Channel is unvegetated. Banks vegetated with bromes and foothill buckwheat.	1.0	43	--	1.0	0.001	--	--	--	--	Indian Reservation (Campo)
227	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with tarragon, California buckwheat and foothill buckwheat.	0.5	135	--	1.0	0.003	--	--	--	--	Indian Reservation (Campo)
228	Sandy Loam	Vertically incised	Channel is unvegetated. Banks vegetated with tarragon, California buckwheat and foothill buckwheat.	2.0	168	--	1.0	0.004	--	--	--	--	Indian Reservation (Campo)
229	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, foothill buckwheat and bromes.	1.0	100	--	2.0	0.004	--	--	--	--	Indian Reservation (Campo)
229-culvert				2.0	43	--	2.0	0.002	--	--	--	--	Indian Reservation (Campo)
230a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with wild oat, bromes, California buckwheat, big sagebrush and boundary goldenbush.	3.0	230	--	3.0	0.011	--	--	--	--	Indian Reservation (Campo)
230a-culvert				2.0	35	--	2.0	0.02	--	--	--	--	Indian Reservation (Campo)
230b	Sand	Vertically incised to gently sloping	Channel is unvegetated. Banks vegetated with wild oat, bromes, California buckwheat, big sagebrush and boundary goldenbush.	3.0	158	18	3.0	0.011	--	--	--	--	Indian Reservation (Campo)
231a	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with wild oat, bromes, California buckwheat, mouse barley and live oak.	0.5	463	--	1.0	0.011	3.0	0.00	--	--	Indian Reservation (Campo)/ State
231a-culvert				2.0	127	--	2.0	0.006	2.0	0.006	--	--	State
231b	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with live oak, tarragon, California buckwheat, bromes, big sagebrush, arroyo willow and hoary nettle.	1.0	508	--	4.0	0.204	5.0	0.058	--	--	State
232	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with live oak, tarragon, California buckwheat, bromes, big sagebrush, arroyo willow and hoary nettle.	1.0	147	--	2.0	0.007	2.0	0.142	--	--	State
233	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, big sagebrush and California buckwheat.	1.0	504	--	1.5	0.017	--	--	--	--	Indian Reservation (Campo)
234a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with red shank, bromes, tarragon and birch-leaf mountain-mahogany.	2.0	102	--	1.5	0.003	3.0	0.034	--	--	State
234b	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, mustard and tarragon.	1.0	55	--	1.0	0.001	2.0	0.003	--	--	State
235	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, desert baccharis, dark-tipped bird's beak, Tecate tarplant, annual beard grass, seep monkey flower and dock.	1.0	2972	--	1.5	0.102	1.5	0.102	--	--	Federal (BLM)
236	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, sugar bush, birch-leaf mountain-mahogany, California ephedra, scrub oak, bromes, cane cholla and boundary goldenbush.	1.0	1068	--	2.0	0.044	2.0	0.098	--	--	Federal (BLM)
237	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, scrub oak, giant stipa, cane cholla, bromes and birch-leaf mountain-mahogany.	0.5	163	--	1.0	0.003	1.0	0.029	--	--	Federal (BLM)

USACE Waters of the U.S./USACE Wetland*/ CDFG (only) Jurisdictional Area**	Substrate	Slope Type	Dominant Vegetation	Bank Height	Length (feet)	Photo Number	USACE Waters of the U.S./USACE Wetland*		CDFG Jurisdictional Areas		RPO Jurisdictional Areas		Land Ownership
							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
238	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, scrub oak, bromes and boundary goldenbush.	1.0	596	--	1.0	0.014	1.0	0.044	--	--	Federal (BLM)
239a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, cane cholla, shiny-leaf yerba santa and bromes.	0.0	305	--	1.0	0.007	1.0	0.007	--	--	Federal (BLM)
239b	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with foothill buckwheat, scrub oak, California buckwheat, slender buckwheat and bromes.	1.0	259	--	2.0	0.010	2.0	0.043	--	--	Federal (BLM)
240	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with scrub oak, desert baccharis, big sagebrush, tarragon, seep monkey flower and bromes.	1.0	169	--	2.0	0.007	2.0	0.007	--	--	Federal (BLM)
241a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, desert baccharis, annual beard grass, wild oat, Tecate tarplant, live oak and red shank.	0.5	1691	--	1.0	0.038	1.0	0.038	--	--	Federal (BLM)
241b	Sandy Clay	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, desert baccharis, annual beard grass, wild oat and Tecate tarplant.	2.0	217	--	2.0	0.010	2.0	0.010	--	--	Federal (BLM)
242	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with desert baccharis, red shank, California buckwheat, foothill buckwheat and bromes.	0.5	319	--	1.0	0.007	1.0	0.007	--	--	Federal (BLM)
243	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with chamise, red shank and manzanita.	0.5	812	--	1.0	0.018	1.0	0.018	--	--	Federal (BLM)
244	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with red shank, desert baccharis, deergrass and California matchweed.	0.5	571	--	0.5	0.007	0.5	0.007	--	--	Federal (BLM)
245	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, red shank and deergrass.	0.5	884	--	1.0	0.019	1.0	0.019	--	--	Federal (BLM)
246	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, foothill buckwheat, California buckwheat and desert baccharis.	0.5	438	19	1.5	0.015	1.5	0.015	--	--	Federal (BLM)
247a	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with desert baccharis, foothill needlegrass, boundary goldenbush, California ephedra, scrub oak, annual beard grass, sugar bush and chamise.	1.0	1163	--	1.0	0.026	1.0	0.076	--	--	Federal (BLM)
247b	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California matchweed, manzanita and cane cholla.	1.0	1562	--	2.0	0.063	2.0	0.149	--	--	Federal (BLM)
247b-culvert				2.0	44	--	2.0	0.002	2.0	0.002	--	--	Federal (BLM)
247c	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with live oak, birch-leaf mountain-mahogany, California buckwheat, holly-leaf cherry, foothill buckwheat, bromes and wild oat.	1.0	343	--	2.0	0.016	2.0	0.077	--	--	Federal (BLM)
248	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, big sagebrush and boundary goldenbush.	0.0	162	--	2.0	0.007	2.0	0.007	--	--	Federal (BLM)
249	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with holly-leaf cherry, California buckwheat and big sagebrush.	0.5	131	20	1.0	0.003	1.0	0.003	--	--	Federal (BLM)
249-culvert				2.0	136	--	2.0	0.003	2.0	0.003	--	--	Federal (BLM)
250	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with California buckwheat, big sagebrush, boundary goldenbush and holly-leaf cherry.	0.5	534	--	1.0	0.012	1.0	0.012	--	--	Federal (BLM)
251	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with holly-leaf cherry, scrub oak, foothill buckwheat and bromes.	0.5	561	--	1.0	0.013	1.0	0.013	--	--	Federal (BLM)
252	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with holly-leaf cherry, red shank, big sagebrush, foothill buckwheat and shiny-leaf yerba santa.	1.0	1124	--	1.5	0.039	1.5	0.039	--	--	Federal (BLM)
253	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with red shank, big sagebrush and California buckwheat.	1.0	1560	--	1.0	0.036	1.0	0.036	--	--	Federal (BLM)
254	Sandy Loam	Gently sloping	Channel is unvegetated. Banks vegetated with foothill buckwheat, California buckwheat, big sagebrush, desert baccharis, annual beard grass and seep monkey flower.	1.0	341	--	1.5	0.012	1.5	0.012	--	--	Federal (BLM)
255	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, holly-leaf cherry, boundary goldenbush, big sagebrush and shiny-leaf yerba santa.	0.5	519	--	0.5	0.006	0.5	0.006	--	--	Federal (BLM)

USACE Waters of the U.S./USACE Wetland*/ CDFG (only) Jurisdictional Area**	Substrate	Slope Type	Dominant Vegetation	Bank Height	Length (feet)	Photo Number	USACE Waters of the U.S./USACE Wetland*		CDFG Jurisdictional Areas		RPO Jurisdictional Areas		Land Ownership
							Width (feet)	Area (acres)	Width (feet)	Area (acres)	Width (feet)	Area (acres)	
256	Sand	Steeply sloping to vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat, bromes, holly-leaf cherry and foothill buckwheat.	0.5	911	--	1.0	0.021	1.0	0.021	--	--	Federal (BLM)
257	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, tarragon, California buckwheat and holly-leaf cherry.	0.5	593	--	1.0	0.014	1.0	0.014	--	--	Federal (BLM)
258	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with holly-leaf cherry and chamise.	1.0	164	--	1.0	0.004	1.0	0.004	--	--	Federal (BLM)
259	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, California buckwheat and holly-leaf cherry.	0.5	153	--	1.0	0.003	1.0	0.003	1.0	0.003	County (Private)
260	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with boundary goldenbush, foothill buckwheat, desert woolly-star and bromes.	1.0	641	--	1.0	0.014	1.0	0.014	1.0	0.010	Federal (BLM)/ County (Private)
261	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with big sagebrush, short-pod mustard and bromes.	1.0	217	--	1.0	0.005	1.0	0.005	1.0	0.005	County (Private)
262a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with bromes, big sagebrush, short-pod mustard, dock and Goodding's black willow.	5.0	231	--	8.0	0.028	15.0	0.028	8.0	0.028	County (Private)
262b	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, short-pod mustard and bromes.	4.0	275	21	3.0	0.019	5.0	0.032	3.0	0.019	County (Private)
263a	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with California buckwheat, California ephedra, shortwing deerweed, cotton-thorn, chaparral candle and cane cholla.	1.5	713	--	1.0	0.016	1.0	0.031	1.0	0.014	County (Private)
263b	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, scrub oak and California matchweed.	2.0	637	--	3.0	0.043	3.0	0.072	3.0	0.043	County (Private)
263b-culvert				2.0	70	--	2.0	0.003	2.0	0.003	2.0	0.003	County (Private)
263c	Coarse Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with tumbleweed, ragweed, slender buckwheat, shiny-leaf yerba santa and live oak.	2.0	993	--	6.0	0.135	6.0	0.157	6.0	0.050	County (Private)
263c-culvert				2.0	56	--	2.0	0.003	2.0	0.003	2.0	0.003	County (Private)
263d	Coarse Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat, California matchweed and shiny-leaf yerba santa.	0.5	1066	--	8.0	0.185	8.0	0.185	8.0	0.185	County (Private)
264	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with shortwing deerweed, cane cholla and red shank.	1.0	224	--	2.0	0.005	2.0	0.059	2.0	0.003	County (Private)
265	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with California buckwheat, California matchweed and manzanita.	1.0	76	--	1.0	0.002	1.0	0.006	1.0	0.001	County (Private)
266	Coarse Sand	Vertically incised	Channel is unvegetated. Banks vegetated with shiny-leaf yerba santa, California matchweed, cotton-thorn and California buckwheat.	1.0	152	22	3.0	0.010	3.0	0.010	3.0	0.010	County (Private)
267	Sand	Steeply sloping	Channel is unvegetated. Banks vegetated with big sagebrush, shiny-leaf yerba santa, tarragon and California matchweed.	3.0	660	--	3.0	0.039	3.0	0.075	3.0	0.039	County (Private)
268a**	Sandy Loam	No bank	Channel is unvegetated. Banks vegetated with Goodding's black willow, deergrass and short-pod mustard.	--	768	--	--	--	40.0**	0.23**	--	--	County (Private)
268b	Sand	Gently sloping	Channel is unvegetated. Banks vegetated with bromes, annual bursage, short-pod mustard, big sagebrush and Goodding's black willow.	0.5	688	--	1.0	0.015	1.0	0.24	1.0	0.015	County (Private)
269	Sand	Vertically incised	Channel is unvegetated. Banks vegetated with big sagebrush, California buckwheat and desert woolly-star.	0.5	267	--	2.0	0.012	2.0	0.012	2.0	0.012	County (Private)

APPENDIX D

Representative Photographs of Delineated Drainages

Photograph 1. Downstream view of Drainage 72e.

Photograph 2. Upstream view of Drainage 85c.

Photograph 3. Upstream view of Drainage 95d.

Photograph 4. Downstream view of Drainage 106d.

Photograph 5. View of man-made pond associate with Drainage 194a.

Photograph 6. Downstream view of man-made basin collects flows from Drainage 195b.

Photograph 7. View of seasonal drainage/pond 200a.

Photograph 8. Downstream view of Drainage 203b.

Photograph 9. Upstream view of perennial Drainage 207a. Portion of drainage is a federal wetland.

Photograph 10. View of Drainage 207c, Soil Pit 4.

Photograph 11. Upstream view of perennial Drainage 208. Drainage 208 is a seep tributary to Drainage 207.

Photograph 12. View of perennial seep associated with Drainage 209.

Photograph 13. Downstream view of Drainage 212.

Photograph 14. Upstream view of Drainage 214.

Photograph 15. Downstream view of Drainage 218.

Photograph 16. Downstream view of Drainage 223b.

Photograph 17. Downstream view of Drainage 224f (Soil Pit 2 –wetland).

Photograph 18. Upstream view of Drainage 230b.

Photograph 19. View of Drainage 246.

Photograph 20. Upstream view of Drainage 249.

Photograph 21. Downstream view of Drainage 262b.

Photograph 22. Downstream view of Drainage 266.

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APPENDIX E

Additional Dominant Botanical Species Identified in Drainages in Amended Survey Area

Appendix E
Additional Dominant Botanical Species Identified in Drainages in Amended Survey Area

Family Name	*Scientific Name*	Common Name
Asteraceae (Compositae)	*Conyza canadensis*	horseweed
	Corethrogyne filaginifolia	California aster
	Gnaphalium stramineum	cudweed
	Stephanomeria exigua	small wreath-plant
	Tetradymia comosa	cotton-thorn
Brassicaceae (Cruciferae)	*Rorippa nasturtium-aquaticum*	watercress
	Sisymbrium altissimum	tumble mustard
Ericaceae	*Arctostaphylos glauca*	big-berry manzanita
Fabaceae	*Lotus scoparius*	short-wing deerweed
Geraniaceae	*Erodium cicutarium*	stork's bill
Juncaceae	*Juncus mexicanus*	Mexican rush
	Juncus bufonius	toad rush
Lamiaceae (Labiatae)	*Trichostema lanatum*	woolly bluecurls
Onagraceae	*Epilobium ciliatum*	willowherb
Poaceae (Gramineae)	*Achnatherum coronatum*	giant stipa
	Hordeum murinum	mouse barley
	Nassella lepida	foothill needlegrass
Portulacaceae	*Portulaca oleracea*	common purslane
Polemoniaceae	*Eriastrum eremicum*	desert woolly-star
Salicaceae	*Salix gooddingii*	Goodding's willow
Saururaceae	*Anemopsis californica*	yerba mansa
Scrophulariaceae	*Mimulus guttatus*	seep monkey flower
Solanaceae	*Nicotiana attenuata*	coyote tobacco
Urticaceae	*Urtica dioica*	hoary nettle

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