

3.7 Biological Resources and Wetlands

This section describes the regulatory setting and the affected environment for biological resources; the impacts that would result from implementation of the Fresno to Bakersfield Locally Generated Alternative (F-B LGA); and project design features and mitigation measures applicable to the F-B LGA that would reduce these impacts. This Draft Supplemental EIR/EIS compares the F-B LGA to the complementary portion of the Preferred Alternative that was identified in the *Fresno to Bakersfield Section California High-Speed Train Final Project EIR/EIS*. As discussed in Section 1.1.3 of this Draft Supplemental EIR/EIS, the complementary portion of the Preferred Alternative consists of the portion of the BNSF Alternative from Poplar Avenue to Hageman Road and the Bakersfield Hybrid from Hageman Road to Oswell Street (further referenced as the “May 2014 Project” in this Draft Supplemental EIR/EIS). Since the Fresno to Bakersfield Section Final EIR/EIS does not evaluate the May 2014 Project as a discrete subsection of the Fresno to Bakersfield Project (as it did for example for the Allensworth Bypass), affected environment and impact summary discussion included in this section for the May 2014 Project has been extrapolated from the available information contained within the Fresno to Bakersfield Section Final EIR/EIS.

As described in the Preface and Section 2.1 of this Draft Supplemental EIR/EIS, this section also addresses potential effects on the Buena Vista Lake ornate shrew (BVLOS; *Sorex ornatus relictus*) for the portion of the Fresno to Bakersfield Section extending from East American Avenue in Fresno County to Poplar Avenue in Kern County (the northern terminus of the F-B LGA and May 2014 Project alignments). At the time of the preparation of the Fresno to Bakersfield Section Final EIR/EIS, the range for the BVLOS, a federally endangered species, did not extend into the proposed Fresno to Bakersfield study area, and was therefore not evaluated. New studies now reflect that the range for this species overlaps with the Fresno to Bakersfield Section of the HSR System. The U.S. Fish and Wildlife Service (USFWS) issued an addendum to the Fresno to Bakersfield Biological Opinion (USFWS 2014), which identified the potential effects of the construction activities north of Poplar Avenue on BVLOS. The USFWS determined that the northern limit of BVLOS range is the Kings River in Kings County. It determined that impacts to BVLOS habitat resulting from the HSR project would be small relative to the suitable habitat for BVLOS (USFWS 2017, pg. 29). The California High-Speed Rail Authority (Authority) and the Federal Railroad Administration (FRA) considered the project construction north of Poplar in light of the new information provided by USFWS and determined that a supplemental EIR/EIS for the construction north Poplar Avenue was not warranted. This section of the Draft Supplemental EIR/EIS includes an evaluation of the impacts to the BVLOS for the portion of the Fresno to Bakersfield Section for the F-B LGA and May 2014 Project alignments (Sections 3.7.3, 3.7.4, and 3.7.5).

The term “biological resources” includes special-status plant and wildlife species, habitats of concern (including special-status plant communities, jurisdictional waters, critical habitat, conservation areas [i.e., lands that are protected because of their recognized ecological values], protected trees, and wildlife movement corridors).

This section summarizes detailed information contained in the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017).

3.7.1 Regulatory Setting

Federal, state, and local laws, regulations, orders, or plans relevant to biological resources affected by the project are presented below. National Environmental Policy Act and California Environmental Quality Act (CEQA) requirements for assessment and disclosure of environmental impacts are described in Section 3.1, Introduction, of this Supplemental EIR/EIS.

3.7.1.1 Federal

Federal regulations applicable to the F-B LGA are listed below and summarized in Table 3.7-1.

- Federal Endangered Species Act of 1973 (FESA) (United States Code [U.S.C.] Title 42, Part 4321 et seq.)
- Magnuson-Stevens Fishery Conservation and Management Act (U.S.C., Part 1801 et seq.)
- Clean Water Act, Amended in 1978
- U.S. Fish and Wildlife Coordination Act, Amended in 1965 (16 U.S.C. Sections 661 to 667[e] et seq.)
- Migratory Bird Treaty Act (U.S.C. Title 16, Part 703 to 712)
- Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447)
- Bald and Golden Eagle Protection Act (U.S.C. Title 16, Part 668 to 668[d], 54 Statute 250)
- Protection of Wetlands (Executive Order 11990)
- Protection of Migratory Bird Populations (Executive Order 13186)
- Invasive Species (Executive Order 13112)

3.7.1.2 State

State regulations applicable to the F-B LGA are listed below and summarized in Table 3.7-2.

- California Endangered Species Act (CESA; California Fish and Game Code Sections 2050 to 2085)
- California Fish and Game Code(Sections 3511, 4700, 5050, and 5515 [Fully Protected Species]); (Sections 3503, 3503.5, and 3513 [Nesting Bird Protections]); (Section 1600 et seq. [Lake and Streambed Alteration])
- Natural Community Conservation Planning Act (California Fish and Game Code Sections 2800 to 2835)
- California Native Plant Protection Act (California Fish and Game Code Sections 1900 to 1913)
- Porter-Cologne Water Quality Control Act (Section 13260[a])

3.7.1.3 Regional and Local

Local and regional municipal plans pertaining to the preservation and protection of biological resources are addressed in the various general plans for Kern County, and for the cities of Shafter and Bakersfield. These regulations are discussed in further detail in Section 3.3 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 3-5 to 3-7).

Table 3.7-1 Federal Laws and Regulations

Policy Title	Summary	Compliance Action
Federal		
Endangered Species Act of 1973 (federal ESA) (42 U.S.C. 4321 et seq.)	<p>The federal ESA and subsequent amendments provide guidance for conserving federally listed species and the ecosystems upon which they depend.</p> <p><u>Section 9 (Prohibited Acts):</u> Section 9 of the federal ESA and its implementing regulations prohibit the “take” of any fish or wildlife species listed under the federal ESA as endangered or threatened, unless otherwise authorized by federal regulations. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Take includes the modification of a listed species’ habitat. Section 9, prohibits a number of specified activities with respect to endangered and threatened plants as well as adverse modifications to critical habitat.</p> <p><u>Section 7 (Interagency Consultation and Biological Assessments):</u> Section 7 of the federal ESA requires federal agencies to consult with the USFWS or the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS), as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered fish, wildlife, or plant species or result in the destruction or adverse modification of designated critical habitat for any such species.</p> <p><u>Section 10 (Habitat Conservation Plans):</u> Section 10 of the federal ESA provides a process by which nonfederal entities may obtain an Incidental Take Permit from the USFWS or NMFS for otherwise lawful activities that might incidentally result in “take” of endangered or threatened species, subject to specific conditions.</p>	<p>In compliance with Section 7 of the federal ESA, the Authority and FRA obtained a Biological Opinion from USFWS on April 1, 2014, and made a No Effect determination for species regulated by NMFS in June 2011. The Authority and FRA obtained a second Biological Opinion on July 28, 2017 addressing changes to the Preferred Alignment and considering effects to the Buena Vista Lake ornate shrew. The F-B LGA was not included in either the April 1, 2014 or July 28, 2017 Biological Opinions. However, the Authority and FRA have determined that the F-B LGA is consistent with findings in both Biological Opinions. The Authority will require the Design/Build contractor to implement the conservation measures identified in both the 2014 and 2017 Biological Opinions.</p>
Magnuson-Stevens Fishery Conservation and Management Act (U.S.C. Section 1801 et seq.)	<p>The amended Magnuson-Stevens Fishery Conservation and Management Act, also known as the Sustainable Fisheries Act (Public Law 104-297), requires that all federal agencies consult with NMFS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat of commercially managed marine and anadromous fish species.</p>	<p>There are no Essential Fish Habitats regulated by NMFS under the Magnuson-Stevens Fishery Conservation and Management Act within the project action area.</p>

Policy Title	Summary	Compliance Action
Clean Water Act (CWA)	<p>The federal CWA serves as the primary federal law protecting the quality of the nation's surface waters, including wetlands.</p> <p><u>Section 401</u>: Under the CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the U.S., must obtain certification from the state in which the discharge would originate or from the interstate water pollution control agency with jurisdiction over affected waters.</p> <p><u>Section 402</u>: Under the CWA Section 402, all point source discharges, including, but not limited to, construction-related storm water discharges to surface waters are regulated through the National Pollutant Discharge Elimination System (NPDES) program. Project sponsors must obtain an NPDES permit from the SWRCB.</p> <p><u>Section 404</u>: Under the CWA Section 404, the USACE and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged and fill materials into the waters of the U.S. Project sponsors must obtain a permit from USACE for discharges of dredged or fill materials into jurisdictional waters over which the USACE determines that it will exert jurisdiction.</p>	<p>The Authority and FRA would apply for a Section 401 permit from SWRCB.</p> <p>The Authority and FRA would apply for a Section 402 permit from SWRCB.</p> <p>The Authority and FRA would apply for a Section 404 permit from USACE. The USACE cannot issue a Section 404 permit until SWRCB issues a Section 401 permit. The SWRCB cannot issue the Section 401 or 402 permits until the Authority approves a Notice of Decision.</p> <p>The Authority would require the Design/Build contractor to implement the permit terms and conditions conservation measures identified in the Section 401, Section 402 and Section 404 permits.</p>
U.S. Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667[e] et seq.)	The U.S. Fish and Wildlife Coordination Act applies to any federal project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with USFWS and the appropriate state wildlife agency.	As state and federal agencies, the Authority and FRA are in compliance with U.S. Fish and Wildlife Coordination Act through consultation with USFWS and NMFS under Section 7 of the federal ESA and with California Department of Fish and Wildlife for California Endangered Species Act consultation.
Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712)	The Migratory Bird Treaty Act (MBTA) protects selected species of birds that cross international boundaries (i.e., species that occur in more than one country at some point during their life cycle). The law prohibits the take of such species, including the removal of nests, eggs, and feathers.	The Authority and FRA would comply with the MBTA through implementation of the mitigation measures identified in Section 3.7.7, Mitigation Measures.
Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108-447)	The Migratory Bird Treaty Reform Act amends the MBTA (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes.	

Policy Title	Summary	Compliance Action
Bald and Golden Eagle Protection Act (16 U.S.C. Sections 668 to 668[d], 54 Statute 250)	The Bald and Golden Eagle Protection Act prohibits the destruction of bald eagles (<i>Haliaeetus leucocephalus</i>) and golden eagles (<i>Aquila chrysaetos</i>) and their occupied and unoccupied nests.	The Authority and FRA would comply with the Bald and Golden Eagle Protection Act through implementation of the mitigation measures identified in Section 3.7.7, Mitigation Measures. The Authority with require the Design/Build contractor to implement the conservation measures identified in this document
Protection of Wetlands (Executive Order 11990)	Executive Order 11990 aims to avoid direct or indirect impacts on wetlands from Federal or federally approved projects when a practicable alternative is available. If wetland impacts cannot be avoided, all practicable measures to minimize harm must be included.	The Authority and FRA would comply with Executive Order (EO) 11990 through the Section 404 permitting process with USACE.
Protection of Migratory Bird Populations (Executive Order 13186)	EO 13186 directs each federal agency taking actions that have or may have adverse impact on migratory bird populations to work with USFWS to develop a memorandum of understanding that will promote the conservation of migratory bird populations.	The Authority and FRA will be in compliance with EO 13186 through implementation of mitigation measures identified in Section 3.7.7, Mitigation Measures. The Authority with require the Design/Build contractor to implement the conservation measures identified in this document.
Invasive Species (Executive Order 13112)	EO 13112 requires federal agencies to work cooperatively to prevent and control the introduction and spread of invasive plants and animals.	The Authority and FRA would comply with EO 13112 through the implementation of mitigation measures identified in Section 3.7.7, Mitigation Measures. The Authority with require the Design/Build contractor to implement the conservation measures identified in this document.

Authority = California High-Speed Rail Authority
 CWA = Clean Water Act
 EO = Executive Order
 EPA = Environmental Protection Agency
 ESA = Endangered Species Act
 F-B LGA = Fresno to Bakersfield Locally Generated Alternative
 FRA= Federal Railroad Administration
 MBTA = Migratory Bird Treaty Act
 NMFS = National Marine Fisheries Service
 NPDES = National Pollutant Discharge Elimination System
 SWRCB = State Water Resource Control Board
 USACE = United States Army Corps of Engineers
 U.S.C. = United States Code
 USFWS = United States Fish and Wildlife Service

Table 3.7-2 State Laws and Regulations

Policy Title	Summary	Compliance Action
State		
California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2085)	CESA mandates that state agencies not approve a project that would jeopardize the continued existence of species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. CESA also prohibits the unpermitted take of any fish, wildlife, or plant species listed as endangered or threatened, or designated as candidates for listing, under CESA. Take refers to mortality, injury, capture, or entrapment of the listed species itself and not the modification of a listed species habitat. Similar to the federal ESA, CESA contains a procedure for CDFW to issue an incidental take permit authorizing the take of listed and candidate species incidental to an otherwise lawful activity, subject to specified conditions.	The Authority would comply with the requirements of CESA through early coordination with CDFW and submittal of a Section 2081 Incidental Take Permit application. The Authority will require the Design/Build contractor to implement the conservation measures identified in the Section 2081-Incidental Take Permit.
California Fish and Game Code	<p><u>Sections 3511, 4700, 5050, and 5515 (Fully Protected Species)</u>: The California Fish and Game Code designates 37 fully protected species and prohibits the take or possession at any time of such species with certain limited exceptions.</p> <p><u>Sections 3503, 3503.5, and 3513 (Nesting Bird Protections)</u>: Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by code or any regulation made pursuant thereto. Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.</p> <p><u>Section 1600 et seq. (Lake and Streambed Alteration)</u>: Section 1600 et seq. of the California Fish and Game Code requires notifying the CDFW prior to any project activity undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel.</p>	<p>The Authority would comply with <u>Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code</u> through project design measures to avoid take of all fully protected species, coordination with CDFW, and the mitigation measures identified in Section 3.7.7, Mitigation Measures. The Authority will require the Design/Build contractor to implement the identified conservation measures to avoid take of fully protected species.</p> <p>The Authority would comply with <u>Sections 3503, 3503.5, and 3513 of the California Fish and Game Code</u> through avoidance and minimization measures identified in Section 3.7.7, Mitigation Measures, to reduce take of protected species. The Authority will require the Design/Build contractor to implement the conservation measures identified in the document.</p> <p>The Authority would comply with the requirements of <u>Section 1600 et seq.</u> through coordination with CDFW and submittal of a Section 1602 Lake and Streambed Alteration Agreement application. The Authority will require the Design/Build contractor to implement the conservation measures identified in Section 1602 Lake and Streambed Alteration Agreement.</p>

Policy Title	Summary	Compliance Action
<p>Natural Communities Conservation Planning Act (California Fish and Game Code Sections 2800 to 2835)</p>	<p>The Natural Communities Conservation Planning Act was enacted to encourage broad-based planning to provide for effective protection and conservation of the state's wildlife resources while continuing to allow appropriate development and growth. Natural Community Conservation Plans (NCCP) may be implemented, which identifies measures necessary to conserve and manage natural biological diversity within the planning area, while allowing compatible and appropriate economic development, growth, and other human uses.</p>	<p>The project does not require the preparation of the NCCP and does not occur within an approved NCCP. The Authority would comply with the requirements of <u>Sections 2800 to 2835 of the California Fish and Game Code</u> through coordination with CDFW.</p>
<p>California Native Plant Protection Act (California Fish and Game Code Sections 1900 to 1913)</p>	<p>The California Native Plant Protection Act requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. The California Native Plant Protection Act gives the CDFW the power to designate native plants as "endangered" or "rare" and prohibits the take of such plants, with certain exceptions.</p>	<p>The Authority would comply with the requirements of <u>Sections 1900 to 1913 of the California Fish and Game Code</u> through coordination with CDFW and, if warranted, submittal of a Section 2081 Incidental Take Permit application. The Authority with require the Design/Build contractor to implement the conservation measures identified in the Section 2081 Incidental Take Permit.</p>
<p>Porter-Cologne Water Quality Control Act</p>	<p>Section 13260(a) of the California Water Code (Porter-Cologne Water Quality Control Act) requires any person discharging waste or proposing to discharge waste, other than to a community sewer system, within any region that could affect the quality of the waters of the state to file a Report of Waste Discharge. The SWRCB is responsible for the implementation of the act.</p>	<p>The Authority would comply with the requirements of the Porter-Cologne Water Quality Control Act through coordination with the SWRCB and submittal of a Section 401 Water Quality Certification application and Section 402 NPDES permit. The Authority with require the Design/Build contractor to implement the terms and conditions associated with the Section 401 and Section 402 permits.</p>

Authority = California High-Speed Rail Authority
 CDFW = California Department of Fish and Wildlife
 CESA = California Endangered Species Act
 CWA = Clean Water Act
 MBTA = Migratory Bird Treaty Act
 NCCP = Natural Community Conservation Plans
 NPDES = National Pollutant Discharge Elimination System
 SWRCB = State Water Resource Control Board

3.7.1.4 Habitat Conservation Plans in the Project Vicinity

A Habitat Conservation Plan (HCP) is a document that must accompany an incidental take permit request under Section 10 of the federal ESA. HCPs are required to include outlines on methods for maintaining, enhancing, and protecting habitats needed for the conservation of specific species as well as including plans for permanent protection of habitats, restoration of habitats, and measures to minimize impacts. Three HCPs have been identified in the project vicinity.

- Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) (City of Bakersfield and Kern County 1994)
- Draft Kern County Valley Floor Habitat Conservation Plan (VFHCP) (Garcia and Associates 2006)
- Pacific Gas & Electric Company San Joaquin Valley Operations and Maintenance Habitat Conservation Plan (Jones & Stokes 2006)

These regulations are discussed in further detail in Section 5.1.5 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-3 and 5-4).

3.7.2 Methods for Evaluating Impacts

This section describes the methods used for evaluating potential impacts on biological resources including the development of study areas, background review and field surveys. Section 6.1.1 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 6-1 and 6-2) provides more detail on the methods used for evaluating impacts.

3.7.2.1 Methods for Evaluating Effects under National Environmental Policy Act

In the Fresno to Bakersfield Section Final EIR/EIS, analysts applied specified thresholds for each resource topic to assess whether the intensity of each impact is negligible, moderate, or substantial for the Build Alternatives, and provided a conclusion of whether the impact was “significant.” Since the Fresno to Bakersfield Section Final EIR/EIS does not evaluate the May 2014 Project as a discrete subsection of the Fresno to Bakersfield Project (as it did for example for the Allensworth Bypass), it does not provide conclusions using intensity thresholds for the May 2014 Project. Therefore, intensity thresholds are not used for the F-B LGA. Instead, the evaluation of impacts under National Environmental Policy Act in this Draft Supplemental EIR/EIS focuses on a comprehensive discussion of the project’s potential impacts in terms of context, intensity, and duration and provides agency decision makers and the public with an apples-to-apples comparison between the May 2014 Project and the F-B LGA.

3.7.2.2 CEQA Significance Criteria

For the purposes of this project, the following thresholds are used to define a significant impact on biological resources. These thresholds are based on issues identified in Appendix G of the CEQA Guidelines. The project would result in a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS).
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands, as defined by Clean Water Act Section 404 (including canals, ditches, retention and detention basins, and seasonal riverine) through direct removal, filling, hydrological interruption, indirect or cumulative effects, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, state, or federal HCP.

Mandatory findings of significance within Section 15065 of the CEQA guidelines require the lead agency to determine whether a project may have a significant effect on the environment where substantial evidence indicates that negative impacts may occur to biological resources. The negative conditions are defined as: (1) the project has the potential to substantially degrade the quality of the environment, reduce habitat of wildlife species, cause wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce or restrict the range of a listed species; (2) the project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals; and (3) the project has environmental effects that are individually limited but cumulatively considerable. Under CEQA's mandatory findings of significance, the project would result in a significant impact if it would:

- Substantially reduce the habitat of a fish or wildlife species.
- Cause a fish or wildlife population to drop below self-sustaining levels.
- Threaten to eliminate a plant or animal community.
- Substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

General indicators of significance, based on guidelines or criteria in National Environmental Policy Act, CEQA, the Clean Water Act, CESA, FESA, and regulatory guidance from the FRA include:

- Potential modification or destruction of habitat, movement corridors, or breeding, feeding, and sheltering areas for endangered, threatened, rare, or other special-status species.
- Potential measurable degradation of protected habitats, sensitive vegetation communities, wetlands, or other habitat areas identified in plans, policies, or regulations.
- Potential loss of a substantial number of any species that could affect the abundance or diversity of that species beyond the level of normal variability.
- Potential indirect impacts, both temporary and permanent, from excessive noise that elicits a negative response and avoidance behavior.

3.7.2.3 Definitions and Background Review Criteria

Study Areas

Study areas were developed for the various biological resources (jurisdictional waters, plants, wildlife, and habitats) that occur or have the potential to occur in the study area. Details on how the study areas were established are described below and Figure 3.7-1 shows how the study areas are spatially distributed.

The Wetland Study Area is the project footprint plus a 250-foot buffer to evaluate direct and indirect impacts on wetlands and the special-status wildlife species that use them. Direct impacts on wetlands are within the project footprint and indirect impacts are evaluated within the 250-foot buffer.

The Special-Status Plant Study Area is the project footprint to evaluate direct impacts plus a 100-foot buffer to evaluate indirect impacts on sensitive plant resources (including special-status plants, special-status plant communities, and protected trees).

The Habitat Study Area is the project footprint plus a 1,000-foot buffer to evaluate direct and indirect impacts on habitats and the special-status wildlife species that use them. The Habitat Study Area was divided into two areas: a core Habitat Study Area and an auxiliary Habitat Study Area. A supplemental Habitat Study Area was identified for select species that required further analysis based on agency- or protocol-recommended species-specific buffers:

- The core Habitat Study Area includes the proposed project footprint and a 250-foot buffer. The core Habitat Study Area was the area that was physically surveyed (where access was granted).
- The auxiliary Habitat Study Area, which extends from the edge of the core area laterally 750 feet, was surveyed through extrapolation of observations made in the core Habitat Study Area, from aerial photograph interpretation, and in windshield surveys.
- The supplemental Habitat Study Area extends laterally from the project footprint up to 1.24 miles, depending on the target species, and identifies species-specific habitats based on aerial photograph interpretation and documented occurrences of the species, and on observations of special-status species and their habitats made in the field.

Literature Review

Before conducting field surveys, the Authority reviewed existing background information to identify the locations of jurisdictional waters, special-status plant and wildlife species, special-status plant communities, protected (heritage) trees, wildlife movement areas, natural lands, and federally designated or proposed critical habitat units recorded in the F-B LGA.

Jurisdictional Waters

The methodology for the identification of wetlands and other waters was largely established in the *Central Valley Biological Resources and Wetland Survey Plan*, which was prepared in part for the Fresno to Bakersfield Section (Authority and FRA [2009] 2011a).

To determine the location, type, and potential extent of known special aquatic resource features, geographic information system (GIS) data were obtained from the following sources:

- National Wetlands Inventory (USFWS 2015)
- National Hydrography Dataset (United States Geological Survey [USGS] 2015)
- Holland Central Valley Vernal Pool Complexes dataset, also known as the CDFW Central Valley Vernal Pool Habitat dataset (Holland 2009)
- 100-Year Flood Plain (Federal Emergency Management Agency 2008)

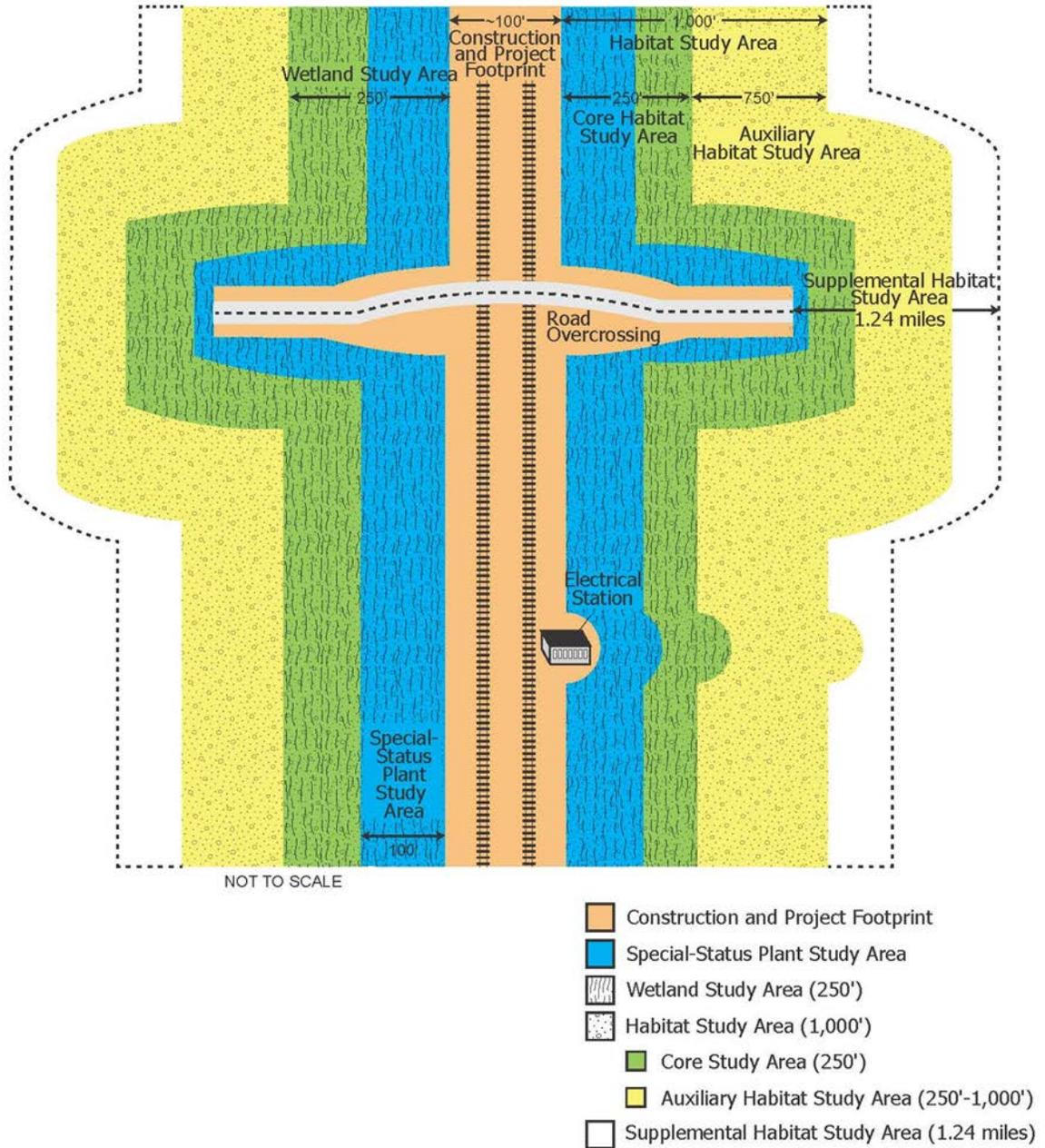


Figure 3.7-1 Schematic of Biological Resource Study Areas

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In addition to conducting background research, and before conducting the field surveys, the following sources of information were reviewed for the F-B LGA:

- Recent aerial photographs of the Wetland Study Area and vicinity (ESRI Virtual Earth Imagery Services 2016; Google Earth Imagery 2016)
- Soil Survey of Kern County (United States Department of Agriculture 1988)
- Standard biological references and field guides, including the Jepson Manual (Baldwin, B.G, et al., editors 2012)
- Arid West Regional Wetland Plant List (United States Army Corps of Engineers [USACE] 2014)
- USGS 7.5-minute (1:24,000) topographical quadrangle sheets (Wasco, Rio Bravo, Rosedale, Oildale, Oil Center, and Lamont)
- Recent and historical regional precipitation records

Special-Status Species and Special-Status Plant Communities

A list of special-status species, designated and proposed critical habitat, special-status plant communities, and wildlife movement corridors known or potentially occurring in the Special-Status Plant Study Area and the Habitat Study Area was reviewed based on existing federal, state, and private databases, and agency information. Database queries included all reported occurrences within 10 miles of the F-B LGA or potentially within the various USGS 7.5-minute quadrangles (quads) that overlapped with the F-B LGA and their eight surrounding quads (collectively referred to as a nine-quad search area). The following data sources were reviewed:

- USFWS Sacramento Field Office Web Site: A list of federal candidate, proposed, threatened, and endangered special-status wildlife and plant species, and their federally-designated or proposed critical habitats, known or having the potential to occur within a nine-quad search area around the F-B LGA was generated (USFWS 2017).
- California Natural Diversity Database (CNDDDB)/RareFind: A list of special-status plant and wildlife species, CDFW-designated special-status plant communities, and California Native Plant Society (CNPS) listed special-status plant species was prepared through a two-fold inquiry consisting of a standard nine-quad search using the RareFind program and a GIS mapping exercise of all occurrences within 10 miles of the F-B LGA. This two-fold inquiry was performed to ensure that all special-status species, including those listed by the CDFW as “sensitive”, whose geographic location data had been suppressed, were captured in the query (CDFW 2017).
- CNPS Online Inventory of Rare and Endangered Plants of California: A list of CNPS special-status plant species that may occur in the nine-quad search area was generated using the online inventory database (CNPS 2017).
- California Wildlife Habitat Relationship (CWHR) System: The list of CDFW special-status wildlife species was augmented through a GIS exercise that overlaid the F-B LGA with wildlife species (amphibians, reptiles, birds, and mammals) range maps available through the CWHR System (CDFW 2016). This query captured additional special-status species whose known geographic range occurs within 10 miles of the F-B LGA (CDFW 2016).
- USFWS Recovery Plans: Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998) and the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005a), and a number of Federal Register publications, public agency technical reports, survey guidelines, and other published reports.
- USFWS Birds of Conservation Concern for Region 8 (California and Nevada) (USFWS 2008).

Protected Trees

To identify the requirements for protected trees, county and city ordinances, and codes were reviewed, as well as available general plans and HCPs:

- Kern County General Plan, Land Use, Conservation and Open Space Element, General Provisions, Section 1.10.5 – Threatened and Endangered Species, Policies 27 through 32, Implementation Measures Q through S, Section 1.10.10 – Oak Tree Conservation, Policies 65 and 66, Implementation Measure KK (Kern County Planning Department 2007)
- Kern County Municipal Code, Title 13, Chapter 13.16, Nature Preservation Areas (Kern County 2010)
- Kern County Municipal Code, Title 19, Chapter 19.73, Kern River Combining District (Kern County 2010)
- The Kern River Plan Element, Chapter 3, Section 3.3 - Riparian Vegetation and Wildlife Habitat, Goals, and Policies 1 through 10 (Kern County Planning Department 1985)
- Metropolitan Bakersfield Habitat Conservation Plan (City of Bakersfield and Kern County 1994)
- Shafter Code of Ordinances, Title 12, Chapter 12.28, Trees and Shrubs (City of Shafter 2010)
- Bakersfield Municipal Code, Title 12, Chapter 12.40, Street Trees; and Chapter 12.56, Parks (City of Bakersfield 2010)

Wildlife Movement Corridors

Known wildlife movement corridors were identified through a review of published technical reports and information available from regulatory agencies. The following data sources were obtained and used as a preliminary guide to understanding the location and species-specific requirements of the wildlife movement corridors that have been identified in the vicinity of the F-B LGA:

- Wildlife movement corridors identified in *Missing Linkages: Restoring Connectivity to the California Landscape* (Penrod et al. 2001), which was prepared in response to the 2000 Missing Linkages conference.
- *South Coast Missing Linkage: A Linkage Design for the Tehachapi* (Penrod et al. 2003), which provided a more in-depth analysis of the Bakersfield/Tehachapi region based on the earlier Missing Linkages report.

3.7.2.4 Field Surveys

This section describes the various field surveys conducted in the study areas and summarizes the methods used to complete the field surveys. Field data collection relied heavily on the results documented in Section 4.2 of the *Fresno to Bakersfield Section Biological Resources and Wetlands Technical Report* (pages 4-4 through 4-34). Based on the information collected and described in Section 4.2 of the *Fresno to Bakersfield Section Biological Resources and Wetlands Technical Report* (pages 4-4 through 4-34) and the literature and aerial photograph review conducted for the F-B LGA, the Authority and FRA determined that the habitat conditions for the F-B LGA are generally low quality and commensurate to equivalent habitat conditions identified for the southern portion of the Fresno to Bakersfield Section.

Permission to enter was requested on August 24, 2015 for a total of 54 parcels (534.31 acres) but only granted for 8 parcels (18.36 acres).

Reconnaissance Field Trip

A reconnaissance field trip was conducted to review and obtain preliminary information for various field survey efforts, and to determine health and safety hazards, resources present, and potential biological resource issues in the F-B LGA Wetland Study Area. The reconnaissance

survey was conducted on July 30–31, 2015 prior to permission to enter authorization. Since no permission to enter authorization was available at the time of the survey, all ground-truthing and photo-documentation were conducted from public roads.

Delineation of Jurisdictional Waters

The delineation of jurisdictional waters was conducted on August 27, 2015 and December 2–3, 2015, according to the methods described in the *Central Valley Biological Resources and Wetland Survey Plan*, which was prepared in part for the Fresno to Bakersfield Section (Authority and FRA [2009] 2011a).

For the F-B LGA, Waters of the State and CDFW Waters are the same as Waters of the US and are treated as such for delineation purposes. Wetland scientists conducted a detailed delineation of jurisdictional waters of the F-B LGA Wetland Study Area. The delineations of jurisdictional waters were conducted for the purposes of obtaining a Preliminary Jurisdictional Determination according to USACE Regulatory Guidance Letter 08–02 (USACE 2008a) and satisfying State Water Resources Control Board and CDFW criteria for mapping waters of the state. The delineation of jurisdictional waters did not require or attempt to determine the jurisdictional status of the various features.

Wetland scientists recorded all jurisdictional waters both manually on map sheets and electronically on sub-meter-accuracy global positioning system units, where access was permitted, using the methods described in the USACE *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the Regional Supplement to the *Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008b). The field maps covered the F-B LGA Wetland Study Area in the form of aerial photographs at a scale of 1-inch equals 200 feet.

A separate technical report, the *F-B LGA Second Supplemental Preliminary Jurisdictional Waters and Wetlands Delineation Report* (Authority and FRA 2017a) was prepared to document the findings from the F-B LGA Wetland Study Area and was verified by the USACE on June 1, 2017.

Condition Assessments and Watershed Profiles

The aquatic features in the F-B LGA Wetland Study Area occur in essentially the same plant communities as the aquatic features in the Fresno to Bakersfield Wetland Study Area and the functions and values of the aquatic features are very similar. Additionally, the overall value of the features are low (with the exception of the Kern River). Consequently, data to develop conditions assessments and watershed profiles was extrapolated from the *Fresno to Bakersfield Watershed Evaluation Report* (2013).

Botanical Surveys

Botanical surveys are focused plant surveys for special-status plants during the normal blooming period of each species in areas identified as suitable habitat. Prior to the biological survey effort for the F-B LGA, it was determined that access was required for 54 properties to obtain full survey coverage of potential habitat for special-status plants; of those, permission to enter was only received for 9 properties and limited to the Kern River corridor, which constituted access to approximately 25 percent of the total acreage (28.56 acres of 111.21 acres) of potentially suitable special-status plant habitat in the Special-Status Plant Study Area. Therefore, definitive presence/absence conclusions cannot be made for all special status plant species.

However, unsurveyed habitats that could support special-status plant species were identified through visual surveys (i.e., from adjacent public roads or parcels) and aerial interpretation, consistent with the methodology reflected in the Fresno to Bakersfield Section Final EIR/EIS, as described below.

The potential for special-status plants to occur in the Special-Status Plant Study Area was based on the results of Section 5.3.1 of the *Fresno to Bakersfield Section Biological Resources and Wetlands Technical Report* (pages 5-59 through 5-91) and Section 5.2 of the *Fresno to Bakersfield Section Biological Assessment* (pages 5-7 through 5-14). The Authority determined this methodology acceptable based on several comparable criteria between the F-B LGA Special-

Status Plant Study Area and the May 2014 Project Special-Status Plant Study Area. Criteria used to validate this methodology approach includes, but is not limited to, the relative close proximity of the two alignments, presence of the same habitats in both Special-Status Plant Study Areas, overall regional low quality of habitat described in the California Rapid Assessment Method findings for both alignments, the majority of the F-B LGA Special-Status Plant Study Area consisting of urban or agricultural land with very little natural habitat, and negative results for special-status plant species presence for the May 2014 Project.

Trees

Protected trees in the Special-Status Plant Study Area were identified based on county and local regulations. When permission to enter was granted, surveyors classified trees into groups, such as landscape/ornamental trees, or by species such as Fremont cottonwood. In areas where permission to enter was not granted, survey crews mapped “unknown” trees, using photo interpretation and ArcGIS software.

Wildlife Habitat Assessment

Wildlife habitat assessments were conducted according to the methods described in the *Central Valley Biological Resources and Wetland Survey Plan*, which was prepared in part for the Fresno to Bakersfield Section (Authority and FRA [2009] 2011a). Wildlife habitat assessment field surveys were conducted throughout the F-B LGA Habitat Study Area to identify and map CWHR wildlife habitat types using the wildlife habitat descriptions presented in *A Guide to Wildlife Habitats of California* (CDFG 1988) and the CWHR System (CDFW 2016). The wildlife habitat assessment was not intended to be a substitute for protocol-level surveys.

Due to property access restrictions, the similarity of habitat types between the F-B LGA Habitat Study Area and the Fresno to Bakersfield Habitat Study Area, and the general low quality of the habitat types present (orchards, urban), wildlife habitat assessment surveys in the F-B LGA Habitat Study Area were conducted primarily via windshield surveys from existing public roads. Where pedestrian surveys were conducted, surveys consisted of meandering transects. In areas where pedestrian surveys were not possible and properties were not visible from the public right-of-way, the wildlife habitat field assessment was augmented with aerial photo interpretation and extrapolation of observations made on adjacent and nearby parcels.

Wildlife Movement Corridors

The background review of wildlife movement/migration corridors identified in Section 5.7.1 of the *Fresno to Bakersfield Section Biological Resources and Wetlands Technical Report* (pages 5-213 through 5-219) was ground-truthed in the F-B LGA Habitat Study Area to determine the functionality of the identified movement corridors on both a local- and meta-population level. This field evaluation of potential movement corridors addressed their availability and suitability for migratory species, and identified changes in corridor quality on a rough landscape level. This evaluation was further augmented through a review of existing wildlife passages (such as culverts, washes, and automobile and train bridges) in the habitat survey area for signs of local wildlife movement. Potential migration barriers such as canals and roadways were also noted in the field.

3.7.3 Affected Environment

This section summarizes the existing biological resources within the study areas, which include regional setting, special-status species, habitats of concern (special-status plant communities, jurisdictional waters, critical habitat, essential fish habitat, conservation areas [i.e., lands that are protected because of their recognized ecological values], protected trees, and wildlife movement corridors). There are no applicable regional plans or policies pertaining to biological resources within the F-B LGA study area. However, there are four applicable regional plans, one recovery plan, and three Habitat Conservation Plans, applicable to the F-B LGA. More details are provided in Section 3.3 of the F-B LGA: Biological Resources and Wetlands Technical Report (Authority and FRA 2017: pages 3-5 through 3-8).

3.7.3.1 Summary of the May 2014 Project Affected Environment

The affected environment for the May 2014 Project is similar to the affected environment for the F-B LGA given the proximity of the alternatives to one another and the existing resources present. Similar to the F-B LGA, the May 2014 Project occurs primarily in an agricultural and urban setting, and the remaining natural areas are small and fragmented. The land cover categories identified in the May 2014 Project Habitat Study Area include agricultural lands, developed areas, natural and semi-natural areas, and aquatic communities.

Aquatic resources that could potentially be affected by the May 2014 Project include canals/ditches, artificial lacustrine (retention/detention basins), seasonal riverine, and seasonal wetland features. Most of the aquatic resources in the Shafter area and south to Bakersfield are artificial and result from agricultural operations, and all are in poor condition. Farther south along both alignments toward Bakersfield, there are less disturbed features associated with the Kern River.

In the Bakersfield region, urban land uses dominate the landscape. Portions of the May 2014 Project occur on barren land, and natural terrestrial communities are present, although limited in the landscape. The natural terrestrial communities highly fragmented, and typically disturbed or highly altered due to recent and past land use practices. The May 2014 Project has remnant portions of seasonal riverine features associated with the Kern River, which is in a less disturbed condition and thus has more habitat value.

Upland riparian areas within the May 2014 Project are associated with the Kern River as it flows through Bakersfield. These riparian areas are composed of the upland habitat between the river and the outer drip line of riparian vegetation along the river. The riparian areas are characterized primarily by willow trees and shrubby and herbaceous understory. The only special-status plant community that occurs within the May 2014 Project, black willow thickets, is associated with the Kern River. This riparian community is generally in relatively fair to good ecological condition; is associated with a river having varying levels of hydrologic manipulation; provides fair to good biological resources for plants and wildlife; and due to existing land uses in the region, has been physically reduced and restricted to narrow areas within this seasonal riverine feature. The existing acreage of the black willow thickets within the May 2014 Project Special-Status Plant Study Area is 7.06 acres.

The field surveys conducted within the accessible portions of the May 2014 Project Special-Status Plant Study Area identified no special-status plant species. However, special-status plant species have the potential to occur in areas of suitable habitat in parcels that were unsurveyed. Generally, these unsurveyed habitats have a low potential to support special-status plant species because suitable habitats and known occurrences of special-status plant species are rare in the May 2014 Project Special-Status Plant Study Area and throughout the Central Valley.

Forty-seven special-status wildlife species were determined to have a low, moderate, or high potential of occurring within the Habitat Study Area for the May 2014 Project. No special-status wildlife species have been observed in the footprint of the May 2014 Project; however, protocol-level surveys for special-status wildlife species were not conducted. The May 2014 Project is located primarily in agricultural and urban habitats, yet there is suitable, but limited, habitat for special-status amphibian, reptile, mammal, and bird species as well as other native wildlife species. Special-status wildlife species that may be affected by the May 2014 Project include: Kern brook lamprey; western spadefoot; coast horned lizard; burrowing owl, Swainson's hawk, and other raptors; Buena Vista Lake ornate shrew; San Joaquin kit fox; Tipton kangaroo rat; and special-status bats.

One habitat linkage, the Kern River riparian corridor, intersects the southern end of the May 2014 Project. The Kern River riparian corridor and associated natural lands extends from the eastern Sierra Nevada foothills to the western Coast Range foothills and connects the natural lands along the approximately 30-mile-long Kern River riparian corridor, including western satellite population areas of northeast Bakersfield identified in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998; Penrod et al. 2001).

Refer to the affected environment discussion for the F-B LGA, below, for descriptions of plant communities and land cover types and regional setting information.

3.7.3.2 Fresno to Bakersfield Locally Generated Alternative

Regional Setting

Historically, the Central Valley was characterized by California prairie, marshlands, valley oak savanna, and extensive riparian woodlands (Hickman 1993). Today, more than 80 percent of the Central Valley is covered by farms and ranches (Natural Resources Conservation Service 2006). Overall, the study areas are highly disturbed and fragmented because of urban, agricultural, railroad, highway, and local road land cover types. In a few areas, native vegetation remains relatively undisturbed, although invasive and nonnative plant species may occur in these areas. Areas that have not been recently plowed or disked, or that show no sign of having been disturbed in recent decades, are referred to as “natural areas” in this document.

Major land uses between Shafter and Bakersfield include urban (industrial, commercial, and residential), rural residential, and agricultural. Undeveloped natural areas that occur in the vicinity are primarily limited to the Kern River corridor.

Watershed Profile

The F-B LGA is in the Tulare Lake Basin; specifically, the project is in three USGS (hydrologic unit code eight) sub-watershed basins (Figure 3.7-2):

- Tulare–Buena Vista Lakes Watershed (18030012)
- Upper Poso Watershed (1803004)
- Middle Kern–Upper Tehachapi–Grapevine Watershed (1803003)

All of these watersheds are in the Tulare Lake Basin, which covers a large and diverse area in California. The profiles of each of the watersheds in the areas of the F-B LGA share many similarities across the Tulare Lake Basin. All of the watersheds are characterized by mostly protected headwaters.

Throughout the Tulare Lake Basin and across all the watersheds in the Wetland Study Area, the Central Valley has largely been manipulated through agriculture, transportation, and urban development. These conversions have resulted in the loss, manipulation, and degradation of jurisdictional waters through upper watershed impoundments, removal of riparian vegetation, and other hydrological manipulations such as watercourse diversion and irrigation canals. These activities have largely resulted in an extensive reduction of riparian habitat, loss of natural stream channel functions, the accretion of streams, and the loss of Tulare Lake, Buena Vista Lake, and Kern Lake as well as an extensive loss of other sensitive aquatic features (i.e., vernal pools and swales).

Furthermore, the historical and current land use patterns have blurred the boundaries of the watersheds through the construction of an extensive network of irrigation canals and ditches. Due to the general north-south orientation and linear nature of the F-B LGA, impacts on aquatic features occur along most of the alignment. However, F-B LGA has a relatively small footprint relative to the overall size of the watershed.

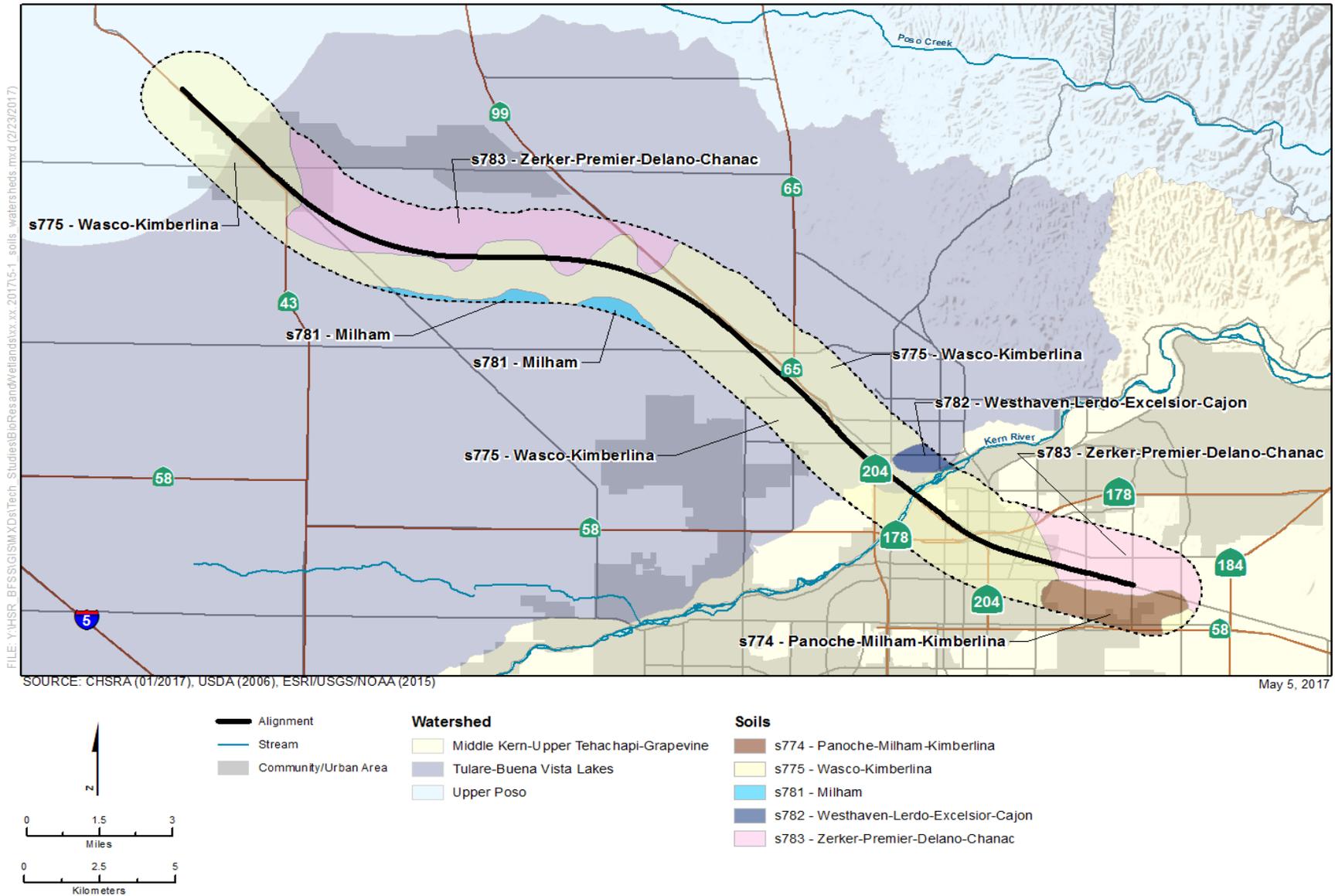


Figure 3.7-2 Soils and Watersheds

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Plant Communities and Land Cover Types

General Habitat Conditions – Terrestrial

The categories of terrestrial plant communities and land cover types that occur in the Habitat Study Area are summarized below, and are depicted on Figure 3.7-3. The plant communities and land cover types identified in the Habitat Study Area include agricultural lands, developed areas, and natural and semi-natural areas. Habitat conditions in the Habitat Study Area are discussed in detail in Section 5.2.2 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-9 through 5-15).

The following descriptions of plant communities and land cover types are based on *A Guide to Wildlife Habitats of California and the CWHR System* (CDFG 1988).

Agricultural Lands

Five types of agricultural land are found in the Habitat Study Area: cropland, irrigated hayfield, irrigated row and field crops, deciduous orchard, and vineyard (depicted on Figure 3.7-3). These agricultural lands are discussed in further detail in Section 5.2.2.1 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-13 and 5-14).

Developed Areas

Developed areas are characterized by various types of cover, including barren and urban (e.g., commercial/industrial, transportation corridors) and depicted on Figure 3.7-3. Developed areas are discussed in further detail in Section 5.2.2.1 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-14 and 5-15).

Natural and Semi-Natural Areas

The terms natural and semi-natural areas are used to distinguish the land uses and plant communities described in the subsequent sections from communities where current human influences substantially influence the plant composition and structure. While the natural and semi-natural plant communities have been altered to some extent by past and present human activities, the composition and structure of these communities are generally not actively managed or controlled. A distinction is also made between those habitats that are largely characterized by native plants and those in which the dominant plants are introduced species.

Natural and semi-natural areas are characterized by various types of cover, including annual grassland (depicted on Figure 3.7-3). Ruderal plant species are found along the margins and sometimes within natural and semi-natural habitat types. Natural and semi-natural areas are discussed in further detail in Section 5.2.2.1 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-10 through 5-13).

General Habitat Conditions – Aquatic

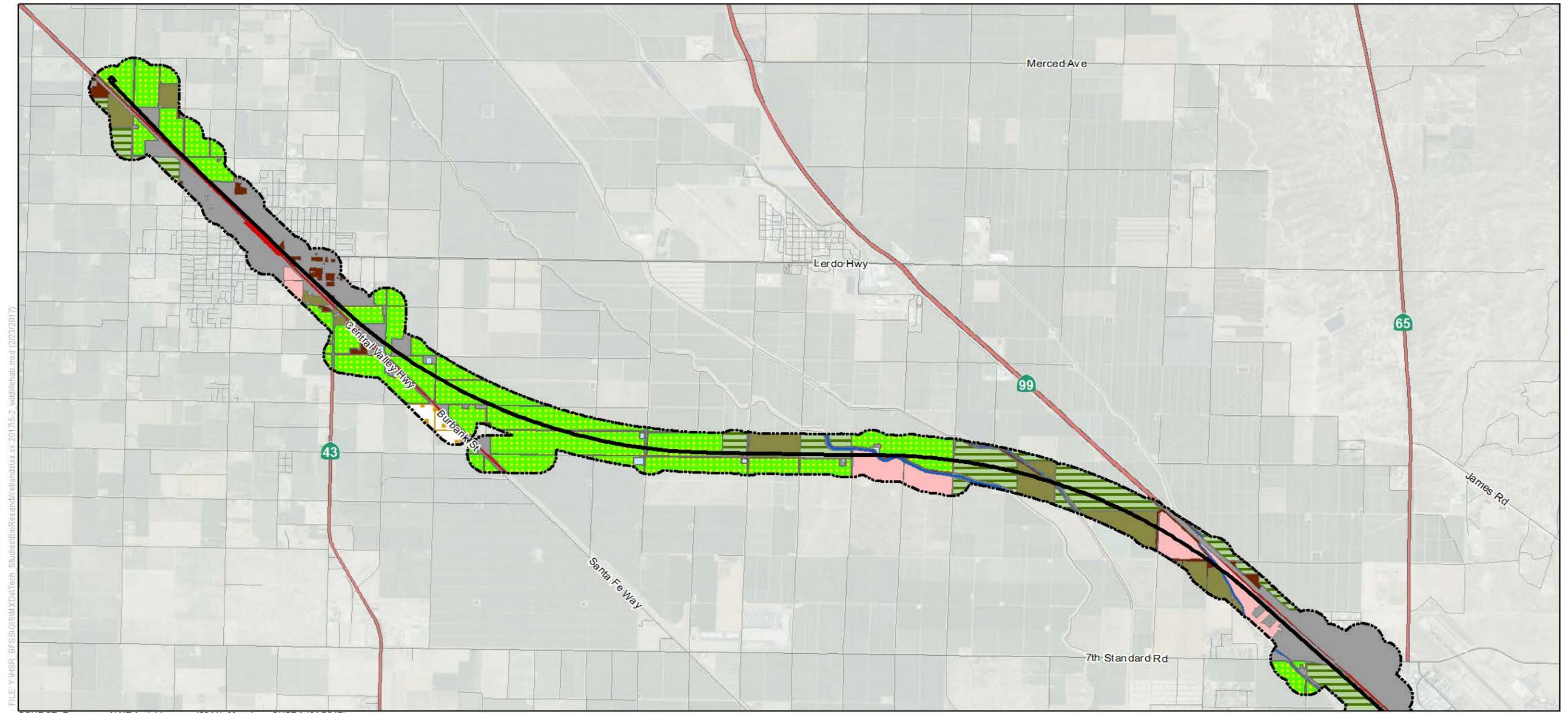
The categories of aquatic plant communities and land cover types that occur in the Habitat Study Area are summarized below, and are depicted on Figure 3.7-3. Aquatic plant communities and cover types are based on the *Guide to Wildlife Habitats of California and CWHR System* (CDFG 1988, CDFW 2016), and include lacustrine and riverine.

Lacustrine

Lacustrine areas are limited to man-made basins (e.g., retention/detention basins) used for water storage and groundwater recharge. They occur throughout the Habitat Study Area and range in size from less than 1,000 square feet to 2 acres. Lacustrine areas are discussed in further detail in Section 5.2.2.1 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: page 5-13).

Based on the agricultural practices observed during the various field surveys, lacustrine habitats are regularly exposed to a variety of agricultural uses and likely include heavy loads of pollutants such as fertilizers, pesticides, rodenticides, and other toxic chemicals. As with riverine areas, basins used for water storage and groundwater recharge are subject to fluctuations in water level, depending on the needs of the landowner, and may be dry during portions of the year. Although lacustrine habitats in the Habitat Study Area are man-made and controlled, they provide important habitat for many wildlife species.

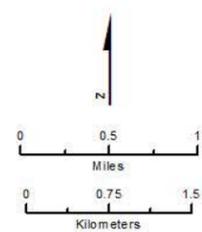
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SOURCE: Basemap - NAIP Aerial Imagery (2014); Mapping - CHSRA (01/2017)

May 5, 2017



- | | | |
|-------------------------------------|------------------------|---------------------------------------|
| Habitat Study Area | Aquatic Habitat | Natural and Semi-Natural Areas |
| Alignment | Lacustrine (LAC) | Annual Grassland (AGS) |
| Agricultural Land | Riverine (RIV) | |
| Cropland (CRP) | Developed Areas | |
| Deciduous Orchard (DOR) | Barren (BAR) | |
| Irrigated Hayfield (IHF) | Urban (URB) | |
| Irrigated Row and Field Crop (IRFC) | BNSF Urban (BNSF) | |
| Vineyard (VIN) | | |

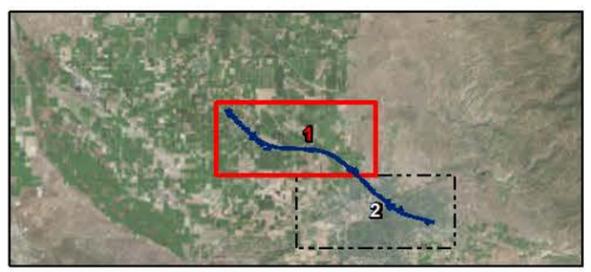
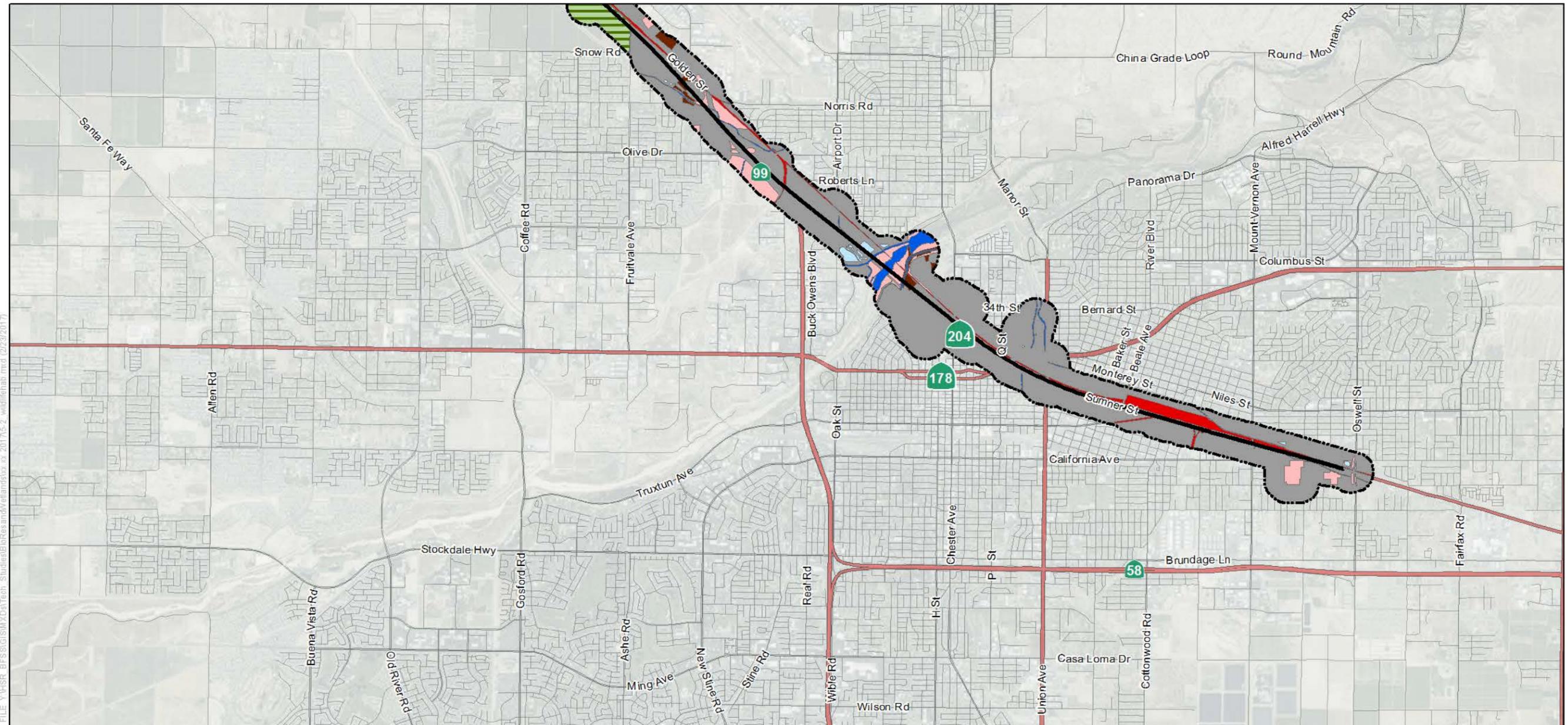


Figure 3.7-3 Wildlife Habitat Types

(Inset Area 1)



SOURCE: Basemap - NAIP Aerial Imagery (2014); Mapping - CHSRA (01/2017)

May 5, 2017



Figure 3.7-3 Wildlife Habitat Types
(Inset Area 2)

Riverine

Riverine habitat in the Habitat Study Area consists of open-water areas in canals and irrigation ditches, and open-water areas in the flow channel of rivers, such as the Kern River. Due to extensive water diversion for agricultural purposes, riverine habitats in the Habitat Study Area do not exhibit natural flow regimes and may be dry throughout a given year. In these areas, vegetation was either absent or sparse along sandy bottoms due to water-level fluctuations, vehicle disturbance, or maintenance activities in an irrigation canal or ditch. Typical vegetation, when present, was dominated by weedy species such as mustards (*Brassicaceae*) and grasses.

Wildlife species observed or expected to occur in riverine habitats during the various field surveys include bullfrog (*Rana catesbeiana*), mosquito fish (*Gambusia affinis*), carp (*Cyprinus carpio*), dragonflies (*Anisoptera*), red swamp crayfish (*Procambarus clarkii*), and Asian clam (*Corbicula fluminea*).

Native Fauna Assemblage

Although the impact analysis in this section focuses on special-status wildlife species, it is anticipated that impacts would occur on other native fauna within the Habitat Study Area. Native fauna observed during field surveys are discussed in the *Fresno to Bakersfield Section: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-15 through 5-18). Typical native fauna observed during surveys included the great white egret (*Ardea alba*), red-winged blackbird (*Agelaius phoeniceus*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), American robin (*Turdus migratorius*), western scrub jay (*Aphelocoma californica*), turkey vulture (*Cathartes aura*), Brewer's blackbird (*Euphagus cyanocephalus*), white-faced ibis (*Plegadis chihi*) (seasonally present), American coot (*Fulica americana*) (seasonally abundant), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and western fence lizard (*Sceloporus occidentalis*).

Special-Status Species

Based on the literature review, 47 special-status plant species and 56 special-status wildlife species were evaluated for their potential to occur within the F-B LGA Habitat Study Area. A list was compiled of the special-status plant and wildlife species with potential to occur in the region based on CNDDDB and CNPS occurrence data, the presence or absence of suitable habitat identified in the Habitat Study Area, and the species' known geographic or elevation range. Special-status plant species with potential to occur in the Special-Status Plant Study Area are listed in Table 3.7-3. Special-status wildlife species with potential to occur in the Habitat Study Area are listed in Table 3.7-4. Special-status species and potential for occurrence within the biological resources study areas are described in more detail in Section 5.3 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: pages 5-15 through 5-58).

Table 3.7-3 Special-Status Plant Species with Potential to Occur in the Special-Status Plant Study Area

Common Name	Scientific Name	Federal Status	State/CRPR Status	Habitat	Potential to Occur
Federally and State-Listed Species					
Bakersfield smallscale	<i>Atriplex tularensis</i>	—	SE/1A	Alkali desert scrub, annual grassland, vernal pools, pasture; 300–655 feet	Potential to occur. There are several CNNDDB and CNPS occurrences in central Kern County, just west of the Special-Status Plant Study Area.
California jewel-flower	<i>Caulanthus californicus</i>	FE	SE/1B.1	Alkali desert scrub, annual grassland, pasture; 240–2,950 feet	Potential to occur. There are numerous CNDDDB and CNPS occurrences in central and west Kern County. The Special-Status Plant Study Area habitats and elevations are similar to those where this species was previously observed.
Kern mallow	<i>Eremalche kernensis</i>	FE	—/1B.2	Alkali desert scrub, annual grassland, vernal pools, pasture; 300–900 feet	Not likely to occur. The populations of conservation concern are in the Lokern area, which is approximately 16 miles west of the Special-Status Plant Study Area. This species is not expected to occur in the Special-Status Plant Study Area.
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	FE	—/1B.2	Alkali desert scrub, annual grassland, pasture; 200–2,600 feet	Potential to occur. There are numerous CNDDDB and CNPS occurrences in Kern County in the vicinity of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats and elevations may be suitable for the species.
Bakersfield cactus	<i>Opuntia basilaris</i> var. <i>treleasei</i>	FE	SE/1B.1	Chenopod scrub, valley and foothill grassland; 460–1,800 feet	Not likely to occur. There are numerous CNDDDB and CNPS occurrences in central Kern County, in the vicinity of the Special-Status Plant Study Area; however, most are extirpated due to development. Suitable habitats in the Special-Status Plant Study Area are highly fragmented and degraded.
Other Special-Status Plant Species					
Horn's milk-vetch	<i>Astragalus hornii</i> var. <i>hornii</i>	—	1B.1	Alkali desert scrub, annual grassland, pasture; 200–2,790 feet	Potential to occur. There are several CNDDDB and CNPS occurrences in southwest Kern County, west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats and elevations are similar to those where this species was previously observed.

Common Name	Scientific Name	Federal Status	State/CRPR Status	Habitat	Potential to Occur
Heartscale	<i>Atriplex cordulata</i>	—	1B.2	Alkali desert scrub, annual grassland, vernal pools, pasture; 0–1,000 feet	Potential to occur. There are several CNDDDB and CNPS occurrences in west-central Kern County, primarily west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and highly conductive clay soils are similar to those where this species was previously observed.
Brittlescale	<i>Atriplex depressa</i>	—	1B.2	Alkali desert scrub, annual grassland, vernal pools, pasture; 0–1,050 feet	Potential to occur. There are several CNDDDB and CNPS occurrences in west-central Kern County, primarily west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and highly conductive clay soils are similar to those where this species was previously observed.
Earlimart orache	<i>Atriplex erecticaulis</i>	—	1B.2	Alkali desert scrub, annual grassland, vernal pools, pasture; 130–330 feet	Potential to occur. There are several CNDDDB and CNPS occurrences in northwest Kern County, both east and west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and soils are similar to those where this species was previously observed.
Lesser saltscale	<i>Atriplex minuscula</i>	—	1B.1	Alkali desert scrub, annual grassland, vernal pools, pasture; 50–660 feet	Potential to occur. There are several CNDDDB and CNPS occurrences in northwest Kern County, both east and west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and sandy alkaline soils are similar to those where this species was previously observed.
Subtle orache	<i>Atriplex subtilis</i>	—	1B.2	Alkali desert scrub, annual grassland, vernal pools, pasture 130–330 feet	Potential to occur. There are several CNDDDB and CNPS occurrences in west-central Kern County, both east and west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats and elevations are similar to those where this species was previously observed.

Common Name	Scientific Name	Federal Status	State/CRPR Status	Habitat	Potential to Occur
Round-leaved filaree	<i>California macrophylla</i>	—	1B.2	Annual grassland, valley foothill riparian, pasture; 50–4,000 feet	Potential to occur. There are numerous CNDDB and CNPS occurrences in Kern County, near the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and highly conductive soils are similar to those where this species was previously observed.
Alkali mariposa lily	<i>Calochortus striatus</i>	—	1B.2	Alkali desert scrub, pasture; 300–5,230 feet	Potential to occur. There are several CNDDB and CNPS occurrences in Kern County, some near the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and soils are similar to those where this species was previously observed.
Slough thistle	<i>Cirsium crassicaule</i>	—	1B.1	Alkali desert scrub, fresh emergent wetland, valley foothill riparian, riverine, lacustrine, annual grassland, pasture; 10–328 feet	Potential to occur. There are several CNDDB and CNPS occurrences in Kern County, west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and soils are similar to those where this species was previously observed.
Hoover's woolly-star	<i>Eriastrum hooveri</i>	FD	4.2	Alkali desert scrub, annual grassland, pasture; 165–3,000 feet	Potential to occur. The species is known to occur in Kern County. Some of the Special-Status Plant Study Area habitats and elevations are similar to those where this species was previously observed.
California satintail	<i>Imperata brevifolia</i>	—	2B.1	Alkali desert scrub, annual grassland, pasture; 0–1,500 feet	Potential to occur. There are several CNDDB and CNPS occurrences throughout California and west-central Kern County, in the vicinity of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats are similar to those where this species was previously observed.

Common Name	Scientific Name	Federal Status	State/CRPR Status	Habitat	Potential to Occur
Munz's tidy-tips	<i>Layia munzii</i>	—	1B.2	Alkali desert scrub, annual grassland, pasture; 150–2,500 feet	Potential to occur. There are numerous CNDDB and CNPS occurrences in northwest Kern County west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats, elevations, and highly conductive soils are similar to those where this species was previously observed.
King's gold	<i>Tropidocarpum californicum</i>	—	1B.1	Alkali desert scrub, annual grassland, pasture; 0–215 feet	Potential to occur. There is one CNDDB and CNPS occurrence in northwestern Kern County, west of the Special-Status Plant Study Area. Some of the Special-Status Plant Study Area habitats and elevations are similar to those where this species was previously observed.

Sources: CNPS, CNDDB, USFWS, 2017

— = No impact or not applicable

This table does not include special-status plant species that were determined to have “no potential to occur” or are “not likely to occur” within the Special-Status Plant Study Area.

Federal Status CRPR

FD: Delisted. Status to be monitored for 5 years

FE: Listed as endangered under the Endangered Species Act

FT: Listed as threatened under the Endangered Species Act.

State Status

SE: Listed as endangered under the California Endangered Species Act

ST: Listed as threatened under the California Endangered Species Act.

CRPR = California Rare Plant Ranks

1B: Rare, threatened, or endangered in California and elsewhere

2: Rare, threatened, or endangered in California, but more common elsewhere

3: More information is needed

4: Limited distribution or infrequent throughout California

0.1: Seriously endangered in California

0.2: Fairly endangered in California

0.3: Not very endangered in California

Table 3.7-4 Special-Status Wildlife Species with Potential to Occur in the Habitat Study Area

Common Name	Scientific Name	Federal Status ¹	State Status ²	Potential to Occur
Federally and State-Listed Species				
Golden eagle	<i>Aquila chrysaetos</i>	—	—/FP	Not likely to occur: The Habitat Study Area lies within the species' known range and marginally suitable foraging habitat was identified. This species is not expected to nest near the Habitat Study Area, but could occur foraging.
Swainson's hawk	<i>Buteo swainsoni</i>	—	ST	Potential to occur: Suitable nesting/foraging habitat in the way of mature trees and grassland/agricultural areas present onsite for the species; additional CNDDDB records confirm Swainson's hawk nesting in the region.
White-tailed kite	<i>Elanus leucurus</i>	—	—/FP	Potential to occur: suitable habitat (open grasslands, riparian habitat, and irrigated crop field) are present onsite for the species; one CNDDDB record has been reported within a 10-mile radius.
American peregrine falcon	<i>Falco peregrinus anatum</i>	Delisted	SE/FP	Potential to occur: Suitable foraging habitat (open grasslands, fallow fields, and irrigated crop field) are present onsite for the species; no CNDDDB records have been reported within a 10-mile radius.
Greater sandhill crane	<i>Grus canadensis tabida</i>	—	ST/FP	Potential to occur: The Habitat Study Area lies within the species' known range and suitable habitat (grasslands and crop and grain fields) were identified; no CNDDDB records have been reported within a 10-mile radius.
Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted	SE/FP	Not likely to occur: The Habitat Study Area lies within the species' known range and marginally suitable foraging habitat was identified. However, there are no large waterbodies nearby and this species is not expected to occur. No CNDDDB records have been reported within a 10-mile radius.
Nelson's antelope squirrel	<i>Ammospermophilus nelsoni</i>	—	ST	Potential to occur: No Nelson's antelope squirrels were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable grassland habitat was identified; CNDDDB records have been reported within a 10-mile radius.
Ringtail	<i>Bassariscus astutus</i>	—	—/FP	Potential to occur: Portions of the Habitat Study Area lie within the range of this species. This species is not tracked by the CNDDDB. In 2011, ringtail tracks were observed along the Kern River in the vicinity of the Habitat Study Area. Suitable habitat for this species is present along the Kern River.
Tipton kangaroo rat	<i>Dipodomys nitratoides nitratoides</i>	FE	SE	Potential to occur: Although potentially suitable fossorial burrows were observed during 2015 field surveys, no Tipton kangaroo rats were identified; however, the Habitat Study Area lies within the species' known range and suitable habitat was identified; numerous CNDDDB records have been reported within a 10-mile radius.

Common Name	Scientific Name	Federal Status ¹	State Status ²	Potential to Occur
Buena Vista Lake ornate shrew	<i>Sorex ornatus relictus</i>	FE	---	Potential to occur: The Fresno to Bakersfield Section Final EIR/EIS did not consider this species to have the potential to occur based on previous understandings of its range and habitat preferences. Recent studies indicate that the range of the species overlaps the Habitat Study Area and that the Habitat Study Area contains suitable (mesic sites including wetland areas) and marginally suitable (xeric sites including grasslands and irrigated agricultural lands within 200 feet of water) habitat.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	ST	Potential to occur: No San Joaquin kit foxes were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable grassland and scrubland habitat was identified; numerous CNDDDB records have been reported within a 10-mile radius.
Other Special-Status Wildlife Species				
Kern brook lamprey	<i>Entospenus hubbsi</i>	—	CSC	Potential to occur: No Kern brook lamprey were observed during 2015 field surveys; however, the Habitat Study Area lies within the known range of the species and, despite, extensive water diversions and instream obstructions to migratory movement, suitable habitat is present within the Friant-Kern Canal; a single CNDDDB record has been reported within a 10-mile radius.
Western spadefoot	<i>Spea hammondi</i>	—	CSC	Potential to occur: This species was not observed during the 2015 field survey efforts. However, the seasonal wetlands present in the Habitat Study Area could support western spadefoot. Additionally CNDDDB records confirm western spadefoot occurrences throughout the San Joaquin Valley.
Western pond turtle	<i>Emys marmorata</i>	—	CSC	Potential to occur: No western pond turtles were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable ponds, irrigation ditches, and river habitat was identified; CNDDDB records have been reported within a 10-mile radius.
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	—	CSC	Potential to occur: No silvery legless lizards were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable soils and riparian habitat were identified; CNDDDB records have been reported within a 10-mile radius.
San Joaquin whipsnake	<i>Masticophis flagellum ruddocki</i>	—	CSC	Potential to occur: The Habitat Study Area lies within the historical range of the San Joaquin whipsnake. No San Joaquin whipsnakes were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' historical range and suitable grassland and scrubland habitat was identified; CNDDDB records have been reported within a 10-mile radius.

Common Name	Scientific Name	Federal Status ¹	State Status ²	Potential to Occur
Coast horned lizard	<i>Phrynosoma blainvillii</i>	—	CSC	Potential to occur: Marginally suitable habitat (annual grassland and valley foothill riparian communities) are present onsite for the species; additional CNDDB records confirm coast horned lizard occurrences throughout the San Joaquin Valley.
Western burrowing owl	<i>Athene cunicularia</i>	—	CSC	Potential to occur: Suitable habitat (open grasslands and fallow fields with fossorial activity) is present onsite for the species; additional CNDDB records confirm western burrowing owl occurrences throughout the San Joaquin Valley.
Short-eared owl	<i>Asio flammeus</i>	—	CSC	Potential to occur: No short-eared owls were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDB records have been reported within a 10-mile radius.
Long-eared owl	<i>Asio otus</i>	—	CSC	Potential to occur: No long-eared owls were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDB records have been reported within a 10-mile radius.
Northern harrier	<i>Circus cyaneus</i>	—	CSC	Potential to occur: No Northern harriers were observed during the 2015 field surveys; however, suitable habitat (open grasslands, fallow fields, and irrigated crop field) are present onsite for the species; no CNDDB records have been reported within a 10-mile radius.
Tricolored blackbird	<i>Agelaius tricolor</i>	—	CSC	Potential to occur: The Habitat Study Area lies within the species' known range, suitable habitat (riparian vegetation) was identified, and CNDDB records have been reported within a 10-mile radius.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	—	CSC	Potential to occur: No grasshopper sparrows were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDB records have been reported within a 10-mile radius.
Oak titmouse	<i>Baeolophus inornatus</i>	BCC	—	Potential to occur: No oak titmice were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable nesting and/or foraging habitat was identified; no CNDDB records have been reported within a 10-mile radius.
Yellow warbler	<i>Dendroica petechia brewsteri</i>	—	CSC	Potential to occur: No yellow warblers were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDB records have been reported within a 10-mile radius.

Common Name	Scientific Name	Federal Status ¹	State Status ²	Potential to Occur
Loggerhead shrike	<i>Lanius ludovicianus</i>	—	CSC	Potential to occur: No loggerhead shrike were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC	—	Potential to occur: No Lewis's woodpeckers were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Nuttall's woodpecker	<i>Picoides nuttallii</i>	BCC	—	Potential to occur: No Nuttall's woodpecker were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	—	CSC	Potential to occur: No Oregon vesper sparrows were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Purple martin	<i>Progne subis</i>	—	CSC	Potential to occur: No purple martins were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Le Conte's thrasher	<i>Toxostoma lecontei</i>	—	CSC	Potential to occur: No Le Conte's thrashers were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; a single CNDDDB record has been reported within a 10-mile radius.
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	—	CSC	Potential to occur: No western snowy plovers were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable foraging habitat was identified; CNDDDB records have been reported within a 10-mile radius.
Mountain plover	<i>Charadrius montanus</i>	—	CSC	Potential to occur: No mountain plovers were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable nesting and/or foraging habitat was identified; CNDDDB records have been reported within a 10-mile radius.
Black tern	<i>Chlidonias niger</i>	—	CSC	Potential to occur: No black terns were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.

Common Name	Scientific Name	Federal Status ¹	State Status ²	Potential to Occur
Fulvous whistling duck	<i>Dendrocygna bicolor</i>	—	CSC	Potential to occur: No fulvous whistling ducks were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Lesser sandhill crane	<i>Grus canadensis canadensis</i>	—	CSC	Potential to occur: No lesser sandhill cranes were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable habitat (grasslands, and crop and grain fields) were identified; no CNDDDB records have been reported within a 10-mile radius.
Least bittern	<i>Ixobrychus exilis</i>	—	CSC	Potential to occur: No least bitterns were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Long-billed curlew	<i>Numenius americanus</i>	BCC	—	Potential to occur: No long-billed curlews were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable nesting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.
Tulare grasshopper mouse	<i>Onychomys torridus tularensis</i>	—	CSC	Potential to occur: No Tulare pocket mice were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, suitable habitat is present onsite for the species, and CNDDDB records have been reported within a 10-mile radius.
American badger	<i>Taxidea taxus</i>	—	CSC	Potential to occur: No American badgers were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and CNDDDB records have been reported within a 10-mile radius.
Pallid bat	<i>Antrozous pallidus</i>	—	CSC	Potential to occur: No pallid bats were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range; suitable roosting and/or foraging habitat was identified; CNDDDB records have been reported within a 10-mile radius.
Western mastiff bat	<i>Eumops perotis californicus</i>	—	CSC	Potential to occur: No western mastiff bats were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range; suitable roosting and/or foraging habitat was identified; CNDDDB records have been reported within a 10-mile radius.
Western red bat	<i>Lasiurus blossevillii</i>	—	CSC	Potential to occur: No western red bats were observed during 2015 field surveys; however, the Habitat Study Area lies within the species' known range, and suitable roosting and/or foraging habitat was identified; no CNDDDB records have been reported within a 10-mile radius.

Sources: CNPS, CNDDDB, USFWS, 2017

¹ Federal Status: FE = Endangered

FT = Threatened

CH = Critical Habitat designated by the USFWS

BCC = Birds of Conservation Concern designated by the USFWS

² State Status: SE = Endangered

ST = Threatened

CSC = California Species of Special Concern designated by the CDFW

FP = Fully Protected species designated by the CDFW

CDFW = California Department of Fish and Wildlife

USFWS = United States Fish and Wildlife Service

Figure 3.7-4 through Figure 3.7-8 provide a visual depiction and summary of those special-status plant and wildlife species reported to the CNDDDB. Figure 3.7-4 and Figure 3.7-5 provide the species, location, and occurrence number of special-status plant communities and special-status plant species. Figure 3.7-6 through Figure 3.7-8 show the location (point or polygon) of documented occurrences of special-status wildlife species and the corresponding occurrence number. Figure 3.7-6 summarizes the CNDDDB occurrences for invertebrates, fish, amphibians, reptiles, and designated critical habitat. Figure 3.7-7 summarizes the CNDDDB occurrences for bird species. Figure 3.7-8 summarizes the CNDDDB occurrences for mammals.

Habitats of Concern

Habitats of concern evaluated in the Habitat Study Area include special-status plant communities, jurisdictional waters, critical habitat, essential fish habitat, conservation areas (i.e., Recovery Plan areas for federally listed species and HCPs), and wildlife movement corridors. Habitats of concern in the Habitat Study Area receive special protection by federal, state, and local regulations. These habitats of concern, discussed below, are depicted on Figure 3.7-3.

Special-Status Plant Communities

Only one special-status plant community was observed in the Special-Status Plant Study Area during the reconnaissance surveys on July 30-31, 2015: Black Willow Thicket. However, as described in Section 3.7.2.4, the entire Special-Status Plant Study Area was not surveyed due to limited permission to enter privileges. However, unsurveyed habitats that could support special-status plant species were identified through visual surveys (i.e., from adjacent public roads or parcels) and aerial interpretation. The only unsurveyed habitat type in the Special-Status Plant Study Area that had potential to support special-status plant communities was annual grassland. However, these areas were mapped via aerial photo interpretation and surveys from the public right-of-way and have been determined not to support any special-status plant communities, as shown in Figure 3.7-9.

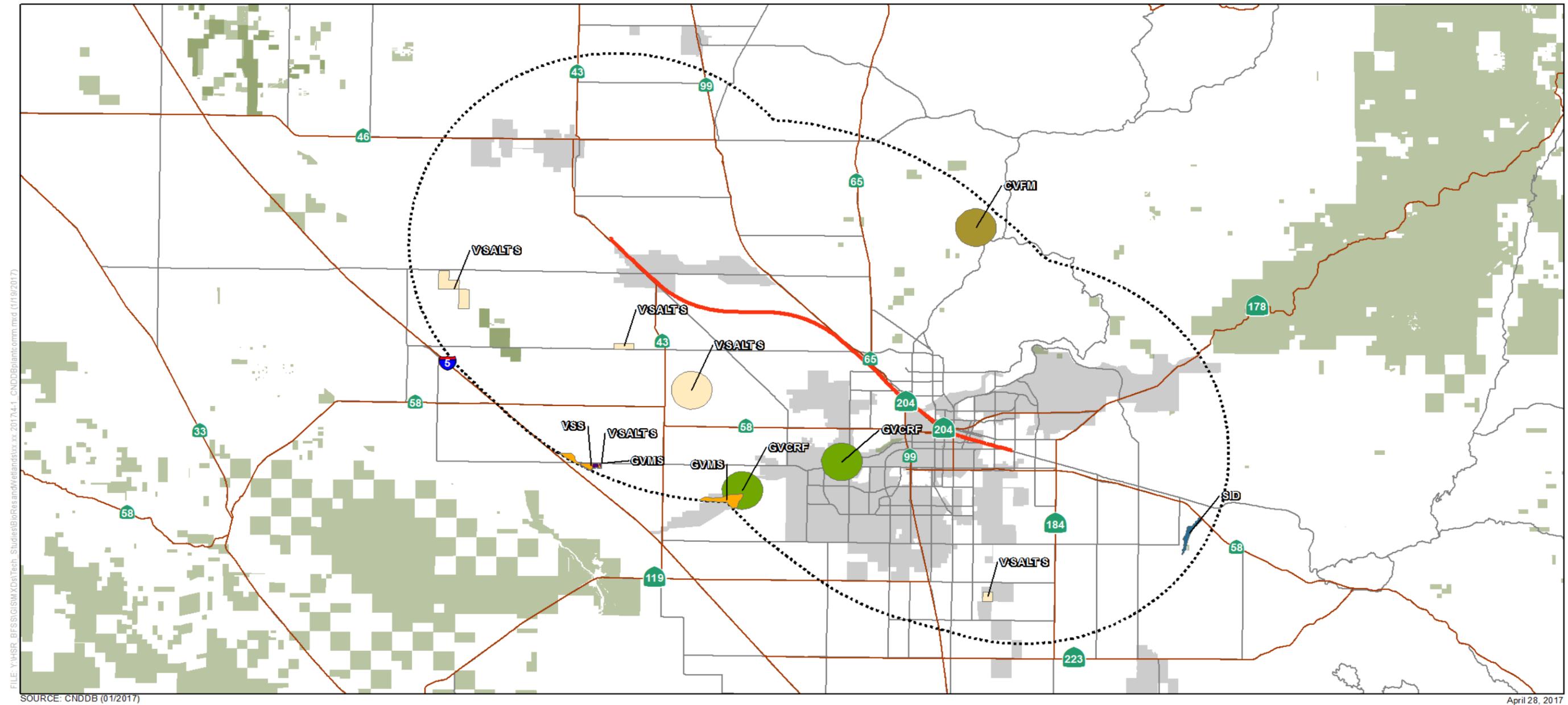
Within the Special-Status Plant Study Area, Black Willow Thicket was limited to the Kern River corridor, as depicted in Figure 3.7-9.

Jurisdictional Waters

A number of jurisdictional waters were identified in the Wetland Study Area, including other waters of the United States (U.S.) and waters of the state¹. Other waters of the U.S., and waters of the state identified in the Wetland Study Area include canals/ditches, lacustrine, and seasonal riverine. There are no vernal pools or seasonal wetlands in the Wetland Study Area. Jurisdictional waters are depicted on Figure 3.7-10. Many of the jurisdictional waters in the Wetland Study Area have been leveled, drained, and/or leveed to prevent flooding for agricultural purposes. These features are lower quality because they are often surrounded by agricultural land or urban development, lack physical and biotic structural complexity, and exhibit a highly manipulated hydrologic regime.

¹ Potential seasonal wetlands were also identified in the Wetland Study Area. However, potential seasonal wetland features identified in retention/detention basins, irrigation canals, and the Kern River were not mapped separately as wetlands, and are discussed respectively as these other resources (personal communication, Simmons 2016).

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FILE: Y:\HSR_BFSS\GIS\MapDocs\Tech_Studies\BioRes\Wetlands\MapDocs\2017\4-1_CNDD\plantcomm.mxd (1/19/2017)

SOURCE: CNDD (01/2017)

April 28, 2017

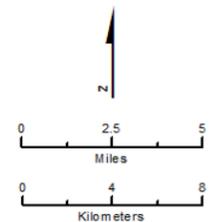
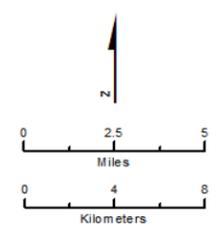
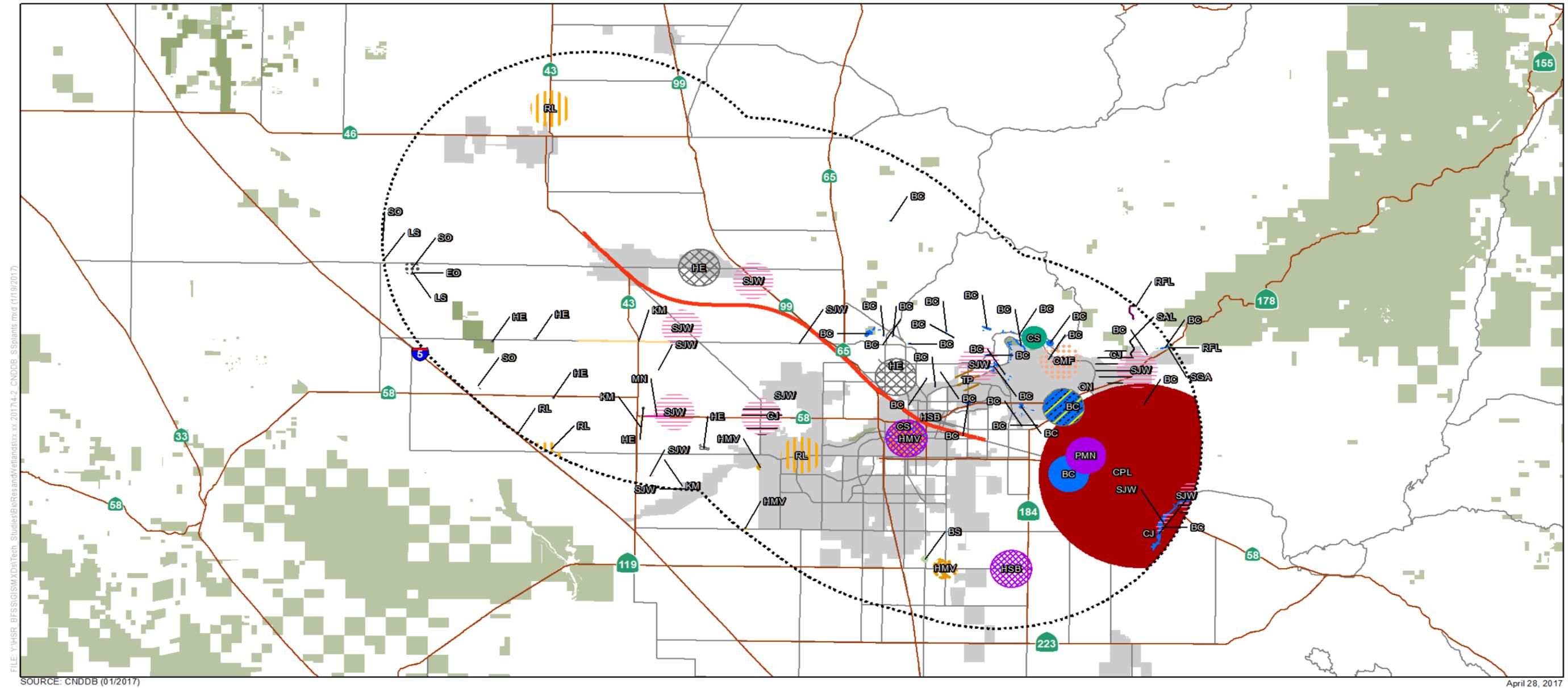
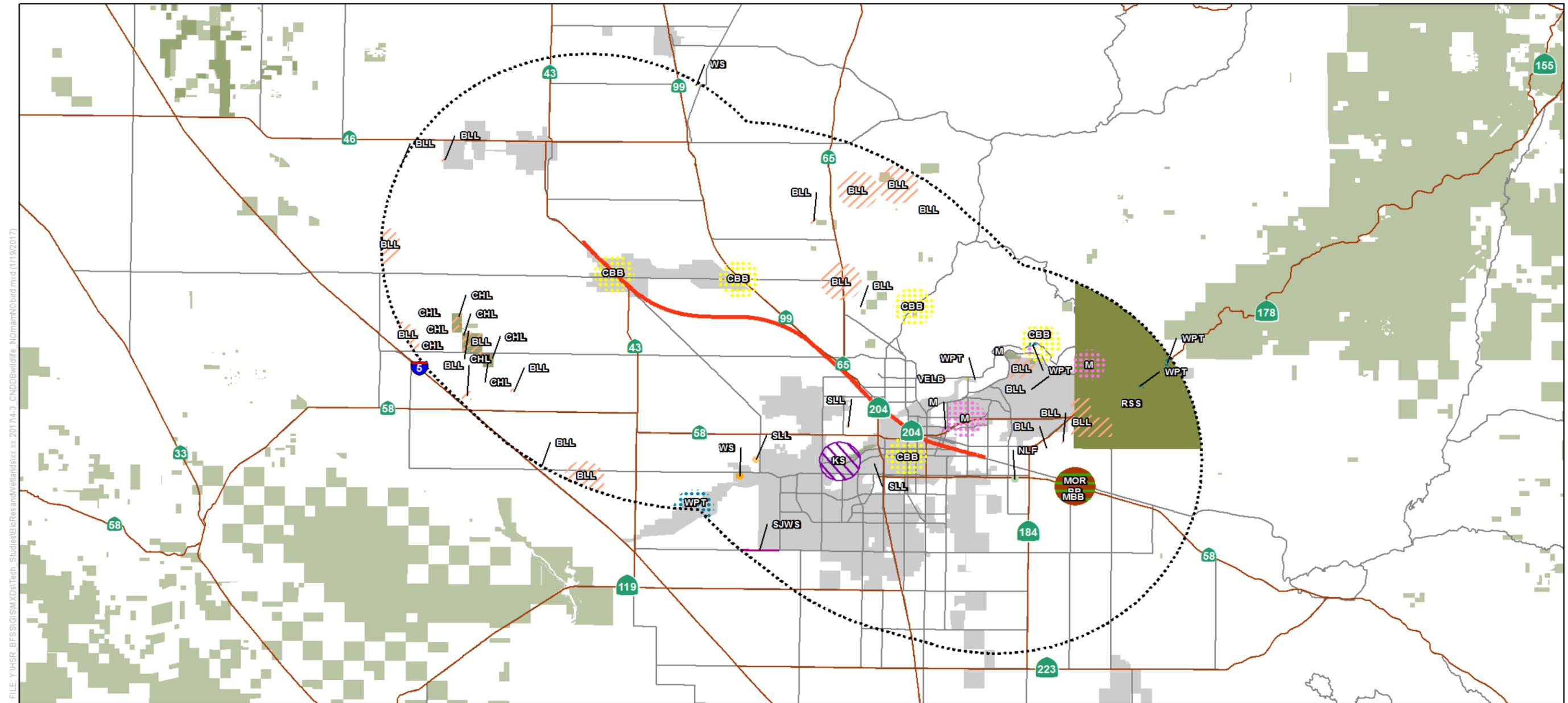


Figure 3.7-4 CNDD Special-Status Plant Communities



- | | | | |
|---|-----------------------------|----------------------------------|------------------------------|
| Fresno to Bakersfield Locally Generated Alternative | California satintail (CS) | Piute Mountains navarretia (PMN) | recurved larkspur (RL) |
| 10-Mile Buffer | California screw moss (CSM) | San Joaquin woollythreads (SJW) | rose-flowered larkspur (RFL) |
| Public Lands | Comanche Point layia (CPL) | Shevock's golden-aster (SJA) | striped adobe-lily (SAL) |
| Urban Areas | Earlimart orache (EO) | Tejon poppy (TP) | subtle orache (SO) |
| Special-Status Plant Species | Hoover's eriastrum (HE) | calico monkeyflower (CMF) | |
| Bakersfield cactus (BC) | Horn's milk-vetch (HMV) | hispid salty bird's-beak (HSB) | |
| Bakersfield smallscale (BS) | Kern mallow (KM) | lesser saltscale (LS) | |
| California jewelflower (CJ) | Mason's neststraw (MN) | oil neststraw (ON) | |

Figure 3.7-5 CNDDDB Special-Status Plant Species



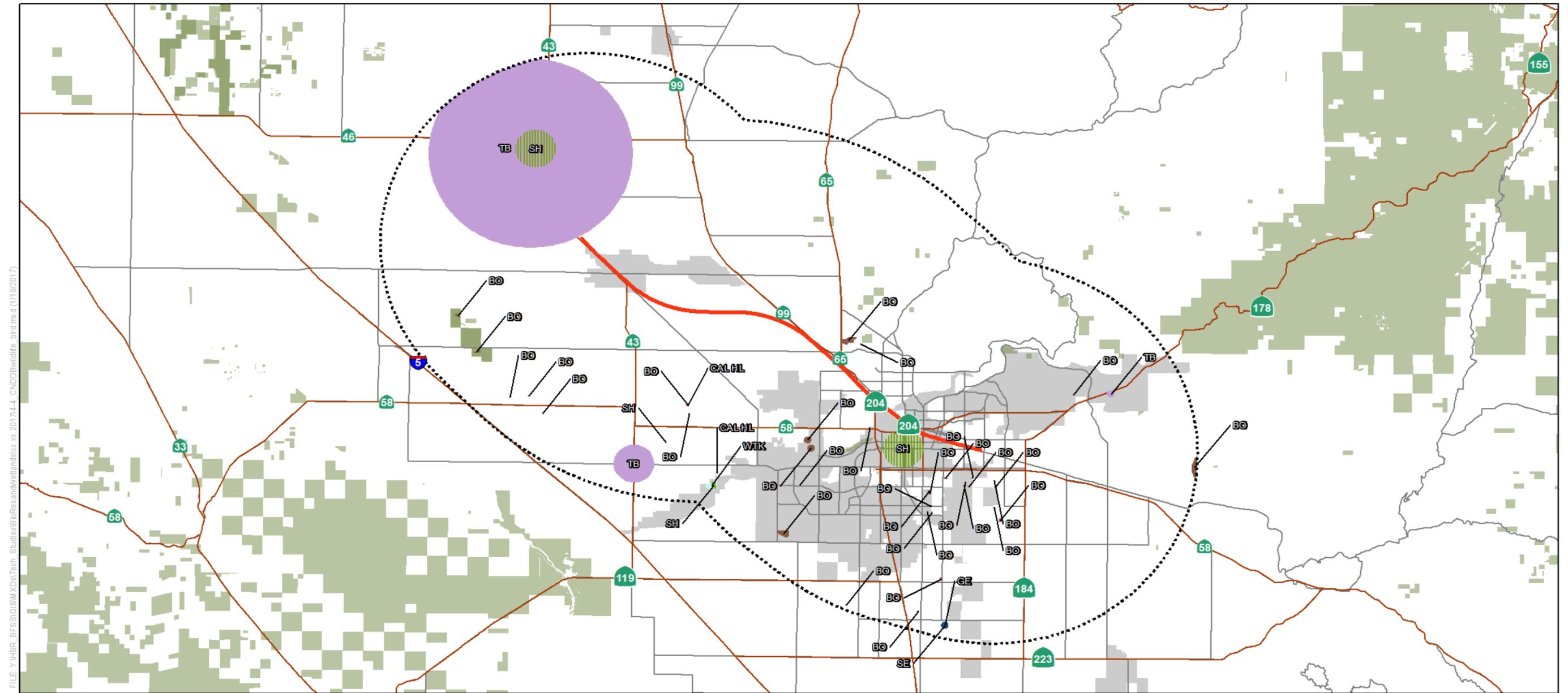
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SOURCE: CNDD (01/2017)

April 28, 2017

- | | | |
|---|---|--|
| Fresno to Bakersfield Locally Generated Alternative | Morrison's blister beetle (MOR BB) | relictual slender salamander (RSS) |
| 10-mile buffer | San Joaquin whipsnake (SJWS) | silvery legless lizard (SLL) |
| Public Lands | blunt-nosed leopard lizard (BLL) | valley elderberry longhorn beetle (VELB) |
| Urban Areas | coast horned lizard (CHL) | western pond turtle (WPT) |
| Special-Status Wildlife Species | moestan blister beetle (MBB) | western spadefoot (WS) |
| Crotch bumble bee (CBB) | monarch - California overwintering population (M) | |
| Kern shoulderband (KS) | northern leopard frog (NLL) | |

Figure 3.7-6 CNDD Special-Status Wildlife Species: Amphibians, Fish, Invertebrates, and Reptiles



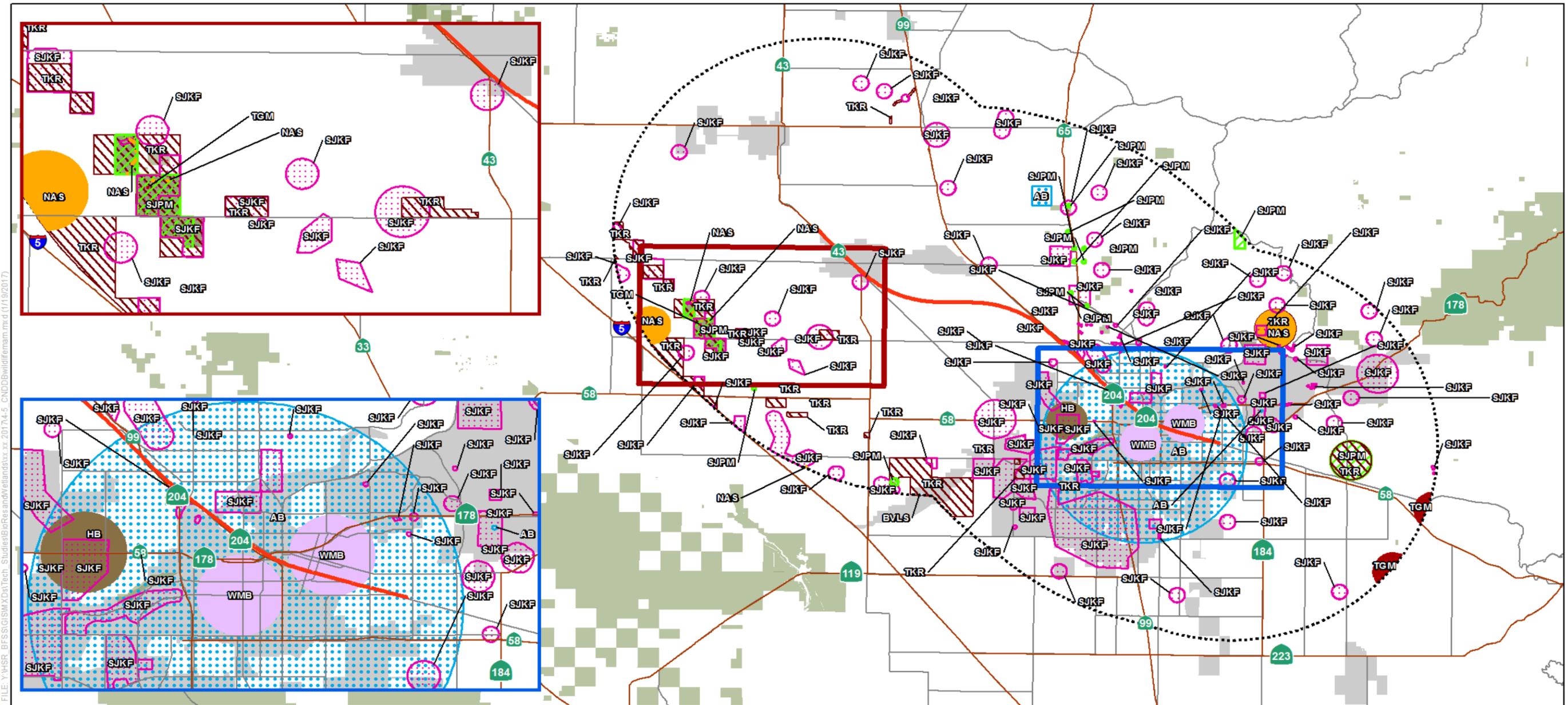
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SOURCE: CNDDDB (01/2017)

April 28, 2017



Figure 3.7-7 CNDDDB Special-Status Wildlife Species: Birds



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SOURCE: CNDDB (01/2017)

April 28, 2017

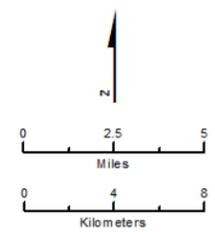
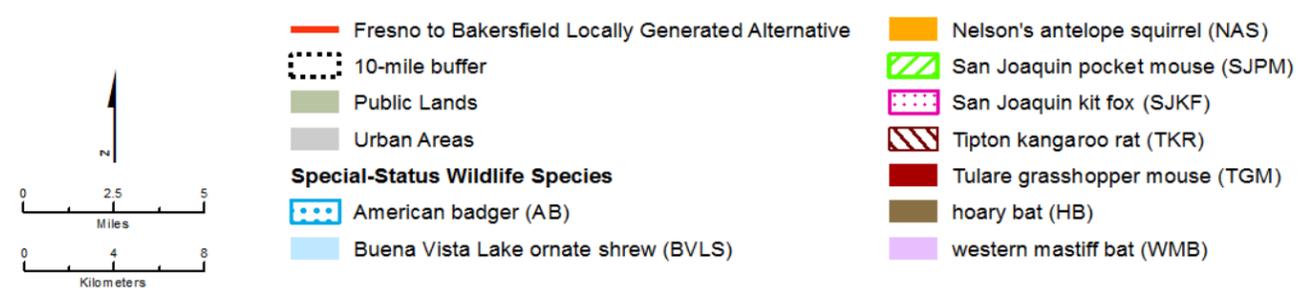


Figure 3.7-8 CNDDB Special-Status Wildlife Species: Mammals



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SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

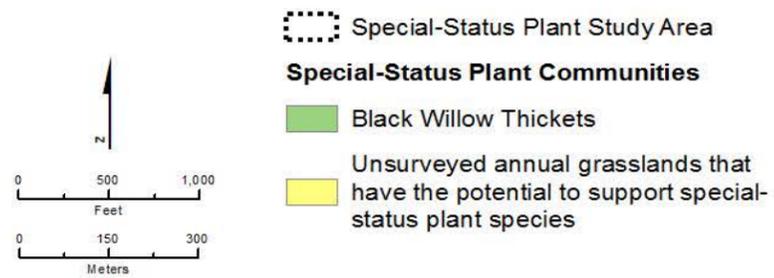
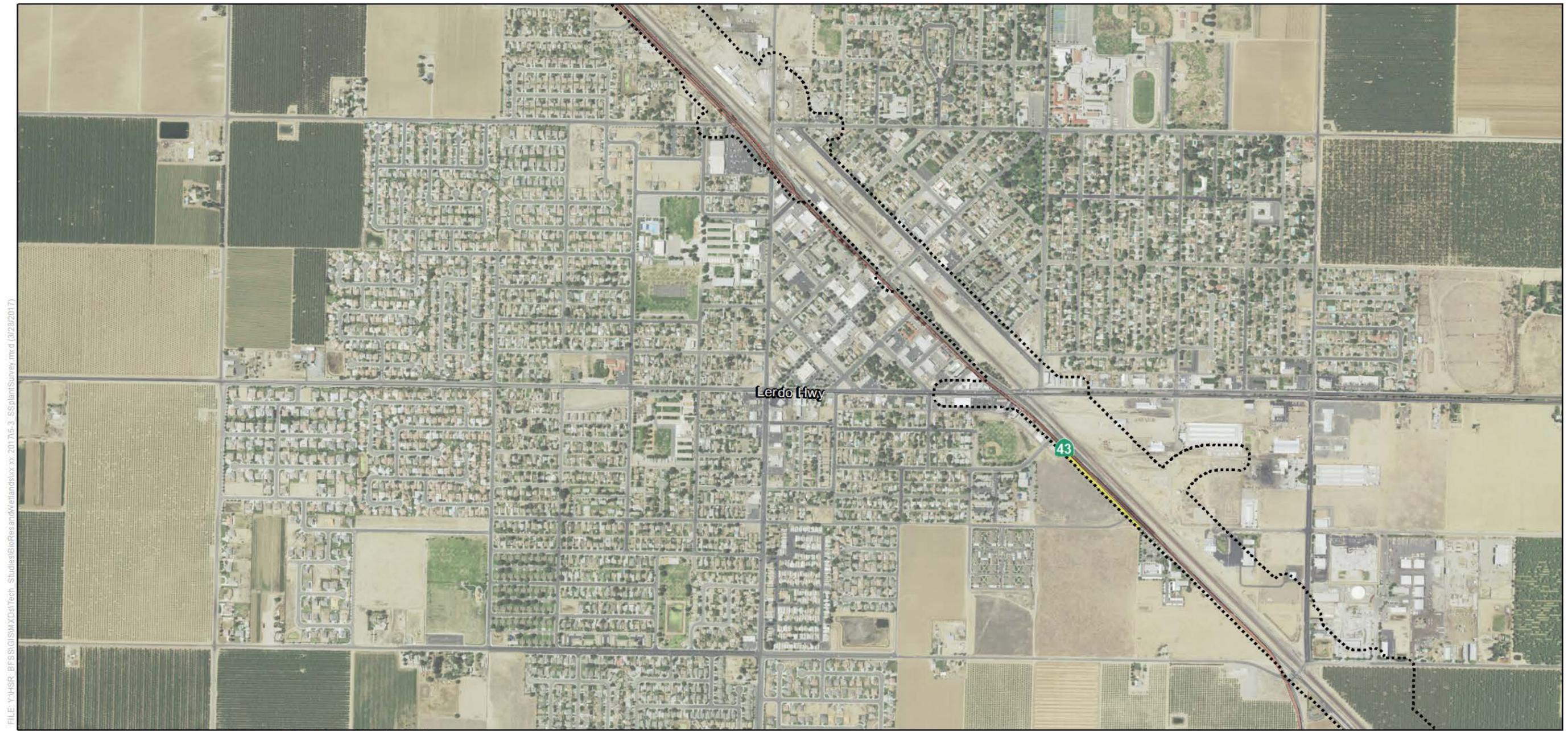


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



- ⋯ Special-Status Plant Study Area
- Special-Status Plant Communities**
- Black Willow Thickets
- Unsurveyed annual grasslands that have the potential to support special-status plant species

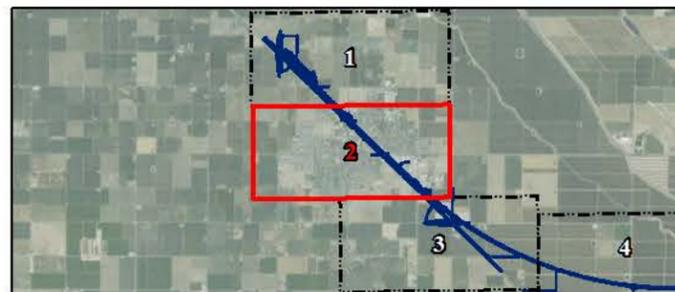
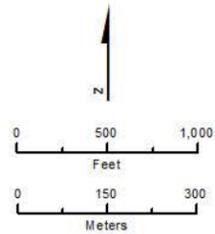


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

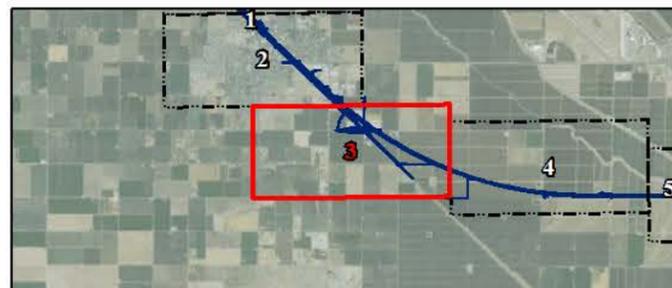
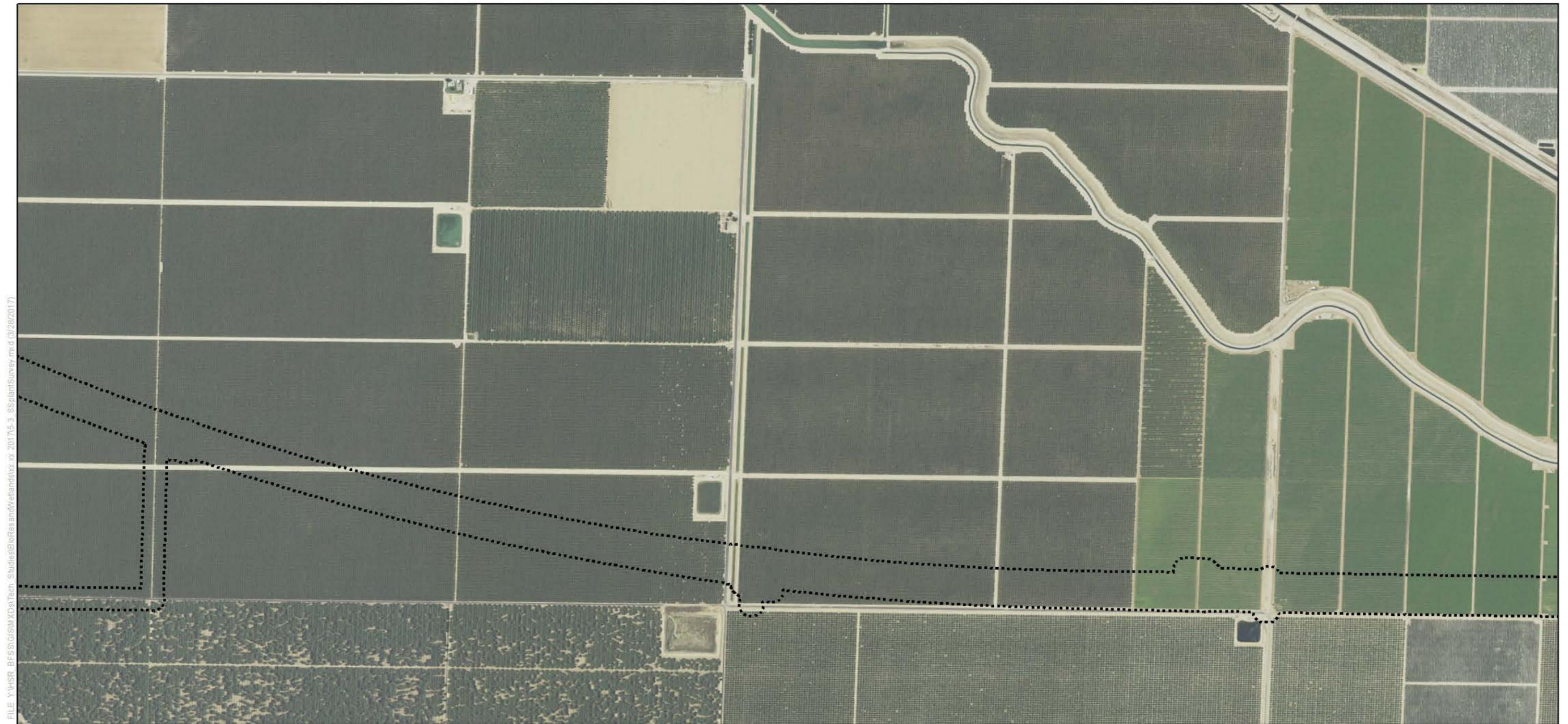


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



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SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

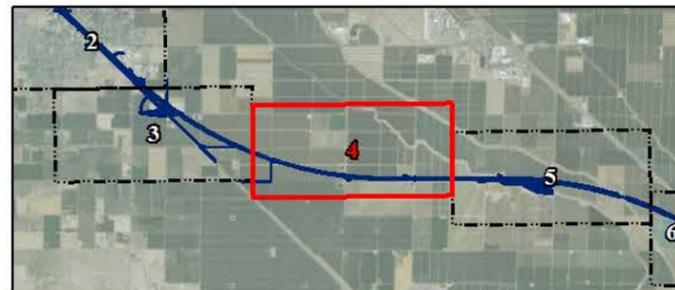
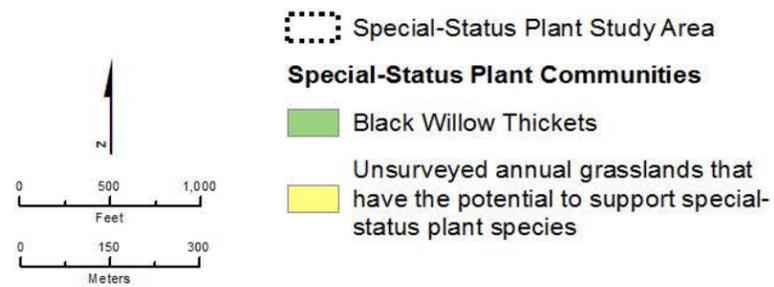


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



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SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

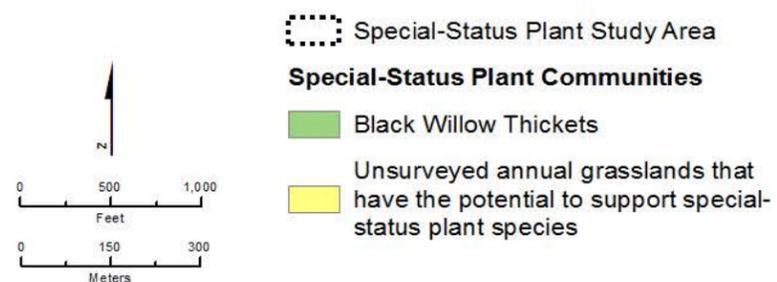


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



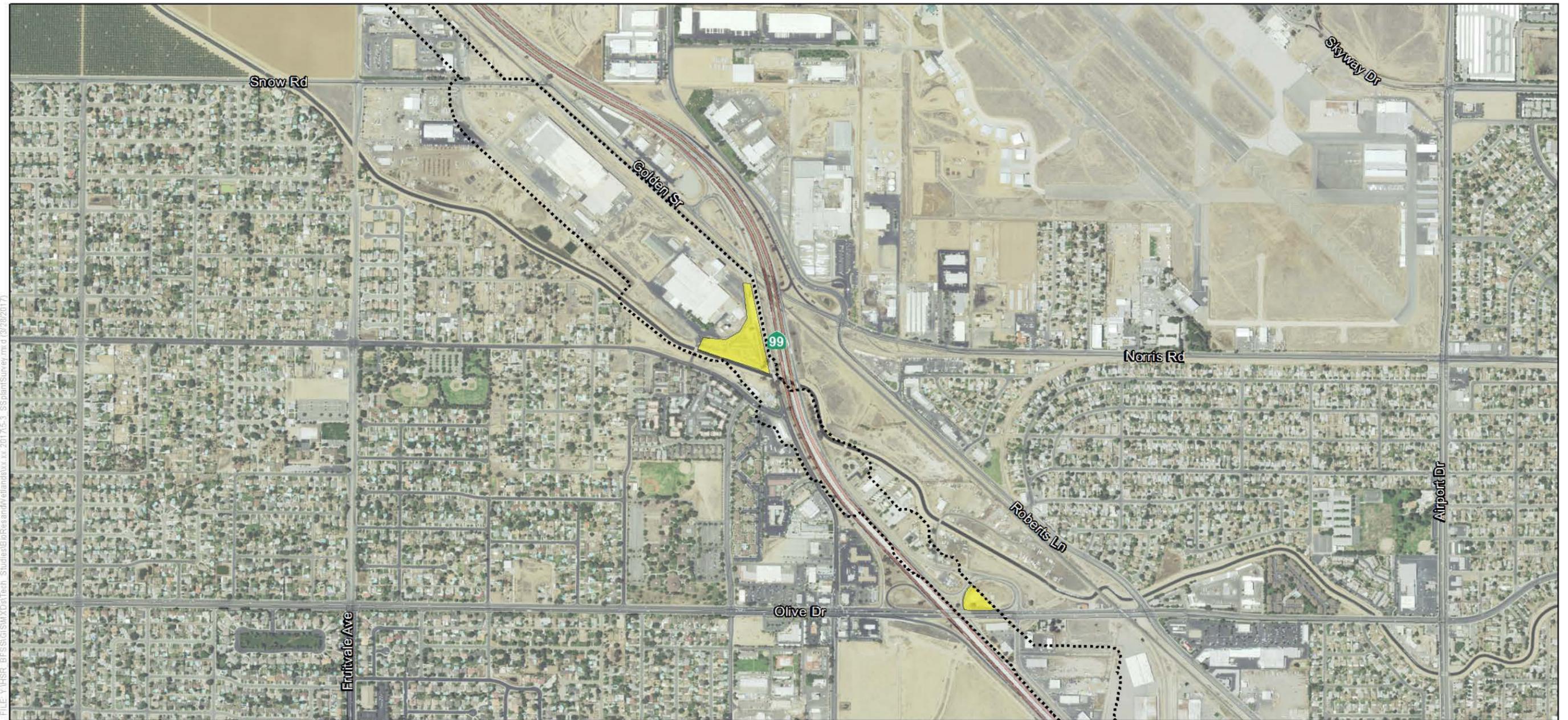
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SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017



Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



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SOURCE: Base map - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

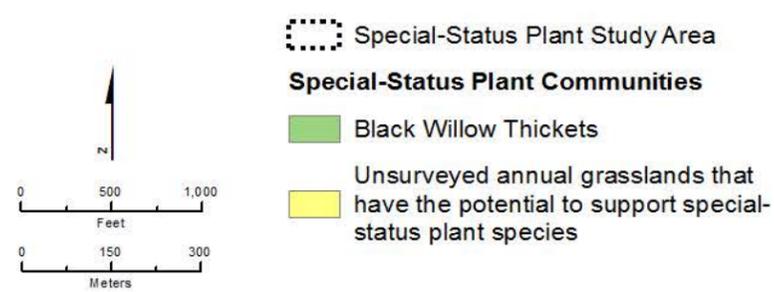
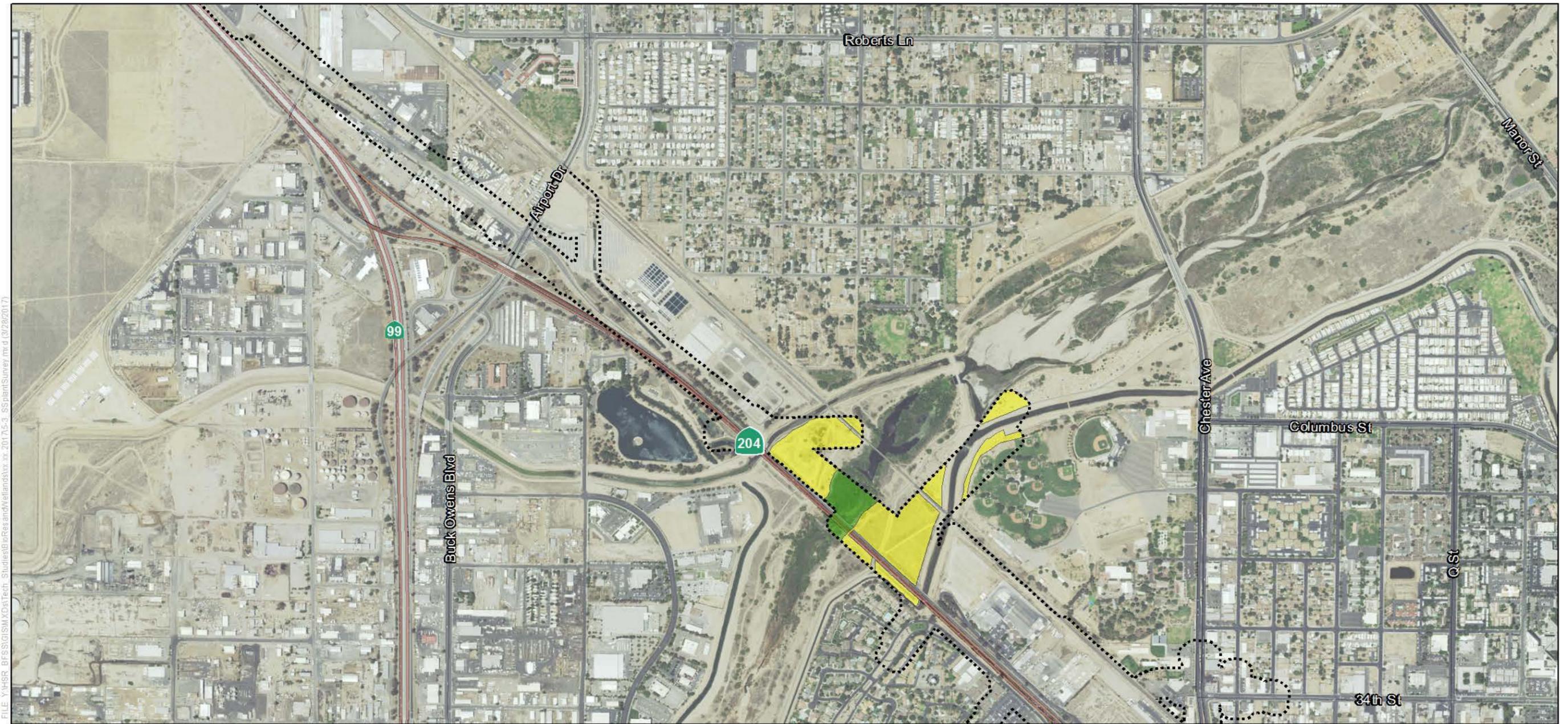


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

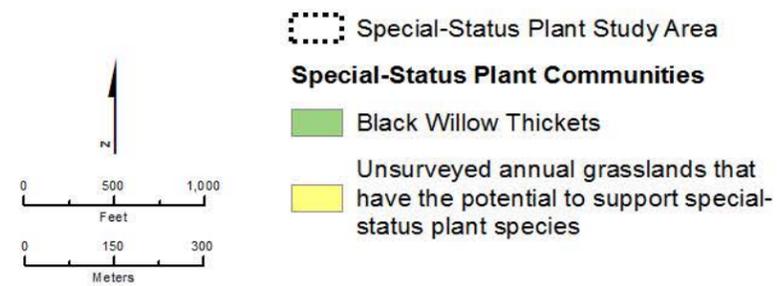
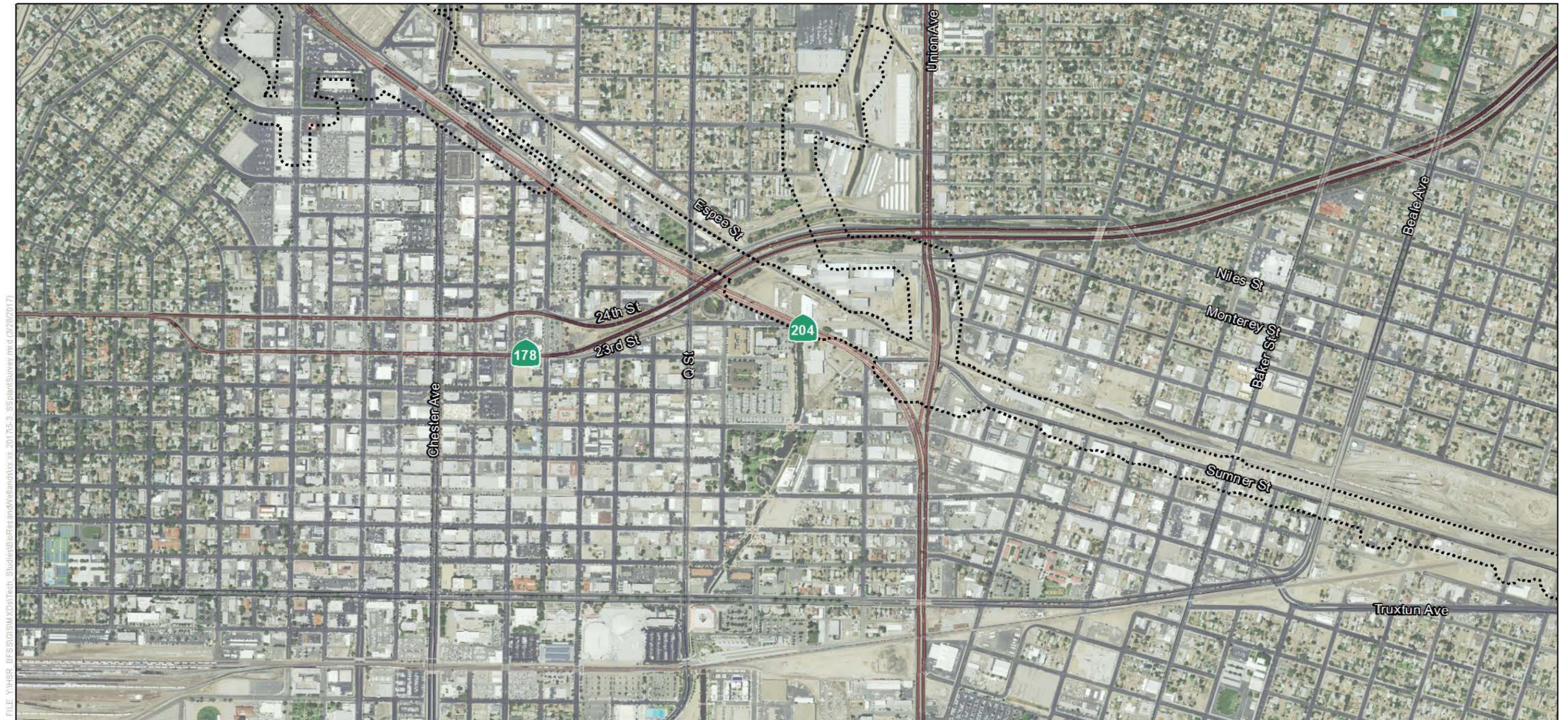
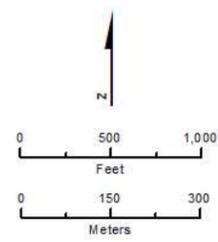


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



SOURCE: Base map - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017



- Special-Status Plant Study Area
- Special-Status Plant Communities**
- Black Willow Thickets
- Unsurveyed annual grasslands that have the potential to support special-status plant species

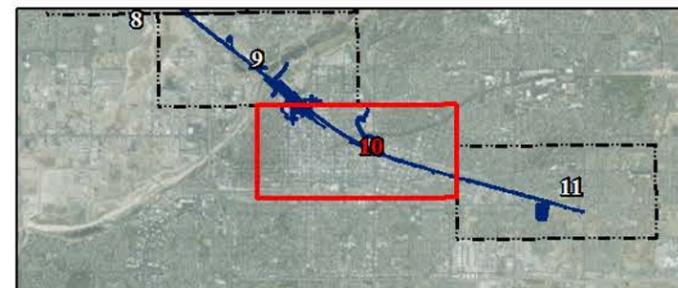
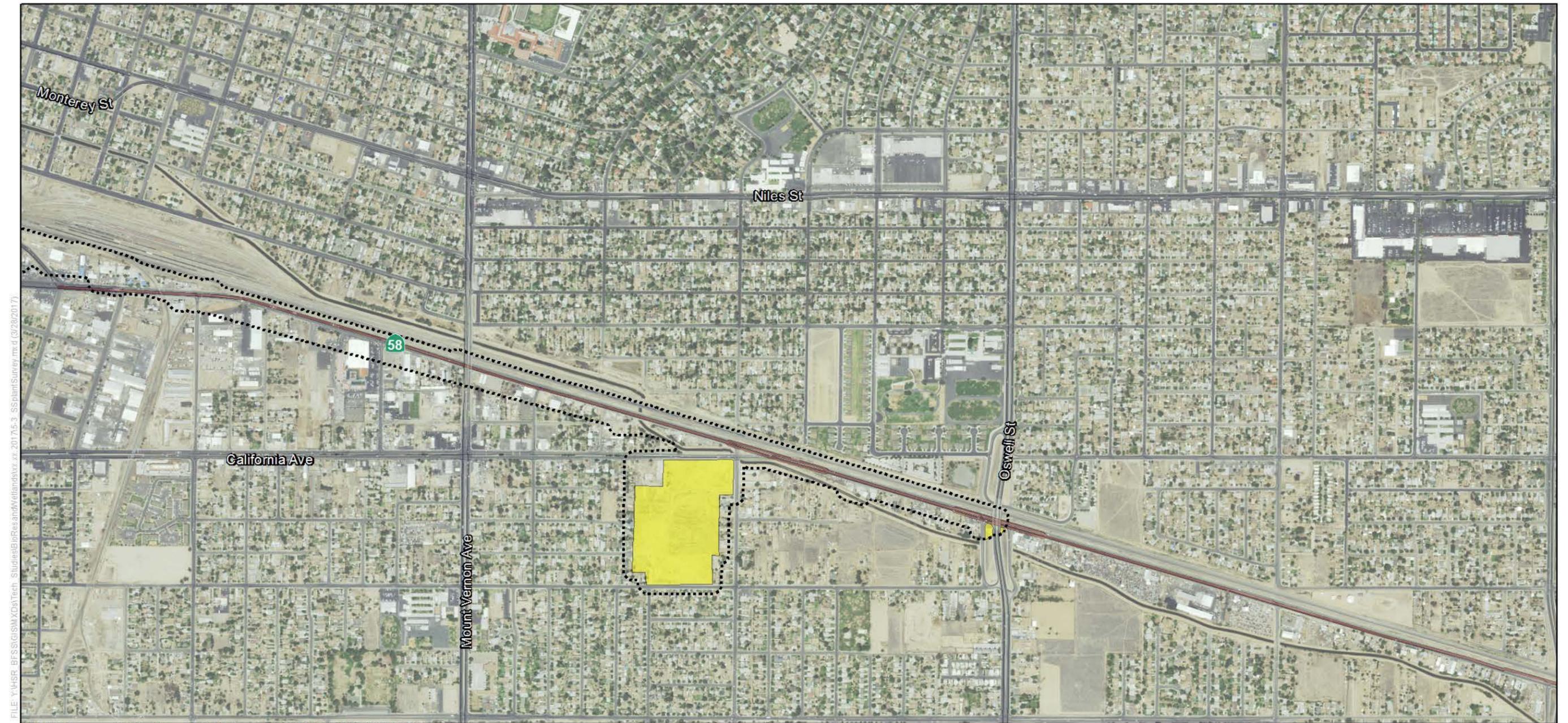


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results



SOURCE: Base map - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017), LSA (1/09/2017)

May 3, 2017

 Special-Status Plant Study Area
Special-Status Plant Communities
 Black Willow Thickets
 Unsurveyed annual grasslands that have the potential to support special-status plant species

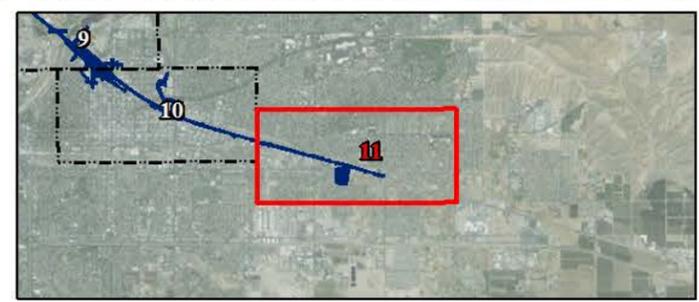


Figure 3.7-9 Special-Status Plant Species and Special-Status Plant Communities Survey Results

Retention/Detention Basins

Retention/detention basins are man-made features that are square, rectangular, round, or triangular, often with constructed earthen walls, and always devoid of vegetation. Retention/detention basins are typically several hundred square feet but can be much larger. The spatial extent of retention/detention basins is determined by the location of the ordinary high water mark. These features are closely associated with agriculture activities and in most instances are used as water storage or retention facilities. In urban areas, retention/detention basins are used to retain urban stormwater runoff. Surface water within the basins may be seasonal or perennial, depending on the location and use of the feature. These features are often associated with agricultural land uses, including pasture, cropland, irrigated grain crops, irrigated hayfield, irrigated row and field crops, deciduous orchard, evergreen orchard, vineyard, and urban. In general, retention/detention basins are in relatively poor ecological condition due to a disturbed environmental setting, have a highly manipulated hydrological regime, offer few biological resources to plants and wildlife, and are physically engineered to the extent that they are devoid of natural characteristics.

Seasonal Riverine

Seasonal riverine waterways in the Wetland Study Area occur as a single discrete feature: the Kern River. This feature originates in the Sierra Nevada range where the hydrology is less affected by water developments. Although the hydrology is affected by water storage and hydroelectric development in the headwaters, the upper reaches are less affected by water developments than the reach in the Wetland Study Area. By the time this feature reaches the Wetland Study Area, it has been highly manipulated for municipal and agricultural purposes, and much of the surface water and groundwater has been diverted, pumped, or captured.

Canals/Ditches

Canals and drainage and irrigation ditches occur throughout the Wetland Study Area. These man-made linear features are concrete-lined, or unlined and earthen, and range from approximately 10 to 50 feet in width. These features are typically devoid of vegetation. Their purpose is to transport large quantities of water, typically for agricultural purposes. A series of pumps is often used to transport water between canals, ditches, or under roads and other infrastructure. In general, canals/ditches are in relatively poor ecological condition due to poor landscape position, have a highly manipulated hydrological regime, offer few biological resources to plants and wildlife, and are physically engineered to the extent that they are devoid of natural characteristics.

In the Wetland Study Area, the Kern River is often seasonally dry. Seasonal riverine areas were mapped as other waters of the U.S., based on the extent of the ordinary high water mark. The extent of waters of the state in these seasonal riverine areas is delineated between the ordinary high water mark and the top of bank where riparian vegetation is absent. In the case of the Kern River, the riparian vegetation does not extend beyond the ordinary high water mark and, therefore, the extent of waters of the U.S. and of the state associated with this feature are the same.

Critical Habitat

Critical habitat, as defined by the federal ESA, are specific areas on which are found those physical and biological features that provide federally listed species with suitable habitat that includes the geographical locations and physical features essential to the conservation of a particular species and that require special management considerations or protection. The FESA defines conservation as "all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter [the FESA] are no longer necessary" (U.S.C. Title 16, Part 1532[3]). The F-B LGA does not overlap any designated or proposed critical habitat units.

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SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017)

May 3, 2017



Figure 3.7-10 Jurisdictional Waters Delineation Results

(Inset Area 1)



SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017)

May 3, 2017

- Wetland Study Area
 - Data Points
 - Previously Evaluated Overlap Area - 2013 PJWWDR SAR Features (Revised 9/2016)
- Potential Jurisdictional Waters of the U.S. and State**
 - Canal/Ditch
 - Retention/Detention Basin
 - Seasonal Riverine



Page 2 of 6

Figure 3.7-10 Jurisdictional Waters Delineation Results
(Inset Area 2)



FILE: Y:\HSR_BFSS\GIS\MapData\Tech_Studies\BioResandWetlands\rc_2017\5.6_JurisdictionalWaters.mxd (5/3/2017)

SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017)

May 3, 2017

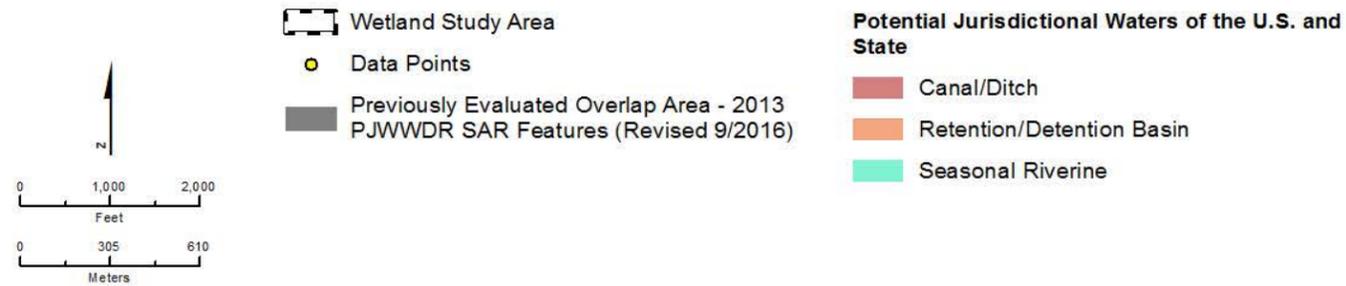


Figure 3.7-10 Jurisdictional Waters Delineation Results

(Inset Area 3)

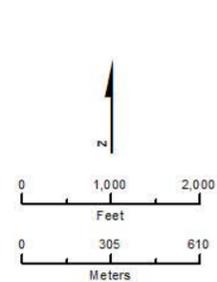
November 2017

Page | 3.7-57



SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017)

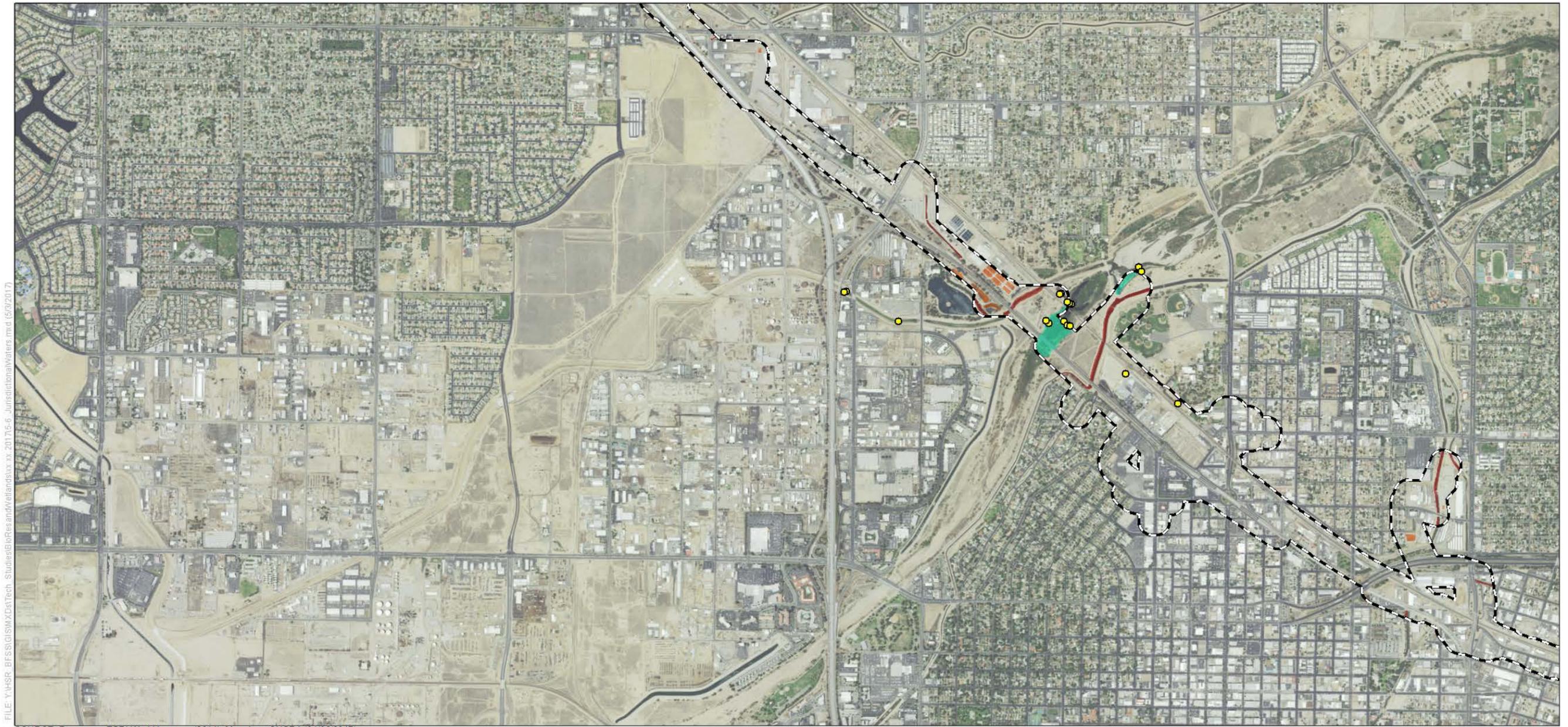
May 3, 2017



- Wetland Study Area
 - Data Points
 - Previously Evaluated Overlap Area - 2013 PJWDR SAR Features (Revised 9/2016)
- Potential Jurisdictional Waters of the U.S. and State**
 - Canal/Ditch
 - Retention/Detention Basin
 - Seasonal Riverine



Figure 3.7-10 Jurisdictional Waters Delineation Results
(Inset Area 4)



SOURCE: Basemap - ESRI World Imagery (2014); Mapping - CHSRA (01/06/2017)

May 3, 2017

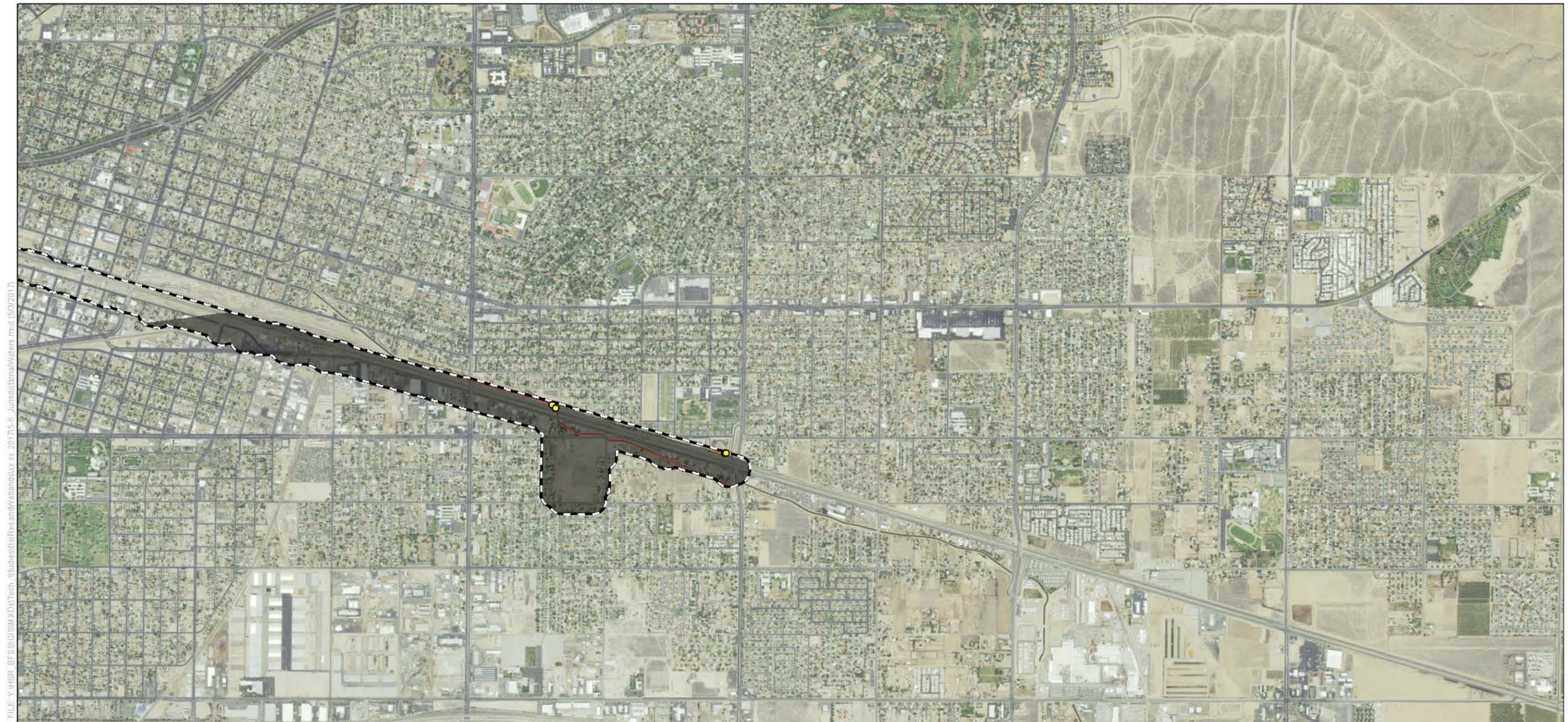


Figure 3.7-10 Jurisdictional Waters Delineation Results

(Inset Area 5)

November 2017

Page | 3.7-59



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May 3, 2017

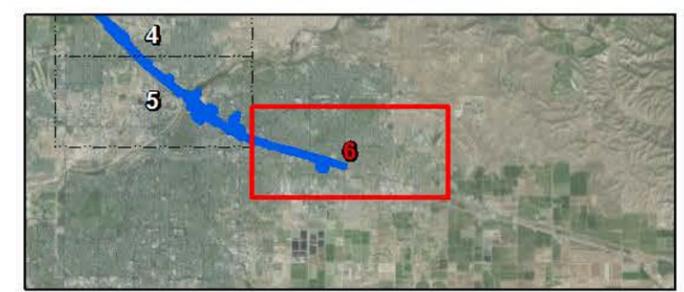
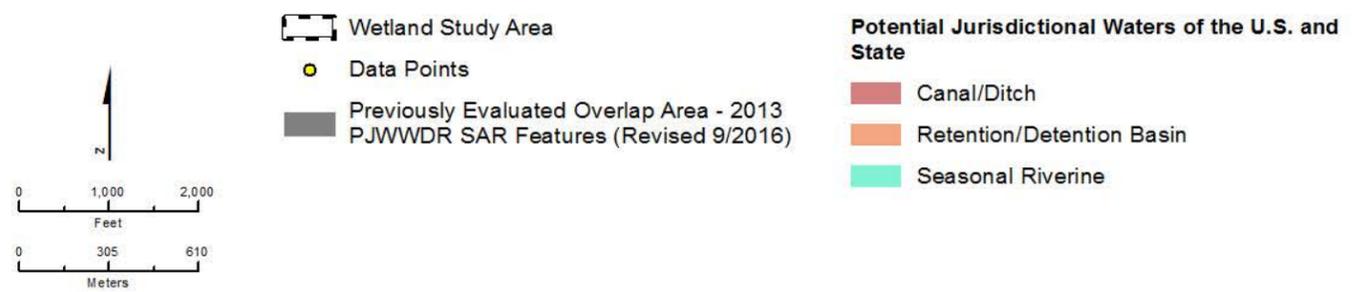


Figure 3.7-10 Jurisdictional Waters Delineation Results
(Inset Area 6)

Essential Fish Habitat

No federally managed fish species covered by the Magnuson-Stevens Fisheries Conservation and Management Act have the potential to occur in the Habitat Study Area. Therefore, the F-B LGA does not overlap essential fish habitat, and essential fish habitat is not discussed further in this document.

Conservation Areas

Conservation areas include Recovery Plans for federally listed species, conservation easements, public lands, conservation banks, and HCPs. Conservation areas in the vicinity of the F-B LGA include Recovery Plans for federally listed species and HCPs.

Recovery Plans for Federally Listed Species

One recovery plan addresses federally protected species with the potential to occur in the region: the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). The F-B LGA overlaps the Kern River linkage area that is identified by this recovery plan.

This recovery plan covers 41 federally listed species, candidate species, and species of concern. The following 11 species that are covered by the recovery plan were evaluated for their potential to occur within the F-B LGA Habitat Study Area: California jewelflower, Kern mallow, San Joaquin woolly-threads, Bakersfield cactus, lesser saltscale, Bakersfield smallscale, Munz's tidy-tips, Tipton kangaroo rat, San Joaquin kit fox, Tulare grasshopper mouse, and Le Conte's thrasher.

Habitat Conservation Plans

An HCP provides the basis for the issuance of, and must accompany an Incidental Take Permit under Section 10 of the FESA. Three HCPs have been identified in the project vicinity and are described below.

Metropolitan Bakersfield Habitat Conservation Plan: The MBHCP is a joint program of the City of Bakersfield and County of Kern (Chapter 17.62 of the Kern County Ordinances) to assist urban development applicants in complying with federal and state endangered species regulations (City of Bakersfield and County of Kern 1994). The Incidental Take Permit associated with the MBHCP expired in August 2014; however, a 5-year extension was issued and will expire in September 2019. Also, the City of Bakersfield plans to work with County of Kern to develop a new HCP and Natural Community Conservation Plan for the MBHCP area. The MBHCP overlaps the F-B LGA from approximately 7th Standard Road to the southern terminus.

The MBHCP covers 23 state and federally listed species, candidate species, and species of concern. The following 10 species that are covered by the MBHCP were evaluated for their potential to occur within the F-B LGA Habitat Study Area: Bakersfield cactus, Bakersfield saltbush, Kern mallow, Hoover's woolly-star, California jewelflower, slough thistle, San Joaquin woolly-threads, San Joaquin kit fox, Tipton kangaroo rat, and Tulare grasshopper mouse.

Pacific Gas and Electric Company San Joaquin Valley Operations and Maintenance Habitat Conservation Plan: The Pacific Gas and Electric Company San Joaquin Valley Operations and Maintenance HCP (Jones & Stokes 2006) was developed to allow the Pacific Gas and Electric Company to conduct operations and maintenance activities within the 12.1-million-acre plan area, while minimizing, avoiding, and compensating for possible direct, indirect, and cumulative adverse effects on threatened and endangered species. However, this HCP covers operations and maintenance activities at Pacific Gas and Electric facilities and, therefore, the F-B LGA will not affect HCP and it is not further discussed in this document. The Pacific Gas and Electric Company San Joaquin Valley Operations and Maintenance HCP area extends south of Bakersfield and encompasses the F-B LGA.

The Pacific Gas and Electric Company HCP covers 65 special-status plant and animal species. The following 17 species that are covered by this HCP were evaluated for their potential to occur within the F-B LGA Habitat Study Area: Bakersfield smallscale, California jewelflower, Kern mallow, San Joaquin woolly-threads, Bakersfield cactus, lesser saltscale, slough thistle, king's gold, Swainson's hawk, white-tailed kite, golden eagle, bald eagle, Tipton kangaroo rat, Nelson's antelope squirrel, San Joaquin kit fox, western burrowing owl, and tricolored blackbird.

First Public Draft—Kern County Valley Floor Habitat Conservation Plan: The draft VFHCP is a long-term program designed to conserve federally protected species, state-protected species, and/or other species of concern (Garcia and Associates 2006). In the current draft, the VFHCP establishes the conditions under which County of Kern; the California Division of Oil, Gas, and Geothermal Resources; and other program beneficiaries may seek authorization to allow the taking of multiple federally and state-protected species incidental to development and other land use activities. The VFHCP has not been officially adopted and is currently in draft form. Therefore, the project is not required to avoid conflicts with the provisions of the plan, and the VFHCP is not discussed further in this document. The VFHCP includes most of western Kern County and encompasses the F-B LGA.

The VFHCP covers 25 special-status plant and animal species. The following species that are covered by the VFHCP were evaluated for their potential to occur within the F-B LGA: heartscale, Bakersfield smallscale, California jewelflower, slough thistle, Kern mallow, Hoover’s woolly-star, San Joaquin woolly-threads, Bakersfield cactus, San Joaquin whipsnake, Le Conte’s thrasher, Nelson’s antelope squirrel, Tipton kangaroo rat, San Joaquin kit fox, and American badger.

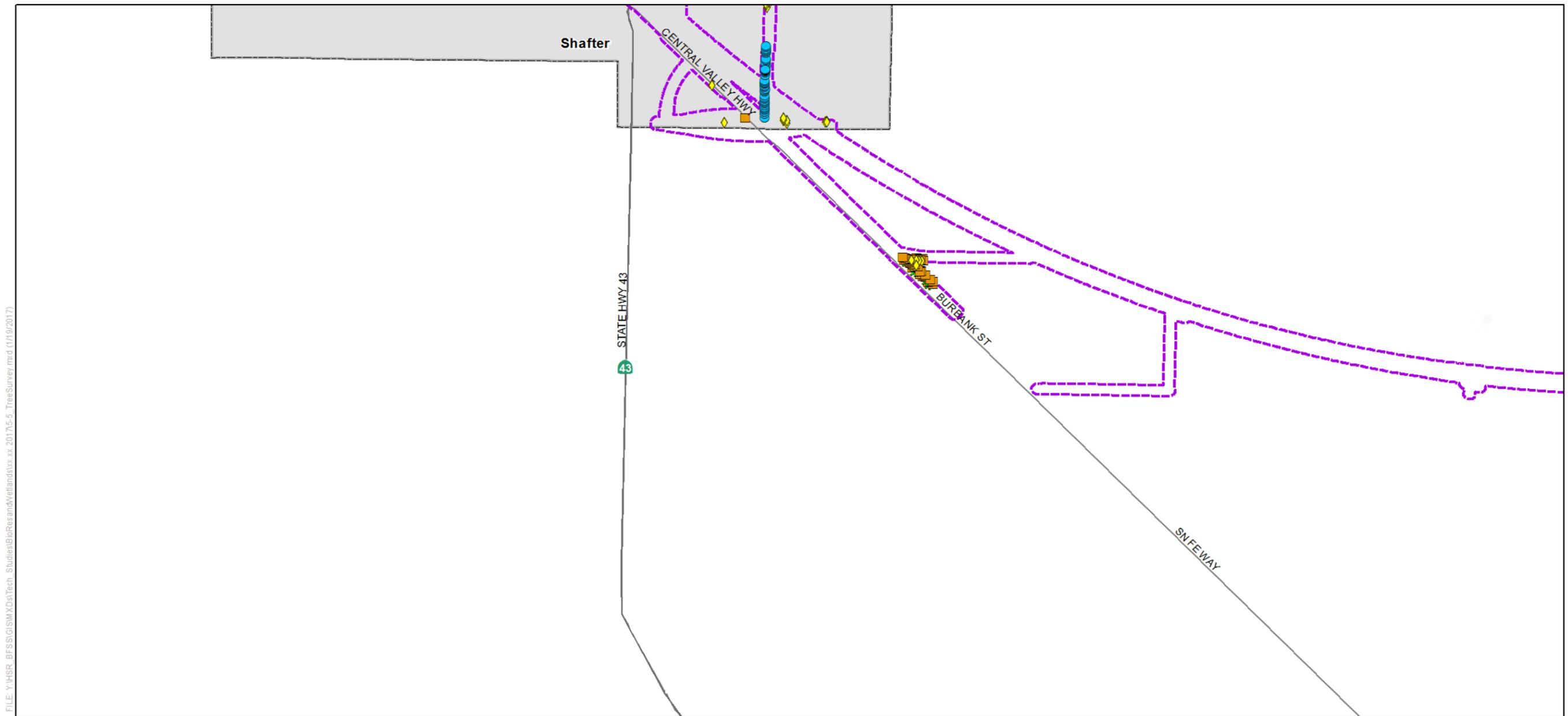
Protected Trees

Based on field surveys, aerial interpretation, and GoogleEarth™ Street View verification of tree locations, approximately 1,081 trees are present in the Special-Status Plant Study Area. Of these trees, 1,054 were counted individually and the rest are estimated totals within larger tree clusters scattered within the Kern River corridor totaling 27 trees (Figure 3.7-11 and Table 3.7-5).

Table 3.7-5 Approximate Number of Trees in the Special-Status Plant Study Area

Tree Type	Number of Trees Identified
Willow Species	9
Eucalyptus Species	233
Pine Species	70
Landscape/Ornamental/Non-Native	366
Unknown ¹	403
Total	1,081

¹ Clusters of trees identified as “tree clusters” were added to the “unknown” category.



FILE: Y:\HSR_BFSS\GIS\MapXDoc\Tech_Studies\BioResandWetlands\MapXDoc\2017\5-5_TreeSurvey.mxd (1/19/2017)

SOURCE: CHSRA (01/06/2017), USDA (2006), ESRI/USGS/NOAA (2015)

May 3, 2017

Protected Trees		Tree Clusters
Eucalyptus Species	Landscape/Ornamental/Non-native	Stream/River
Pine Species	Unknown	Highway
Willow Species	City	Special-Status Plant Study Area
	County Boundaries	

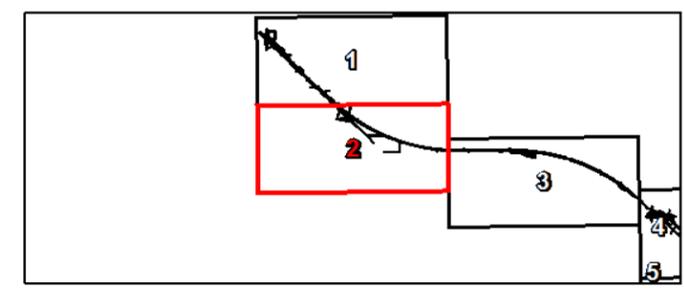
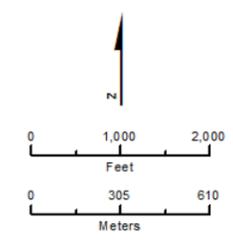
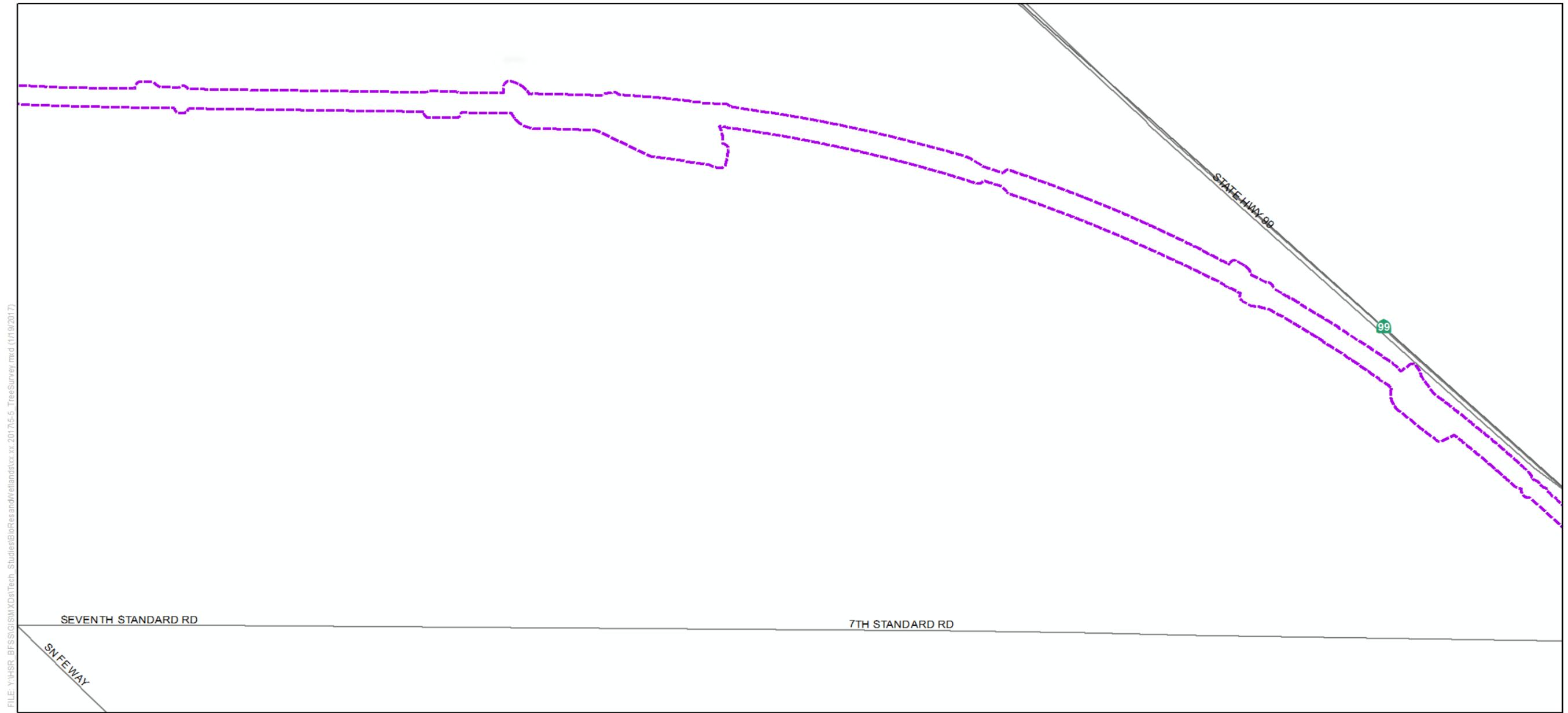


Figure 3.7-11 Protected Trees Survey Results
(Inset Area 2)



FILE: Y:\HSR_BFSS\GIS\MapDocs\Tech_Studies\BioResandWetlands\ss_2017\5-5_TreeSurvey.mxd (1/19/2017)

SOURCE: CHSRA (01/06/2017), USDA (2006), ESRI/USGS/NOAA (2015)

May 3, 2017

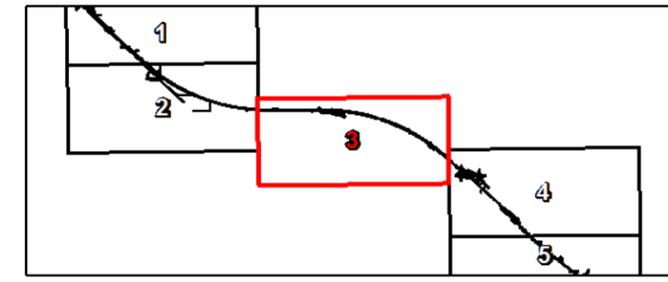
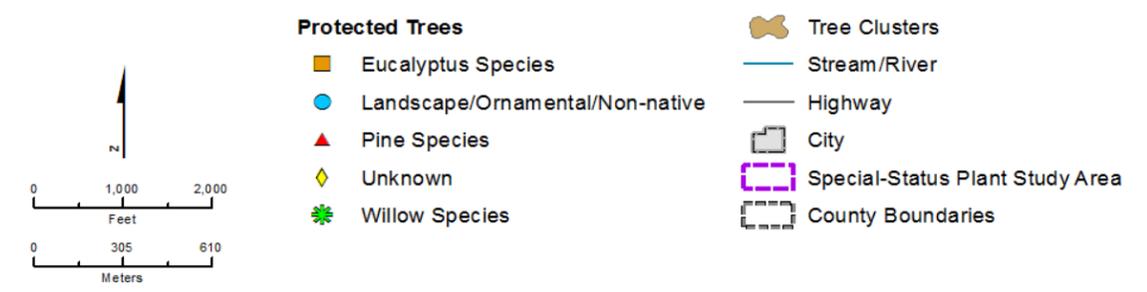
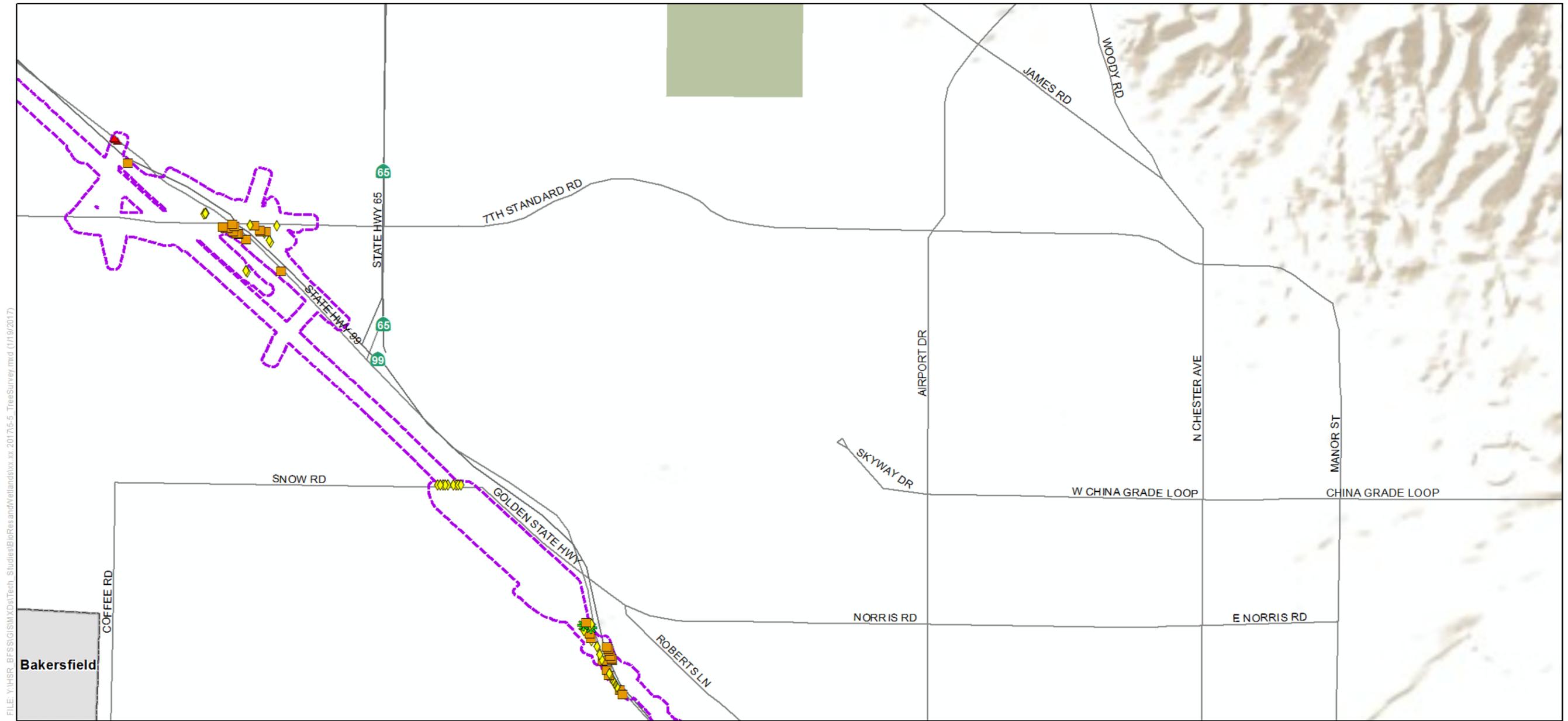


Figure 3.7-11 Protected Trees Survey Results

(Inset Area 3)



FILE: Y:\HSR_BFS\GIS\SWX\Tech_Studies\BiorResandWetlands\svr_2017\5-5_TreeSurvey.mxd (1/19/2017)

SOURCE: CHSRA (01/06/2017), USDA (2006), ESRI/USGS/NOAA (2015)

May 3, 2017

Protected Trees		Tree Clusters
Eucalyptus Species	Landscape/Ornamental/Non-native	Stream/River
Pine Species	Unknown	Highway
Willow Species	Special-Status Plant Study Area	City
	County Boundaries	

0 1,000 2,000
Feet

0 305 610
Meters

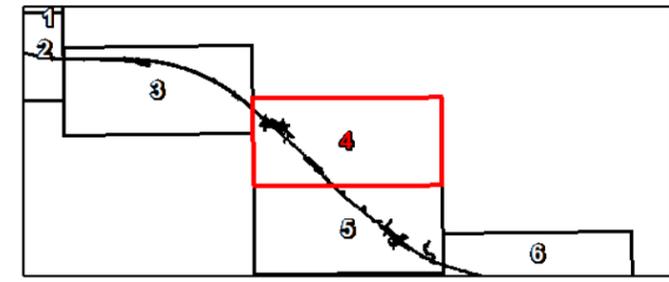
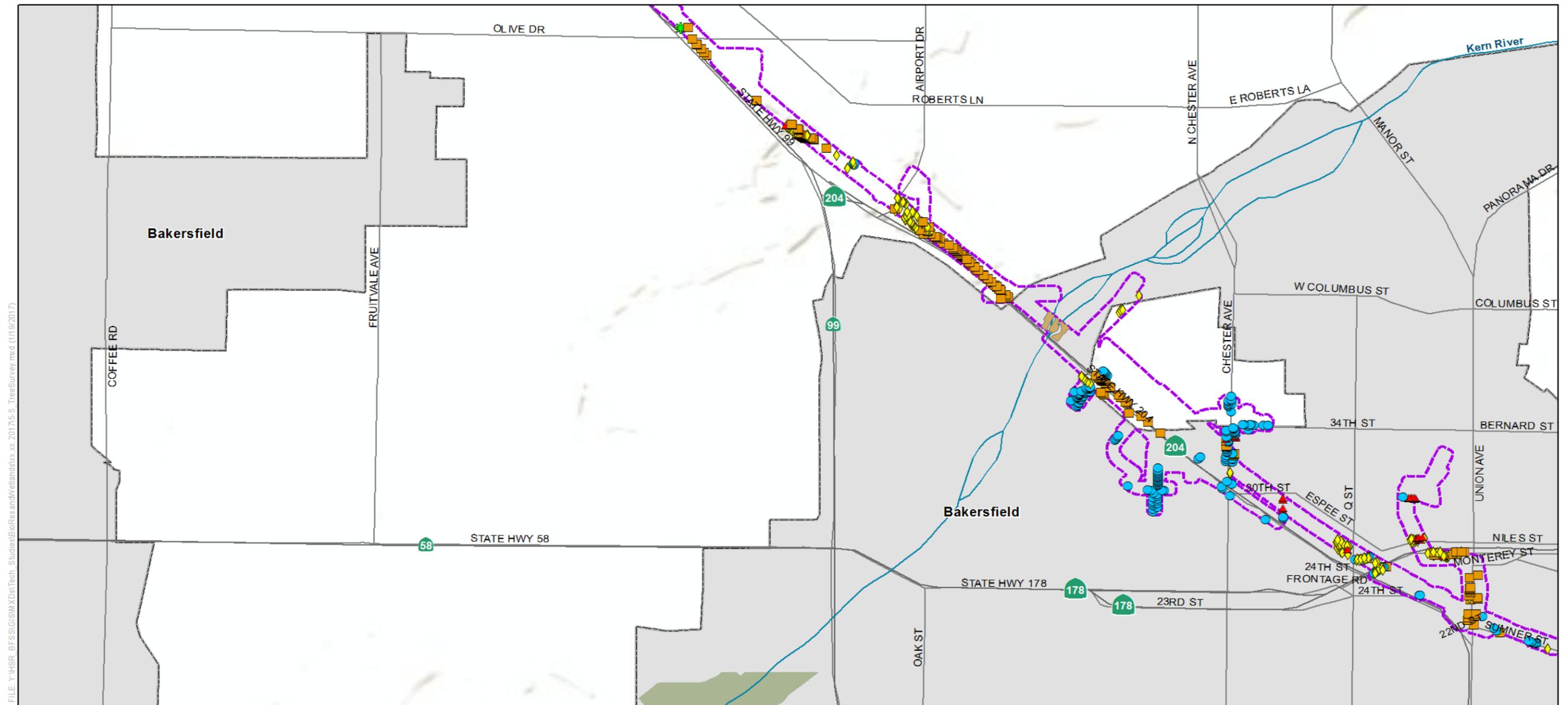


Figure 3.7-11 Protected Trees Survey Results
(Inset Area 4)



FILE: Y:\HSR_BFSS\GIS\MapTech_Studies\BioResandWetlands\xt_2017\5-5_TreesSurvey.mxd (1/19/2017)

SOURCE: CHSRA (01/06/2017), USDA (2006), ESRI/USGS/NOAA (2015)

May 3, 2017

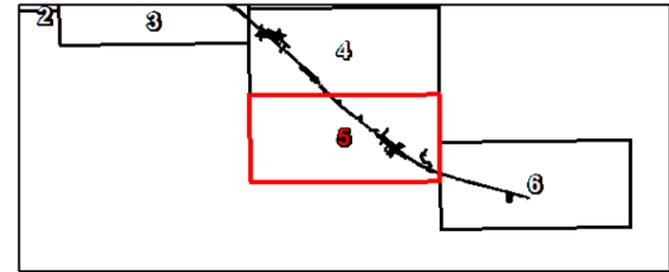
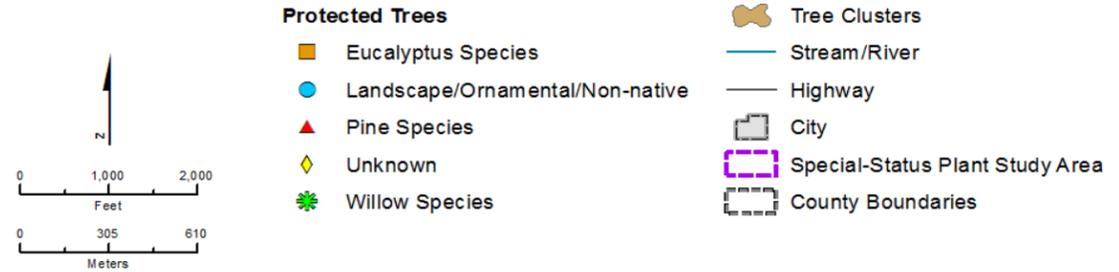
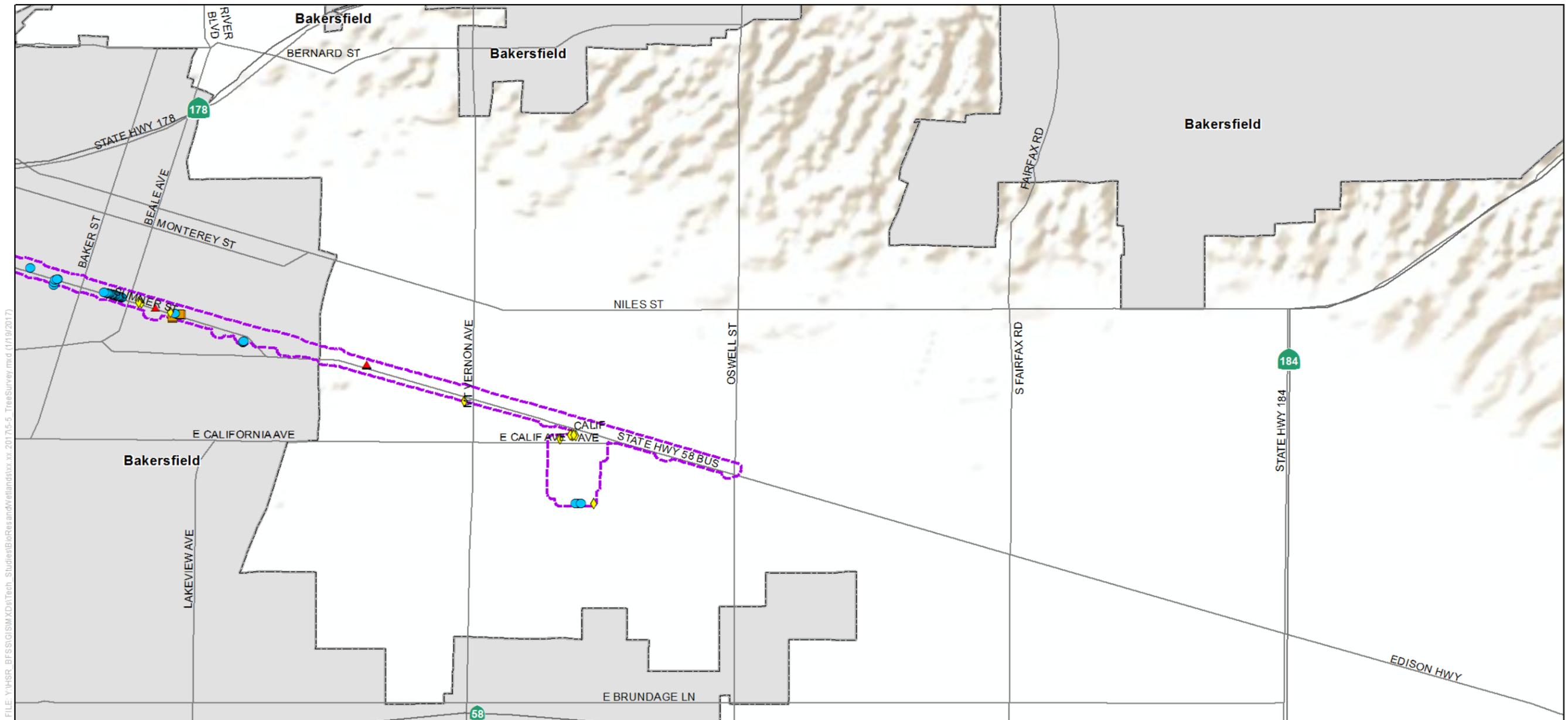


Figure 3.7-11 Protected Trees Survey Results
(Inset Area 5)



FILE: Y:\HSR_BFSS\GIS\MapDocs\Tech_Studies\BiorResandWetlands\ss_xx_2017\5-5_TreesSurvey.mxd (1/19/2017)

SOURCE: CHSRA (01/06/2017), USDA (2006), ESRI/USGS/NOAA (2015)

May 3, 2017

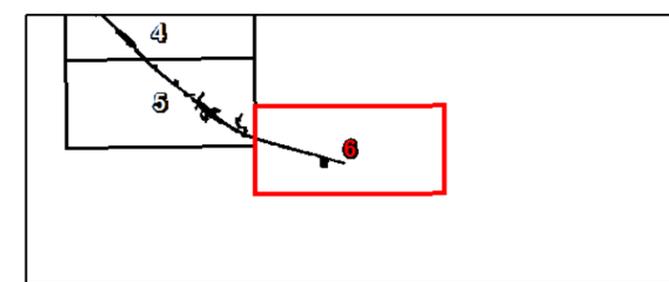


Figure 3.7-11 Protected Trees Survey Results
(Inset Area 6)

Although the majority of these trees are not protected by state or federal law, some are protected under local ordinances, regulations, and policies. Where possible, these trees have been categorized based on whether they are native and on local government policies, ordinances, and regulations. Many of the trees identified are landscape and ornamental trees that are in the urban environment throughout the Special-Status Plant Study Area. Native trees observed (that are afforded protection) include 6 willows trees within the Kern River corridor.

Wildlife Movement Corridors

The importance of habitat connectivity and corridors that facilitate this connectivity is well documented and generally accepted (Chester and Hilty 2010). Studies have shown that habitat connectivity is important in biodiversity conservation, particularly because of the role it plays in maintaining gene flow (Beier and Noss 1998), maintaining ecological processes (Bennett 1999), and reducing species extinction risk (Crooks et al. 2011).

Maintaining habitat connectivity among the natural lands that exist among agricultural land in California's San Joaquin Valley is recognized as a key tool in ensuring the long-term population viability of California's San Joaquin Valley special-status and non-special-status species. This is a high conservation priority identified by both regulatory agencies and conservation groups.

The F-B LGA intersects one wildlife movement corridor: the Kern River linkage (Figure 3.7-12). The Kern River linkage is primarily an east-west linkage that follows the Kern River riparian corridor (Penrod et al. 2001) and is approximately 30 miles long. This linkage connects natural lands identified in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998) that support special-status species (e.g., the Carrizo Plain National Monument) to Bakersfield and the Sierra Nevada foothills. Major habitat types in the linkage were identified as riparian and upland, and the major land-cover types were natural vegetation, agricultural land and urban development. The most significant barriers to wildlife movement were identified as gaps in riparian habitat and water impoundments, which potentially restrict the movement of terrestrial species across areas that formerly had only intermittent water flow (Penrod et al. 2001). The linkage is currently part of the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). The Kern River riparian corridor linkage intersects the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives. The Kern River linkage is discussed in further detail in Section 5.8 of the Biological Resources and Wetlands Technical Report (pages 5-81 through 5-84).

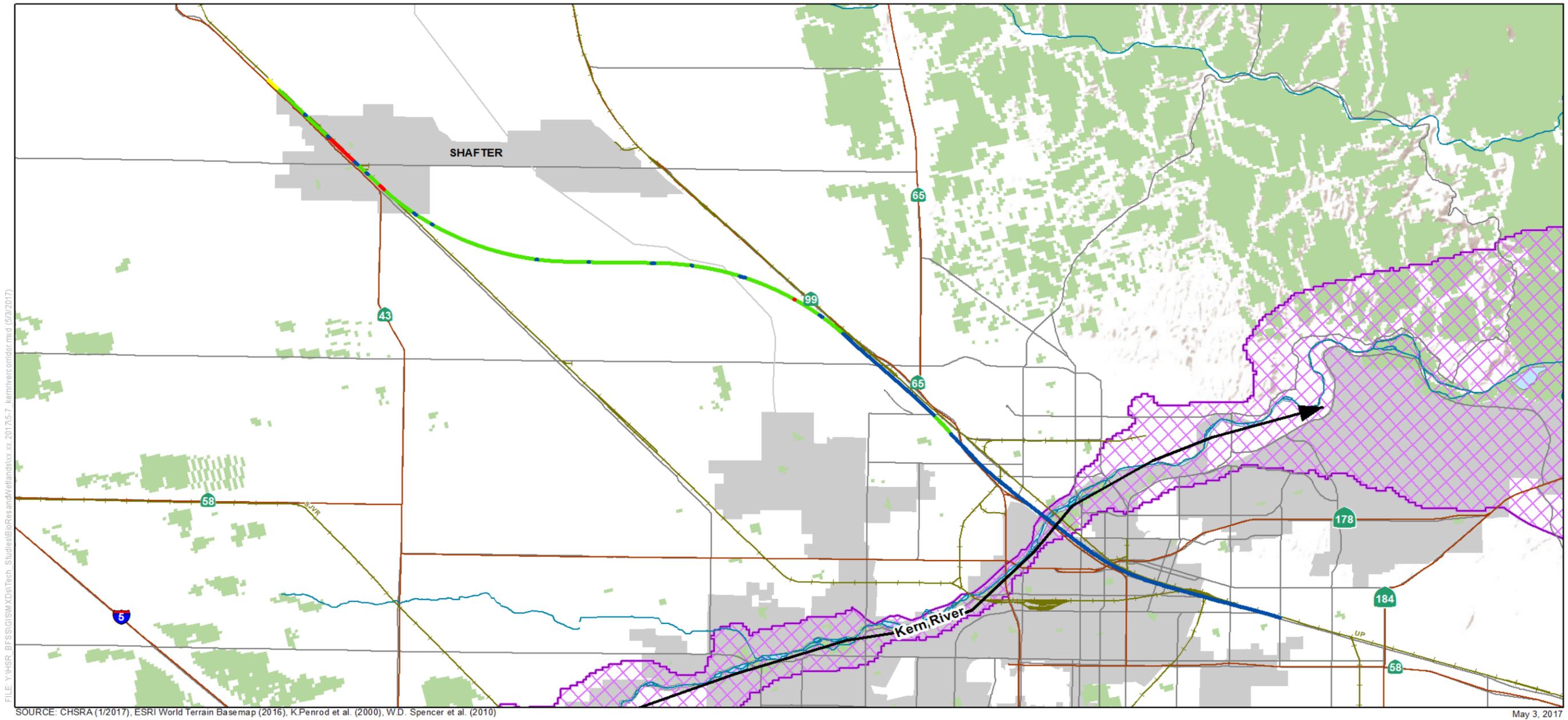
3.7.4 Environmental Consequences

Section 3.7.4.1 summarizes the impacts for the May 2014 Project, which are described further in Appendix 8-A of this Draft Supplemental EIR/EIS. An evaluation of the biological resource impacts associated with the F-B LGA is included in Section 3.7.4.2. The analysis in Section 3.7.4.2 includes a quantitative evaluation for direct impacts and qualitative evaluation for indirect impacts that would result from both construction and project activities of the F-B LGA on biological resources. Biological resources are described below in four categories: (1) special-status plant species, (2) special-status wildlife species, (3) habitats of concern (including special-status plant communities, jurisdictional waters, conservation areas, and protected trees), and (4) wildlife movement corridors.

3.7.4.1 Summary of Analysis for the May 2014 Project

This section describes findings of the biological resources that could be impacted as a result of implementing the May 2014 Project using information from the Fresno to Bakersfield Section Final EIR/EIS. The term "biological resources" includes special-status plant and wildlife species, habitats of concern (including special-status plant communities, jurisdictional waters, critical habitat, conservation areas [i.e., Recovery Plan areas for federally listed species, conservation easements, public lands, conservation banks, and Habitat Conservation Plans], and protected trees), and wildlife movement corridors.

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- F-B LGA**
- At-grade (Embankment)
 - At-grade (Other Segment)
 - Elevated Structure
 - Retained Embankment
 - Stream/River
- Urban Areas**
- Natural Landscape Blocks
 - Kern River Corridor

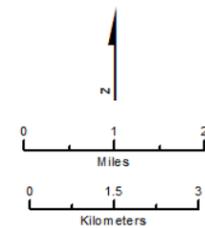


Figure 3.7-12 Kern River Corridor

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Implementation of the May 2014 Project would result in direct and indirect impacts on biological resources. Project activities associated with the May 2014 Project would result in permanent direct and indirect impacts through disturbance or removal of lands that have been determined to support or could potentially support special status species, affect habitats of concern, or interfere with wildlife movement corridors.

Special-Status Plant Species

Nineteen special-status plant species are known to occur within the Special-Status Plant Study Area and could be adversely affected by the May 2014 Project. No special-status plants were identified in the surveys completed for the project, totaling 24.34 acres; however, there is potential for special-status plant species to occur in areas of unsurveyed suitable habitat identified via visual surveys (i.e., from adjacent public roads or parcels) and aerial interpretation, totaling 112.26 acres. Unsurveyed suitable habitat included annual grassland, valley foothill riparian, and alkali desert scrub.

If special-status plant species occur in these unsurveyed areas, the types of impacts on special-status plant species that may occur could include vegetation removal and disturbance, erosion, an increased risk of fire, habitat degradation and fragmentation, and the introduction of noxious plant species.

For the May 2014 Project, direct impacts on suitable habitat for special-status plant species would result from permanent ground-disturbing activities, including construction of the track, access roads, road crossings, bridges and viaducts, retaining walls, and buildings. The construction of these features would result in the removal, destruction, covering, or unearthing of suitable habitat for special-status species, which would potentially result in impacts to special-status plant species individuals or populations. Similar impacts may also occur in temporary construction areas as a result of vegetation clearing or grubbing. Indirect impacts resulting from construction activities may lead to degradation of habitat for special-status plants species. Habitat degradation may take the form of changes in hydrology, fragmentation, and the introduction of nonnative, invasive plant species, each of which could significantly disrupt the habitat and result in decreased viability of the individuals or the population.

Construction period impacts of the May 2014 Project could result in the permanent loss or damage of special-status plant species and their habitats, and would result in a significant impact under CEQA prior to mitigation.

Special-Status Wildlife Species

Implementation of the May 2014 Project would result in direct operational impacts on habitats that could support a number of terrestrial and aquatic special-status wildlife species. Twenty-eight special-status wildlife species are known to occur within the Habitat Study Area and could be adversely affected by the May 2014 Project. The extent and nature of impacts on special-status wildlife species varies depending on the species under consideration, their range, and the type and quality of suitable habitats present. Of the habitats present, annual grassland habitat provides the best potential to host special-status wildlife species; but because this area is highly fragmented, the potential for this habitat to support special-status wildlife species is limited. For the May 2014 Project, approximately half of the impacts on habitats for special-status wildlife species are associated with urban habitats and the potential for these habitats to support special-status wildlife species is low, with the exception of the San Joaquin kit fox.

In general, direct permanent impacts on special-status wildlife species during construction of the project may include mortality or injury; fragmentation of habitat interfering with daily/seasonal movement and dispersal; destruction or abandonment of burrows/dens; destruction of breeding, nesting, roosting, and foraging habitat due to habitat fragmentation or land conversion; and degradation of aquatic habitats due to sedimentation or other pollution. Direct impacts on special-status wildlife species during operations include injury/mortality due to bird or bat strikes (for example) or other interactions with electrical systems or other project components. Direct temporary impacts on special-status wildlife species during construction of the project include

degradation or disturbance of aquatic habitat due to sedimentation or equipment spills/leaks; reptile, bird, and mammal burrow den or nest disturbances; and noise and light pollution.

Potential indirect impacts on special-status wildlife species include erosion, soil compaction, increased siltation and sedimentation, fractures in the hardpan soils, alteration of jurisdictional water hydrology, dust aerosolization, host plant stress, destruction of native vegetation, habitat fragmentation, and displacement from noise and light pollution, visual stimuli, vibration, or wind. Such potential indirect impacts could lead to the disturbance of special-status wildlife species such as a temporary shift in foraging patterns or territories, refugia abandonment, increased predation, decreased reproductive success, and reduced population viability.

Therefore, construction impacts associated with the May 2014 Project would result in a significant impact under CEQA, prior to mitigation, on special-status wildlife species.

Habitats of Concern

Special-Status Plant Communities

During the field surveys, black willow thickets (riparian areas) were identified along the Kern River portion of the May 2014 Project. The black willow thickets provide important habitat for plants and wildlife, but because of existing land uses in the region (parks, development), they have been physically reduced and restricted to narrow strips along the upper terrace of the Kern River within the Special-Status Plant Study Area for the May 2014 Project. With the exception of the Kern River, the May 2014 Project is located in an urban setting and the remaining natural areas are small and fragmented; therefore, other special-status plant communities are not expected to be present. The May 2014 Project would result in a 0.70-acre direct permanent impact and a 0.30-acre direct temporary impact on black willow thickets at the Kern River crossing. However, because the project design across the Kern River includes a viaduct, high above the banks of the river, indirect impacts (e.g., due to shading from the viaduct) would be less likely to result in degradation of the adjacent black willow thickets (e.g., changes in hydrology, habitat fragmentation, or the introduction of non-native, invasive plant species). Construction period impacts of the May 2014 Project would result in a significant impact under CEQA, prior to mitigation, on special-status plant communities and their habitats.

Jurisdictional Waters

Wetlands and other waters, including seasonal wetlands, canals/ditches, lacustrine, and riverine features are present throughout the May 2014 Project Wetland Study Area. Vernal pool features are not located within the May 2014 Project Wetland Study Area. Project impacts would require the use of heavy machinery to recontour the landscape and place permanent and temporary fill materials (such as culverts, dirt, and/or engineering structures) in both man-made jurisdictional waters (e.g., basins, canals/ditches) and natural features (e.g., wetlands, river beds, and riparian corridors). The contouring and placement of fill in jurisdictional waters would result in the permanent loss of jurisdictional waters; irreversible impacts on the physical, chemical, and biological characteristics of aquatic substrates and food webs; and a potential increase in erosion and sediment transport into adjacent aquatic areas. Temporary fill would be placed during the construction of access roads and staging/equipment storage areas, resulting in a temporary loss of jurisdictional waters. The May 2014 Project would result in permanent impacts on 0.51 acre of seasonal wetland habitat, as well as 16.52 acres of permanent impacts and 3.11 acres of temporary impacts on other waters of the U.S. (canals/ditches, lacustrine, and riverine) for a total of 20.14 acres of direct impacts on waters of the U.S. The majority of the direct and indirect impacts, described below, affect aquatic resources in poor condition.

Potential indirect impacts on jurisdictional waters include a number of temporary construction-related impacts and project period water-quality-related impacts: erosion, siltation, and runoff into natural and constructed water features and fill downstream of the construction footprint. In addition, permanent changes within the impact area would also result in changes in hydrology. For many of the man-made features, these indirect impacts would be minor, and hydrologic changes would be minimal.

The construction period impacts of the May 2014 Project would result in a significant impact on jurisdictional waters, prior to mitigation, under CEQA.

Conservation Areas

The May 2014 Project crosses the recovery plan areas identified in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998) and the Metropolitan Bakersfield Habitat Conservation Plan (City of Bakersfield and Kern County 1994).

Project direct impacts on federal recovery plan areas include the creation of permanent partial or total movement barriers to special-status species, the loss or degradation of special-status plant and wildlife species, and the loss or degradation of the lands that could support or provide habitat for these species. Due to the large area of impact, construction of the May 2014 Project would conflict with the goals and objectives of the recovery plan and result in relatively high-intensity loss to recovery plan areas. Therefore, construction period impacts under the May 2014 Project would result in a significant impact under CEQA on recovery plans.

The May 2014 Project overlaps the Metropolitan Bakersfield Habitat Conservation Plan. Construction of the May 2014 Project would result in temporary disturbance within the plan area of the Metropolitan Bakersfield Habitat Conservation Plan. The May 2014 Project does not conflict with the provisions of the Metropolitan Bakersfield Habitat Conservation Plan because proposed mitigation ratios are similar to the “adequate mitigation” ratios presented in the plan. Also, the May 2014 Project does not overlap with the Conceptual Focus Areas identified as potential preserve areas. Therefore, construction period impacts of the May 2014 Project would result in no impact under CEQA on habitat conservation plans.

Protected Trees

Trees including those protected by various government regulations are present along the May 2014 Project, and project construction activities would both alter and remove some portion of these resources. Protected riparian trees associated with the Kern River are located in the City of Bakersfield. The anticipated removal and trimming of protected trees as part of construction activities would conflict with relevant local ordinances. Protected tree removal and trimming as a result of construction of the May 2014 Project would be considerable and would result in relatively high-intensity loss of this resource, which could conflict with the objectives, goals, and/or provisions identified in approved local, regional, or state conservation plans. Therefore, construction period impacts of the May 2014 Project would result in a significant impact under CEQA.

Wildlife Movement Corridors

The construction of the May 2014 Project may result in direct impacts and/or indirect impacts in habitat types where linkages and potential movement corridors have been identified. Direct impacts include the obstruction of wildlife movement because of project infrastructure, security fencing and construction fencing. Indirect impacts may occur as a result of noise, vibrations, and visual or light pollution that could result in temporary shifts in use of corridors, foraging patterns or territories, nursery or rookery abandonment and increased predation.

The May 2014 Project passes through the Kern River linkage. The May 2014 Project has the potential to affect wildlife movement within this linkage because construction activities would affect a minor amount of natural lands. Although the infrastructure would not impede movement of aquatic species, construction activities could obstruct wildlife movement and migration through the Kern River linkage for between two to five consecutive years, resulting in greater impacts to wildlife using the linkage. Therefore, prior to the implementation of mitigation measures, the project would result in a significant impact under CEQA.

3.7.4.2 Fresno to Bakersfield Locally Generated Alternative

A complete definition of the F-B LGA is provided in Chapter 2 of this Supplemental EIR/EIS.

BIO #1 – Construction Effects on Special-Status Plant Species

The Special-Status Plant Study Area was reviewed for suitable habitats that would support the target species; no botanical surveys were conducted due to minimal permissions to enter, as described in Section 3.7.2.4. Therefore, definitive presence/absence conclusions could not be made for all special-status plant species. Impacts on the 18 special-status plant species that have the potential to occur in the Special-Status Plant Study Area (Table 3.7-6) could occur in potentially suitable habitats. The impacts on currently unknown populations of the special-status plant species or on habitat that could support these species would be both temporary and permanent, and direct and indirect. No known populations of special-status plant species occur in the Special-Status Plant Species Study Area.

Table 3.7-6 Direct Impacts on Special-Status Plant Species

Special Status Plant Species	Impact Type	F B LGA Impact Acreage
Unsurveyed annual grassland habitat that could support special-status plant species	Permanent	30.34
	Temporary	31.79

F-B LGA = Fresno to Bakersfield Locally Generated Alternative

Impact areas were determined using the project footprint. Direct impacts from construction may result from permanent ground-disturbing activities, including construction of the track, access roads, road crossings, and buildings such as the traction power station that may directly impact individuals or populations of special-status plant species. These impacts may result largely from the use of heavy machinery to clear, grub, excavate, compact, or otherwise prepare the ground surface for the construction of permanent features. The construction of these features may result in the removal, destruction, covering, or unearthing of individuals, populations, or suitable habitat of the identified special-status species. Similar impacts may also occur in temporary construction areas such as temporary access roads or staging areas as a result of vegetation clearing or grubbing. In these areas, vegetation would be allowed to reestablish following construction, which may be feasible, since the several special-status plant species with the potential to be present can naturally persist in a soil seed bank (USFWS 2005b).

Indirect impacts resulting from construction activities may lead to degradation of habitat for special-status plants species. Habitat degradation may take the form of changes in hydrology, fragmentation, and the introduction of nonnative, invasive plant species, each of which could significantly disrupt the habitat and result in decreased viability of the individuals or the population. Changes in hydrology may result from activities such as the pile driving of elevated structures and track construction that would potentially alter the natural ground or surface water flows. Several of the special-status plant species rely on flooding to disperse seeds and facilitate germination; therefore, changes in hydrology may greatly alter the suitability of the habitat (USFWS 2005b).

Fragmentation may result from the construction of permanent features, especially linear features including track and access roads that bisect natural habitats. Construction activities may facilitate the spread of nonnative, invasive plant species through the introduction of seeds by construction equipment and vehicles. Both permanent and temporary ground disturbances would also create a more suitable habitat for nonnative invasive plants species that may spread and compete with special-status species or destructively alter their habitat.

Although no special-status plant species were observed in the Special-Status Plant Study Area, a measurable loss to special-status plant species may occur due to impacts on unsurveyed habitats that have the potential to support special-status plant species. Therefore, prior to the implementation of mitigation measures referenced in Section 3.7.5.1 (e.g., preconstruction surveys and compensatory mitigation), the F-B LGA would result in a significant impact under CEQA on special-status plant species.

BIO #2 – Construction Effects on Special-Status Wildlife

The construction of the project may result in direct impacts and indirect impacts on special-status wildlife species. The extent and nature of impacts on special-status wildlife species varies depending on the species, their range, and the type and quality of suitable habitats present.

In general, permanent and temporary direct impacts on special-status wildlife species during construction of the project include mortality or injury, and disturbances to suitable habitats for special-status wildlife species, including water pollution; amphibian breeding pool disturbance; and reptile, bird, and mammal burrow or nest disturbance. These habitat disturbances could lead to the permanent or temporary abandonment of these habitats by special-status species, a disruption in the life cycle of these species, or mortality or injury of these species. Because it is difficult to determine the number or extent of these kinds of impacts to these individual special status wildlife species, this analysis assumes, direct impacts on these species special-status wildlife species are based on the amount of suitable habitat that would be permanently or temporarily impacted by project construction activities.

Table 3.7-7 provides a summary of the permanent and temporary direct impacts from construction based on the amount of suitable habitat that will be disturbed for each special-status wildlife species.

Table 3.7-7 Direct Impacts on Special-Status Wildlife Species

Special Status Wildlife Species (Common Name / Scientific Name / Status)	CWHR Vegetation Community or Wildlife Association	Impact Type	Impact Acreage
Federally and State Listed Species			
Golden Eagle (<i>Aquila chrysaetos</i>) FP	AGS, BAR, CRP, IRH, URB	Permanent	525.61
		Temporary	157.03
Swainson's hawk (<i>Buteo swainsoni</i>) ST	AGS, BAR, CRP, IRH, LAC, URB	Permanent	526.69
		Temporary	157.44
White-tailed kite (<i>Elanus leucurus</i>) FP	AGS, BAR, DOR, IRF, IRH, CRP, VIN, URB	Permanent	795.67
		Temporary	169.14
American peregrine falcon (<i>Falco peregrinus anatum</i>) Delisted, SE/FP	AGS, BAR, CRP, IRH, LAC, RIV, URB	Permanent	545.96
		Temporary	160.65
Greater sandhill crane (<i>Grus canadensis tabida</i>) ST/FP	AGS, IRF, IRH, CRP, LAC	Permanent	86.53
		Temporary	32.31
Bald eagle (<i>Haliaeetus leucocephalus</i>) Delisted, SE/FP	AGS, BAR, LAC, RIV	Permanent	97.94
		Temporary	43.36
Nelson's antelope squirrel (<i>Ammospermophilus nelsoni</i>) ST	AGS, BAR	Permanent	77.59
		Temporary	39.74
Ringtail (<i>Bassariscus astutus</i>) FP	AGS, RIV	Permanent	65.75
		Temporary	35.00

Special Status Wildlife Species (Common Name / Scientific Name / Status)	CWHR Vegetation Community or Wildlife Association	Impact Type	Impact Acreage
Tipton kangaroo rat (<i>Dipodomys nitratooides nitratooides</i>) FE, SE	AGS, BAR	Permanent	77.59
		Temporary	39.74
Buena Vista Lake ornate shrew (<i>Sorex ornatus relictus</i>) FE	AGS, CRP, IRF, IRH, LAC, RIV (Kern River)	Permanent	2.44
		Temporary	0.74
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>) FE, ST	AGS, BAR, CRP, DOR, IRF, IRH, VIN, URB (Bakersfield)	Permanent	258.04
		Temporary	161.73
Other Special-Status Species			
Kern brook lamprey (<i>Lampetra hubbsi</i>) CSC	Friant-Kern Canal	Permanent	0.00
		Temporary	0.00
Western spadefoot (<i>Spea hammondi</i>) CSC	AGS, RIV	Permanent	62.75
		Temporary	35.00
Western pond turtle (<i>Emys marmorata</i>) CSC	AGS, LAC, RIV	Permanent	63.84
		Temporary	35.41
Silvery legless lizard (<i>Anniella pulchra pulchra</i>) CSC	RIV (Kern River)	Permanent	1.13
		Temporary	0.41
San Joaquin whipsnake (<i>Masticophis flagellum ruddocki</i>) CSC	AGS	Permanent	43.49
		Temporary	31.80
Coast horned lizard (<i>Phrynosoma coronatum frontale</i>) CSC	AGS	Permanent	43.49
		Temporary	31.80
Western burrowing owl (<i>Athene cunicularia</i>) CSC	AGS, BAR, URB	Permanent	483.65
		Temporary	156.93
Special-Status Raptor Species	AGS, CRP, IRF, IRH	Permanent	85.44
		Temporary	31.90
Special-Status Passerine Species	AGS, CRP, IRF, IRH, LAC, RIV	Permanent	105.79
		Temporary	35.51
Special-Status Wading Birds, Shore Birds, and Duck Species	AGS, CRP, IRF, IRH, LAC, RIV	Permanent	105.79
		Temporary	35.51
Bird Species Protected Under the Migratory Bird Treaty Act	AGS, BAR, CRP, DOR, IRF, IRH, LAC, RIV, VIN, URB	Permanent	816.02
		Temporary	172.76
Tulare grasshopper mouse (<i>Onychomys torridus tularensis</i>) CSC	AGS	Permanent	43.49
		Temporary	31.80

Special-Status Wildlife Species (Common Name / Scientific Name / Status)	CWHR Vegetation Community or Wildlife Association	Impact Type	Impact Acreage
American badger (<i>Taxidea taxus</i>) CSC	AGS, BAR	Permanent	77.59
		Temporary	39.74
Pallid bat (<i>Antrozous pallidus</i>) CSC	AGS, BAR, CRP, DOR, IRF, IRH, RIV, VIN, URB	Permanent	615.83
		Temporary	168.76
Western mastiff bat (<i>Eumops perotis californicus</i>) CSC	AGS, BAR, CRP, DOR, IRF, IRH, VIN, URB	Permanent	596.57
		Temporary	165.56
Western red bat (<i>Lasiurus blossevillii</i>) CSC	AGS, CRP, IRH, LAC, RIV, URB	Permanent	469.90
		Temporary	152.60

Source: Authority and FRA, 2017

- AGS = Annual grassland
- BAR = Barren
- CRP = Cropland
- CSC = California Species of Concern
- CWHR = California Wildlife Habitat Relationships (classification system)
- DOR = Deciduous orchard
- FE = Federally Endangered
- FP = Federally Protected
- IRF = Irrigated row field
- IRH = Irrigated hayfield
- LAC = Lacustrine
- RIV = Riverine
- SE = State Endangered
- ST = State Threatened
- URB = Urban and BNSF Railway urban
- VIN = Vineyard

Permanent and temporary indirect impacts on special-status wildlife species would occur through construction of the F-B LGA in a number of ways depending on the species and type of disturbance. Potential indirect impacts include erosion, soil compaction, increased siltation and sedimentation, fractures in the hardpan soils, alteration of jurisdictional water hydrology, dust aerosolization, host plant stress, destruction of native vegetation, habitat fragmentation, and noise and light pollution. These indirect impacts could lead to the disturbance of special-status wildlife species such as a temporary shift in foraging patterns or territories, refugia abandonment, increased predation, decreased reproductive success, and reduced population viability. Because it is difficult to quantify and measure these kinds of impacts, indirect impacts on special-status wildlife species are described qualitatively.

During operation of the train, maintenance activities requiring ground disturbance, clearing, or grubbing could cause erosion and sedimentation that could indirectly affect the hydrology of nearby jurisdictional waters and the species that depend on these resources. Chemical runoff from trucks or equipment along the primary right-of-way could indirectly degrade suitable habitat used by these species that are present adjacent to the rail. If operational maintenance requires weed abatement activities, such as the use of herbicides, these activities could also contribute to chemical runoff and pollution of adjacent suitable habitats. However, maintenance activities with potential impacts on special-status wildlife species would be limited to the at-grade portion of the project footprint.

Invertebrates

The F-B LGA does not support suitable habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp. Although elderberry shrubs, the sole host plant of the valley elderberry longhorn beetle, have been identified in the F-B LGA Habitat Study Area, Kern County is no longer in the range of this species' federal designation. Therefore, the F-B LGA would result in no impact under CEQA, on special-status invertebrate species.

Amphibians

The F-B LGA contains suitable habitat (e.g., unsurveyed annual grassland) that may support western spadefoot (Table 3.7-7). Western spadefoot would be permanently affected, both directly and indirectly, by construction of the F-B LGA through project impacts to suitable annual grassland habitat. Impacts would occur as a result of ground disturbance, habitat degradation, or land conversion from suitable aquatic, natural, bare-earth or otherwise suitable habitats to developed, hardscaped land uses. Impacts of the F-B LGA on suitable habitat for special-status amphibians may result in an adverse effect to this species including loss of suitable breeding, refugia, or aquatic habitats and/or the injury or death of individuals. Therefore, prior to the implementation of mitigation measures, the project impacts of the F-B LGA would result in a significant impact under CEQA on this special-status amphibian species.

Reptiles

The F-B LGA contains suitable habitat (e.g., unsurveyed annual grassland) for special-status reptiles, including coast horned lizard, San Joaquin whipsnake, silvery legless lizard, and western pond turtle (Table 3.7-7). Special-status reptiles would be permanently affected, both directly and indirectly, by construction of the F-B LGA through project impacts to suitable habitat for these species. Impacts would occur as a result of ground disturbance, habitat degradation, or land conversion from suitable aquatic, natural, bare-earth or otherwise suitable habitats to developed, hardscaped land uses. Impacts of the F-B LGA on habitat for special-status reptiles may result in an adverse effect to these species including loss of suitable breeding, nesting, refugia, or aquatic habitats and/or the injury or death of individuals. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a significant impact under CEQA on special-status reptile species.

Fish

Within the F-B LGA, a small amount of marginal habitat (i.e., riverine) for the Kern brook lamprey is present in the Friant-Kern Canal. The F-B LGA is not expected to result in permanent impacts on special-status fish because construction will completely avoid impacts to the Friant-Kern Canal and operations would occur on an elevated structure. Kern brook lamprey has a low potential to be permanently affected, both directly and indirectly, by project impacts associated with the F-B LGA (Table 3.7-7) because a minimal amount of suitable habitat is present for special-status fish species in the Habitat Study Area, only a slight change to existing biological conditions and little to no regional effects are expected. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a less than significant impact under CEQA on special-status fish species because of the potential permanent indirect impacts on the Kern brook lamprey and its habitat.

Birds (includes all migratory birds covered under Migratory Bird Treaty Act)

The F-B LGA contains suitable habitat (including both natural habitats and agricultural land uses) for a variety of special-status birds, including burrowing owls, Swainson's hawks, and other migratory birds. The natural areas provide suitable habitat for breeding, foraging, and migration stopover habitat. Special-status bird species and their habitat would be permanently affected, both directly and indirectly, by project impacts to suitable habitat associated with construction of the F-B LGA (Table 3.7-7). Impacts would occur as a result of habitat loss, disruption by equipment or personnel, earth moving activities, noise, vibrations, visual stimuli, and fragmentation of the landscape from construction of project infrastructure. Impacts of the F-B LGA on suitable habitat for special-status birds may result an adverse effect to these species including nest disturbance or nest abandonment during incubation, nestling, or fledging stages and/or the injury or death of individuals. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a significant impact under CEQA on special-status bird species.

Mammals

The F-B LGA contains suitable habitat (e.g., annual grassland and barren), for special-status mammals, including American badger, Nelson’s antelope squirrel, ringtail, San Joaquin kit fox Tipton kangaroo rat, Tulare grasshopper mouse, and special-status bats. In addition, urban land uses in Bakersfield are used by San Joaquin kit fox, and the Kern River corridor could be used by the Buena Vista Lake ornate shrew. Special-status mammals would be permanently affected, both directly and indirectly, by project impacts to suitable habitat associated with construction of the F-B LGA (Table 3.7-7). Impacts would occur as a result of earth moving activities, ground disturbance, habitat degradation, and conversion from suitable natural or bare-earth habitats to developed, hardscaped land uses. Impacts of the F-B LGA on suitable habitat for special-status mammals may result in an adverse effect to these species including burrow or den disturbance or abandonment, loss of or disturbance to breeding or rearing of young, and/or the injury or death of individuals. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a significant impact under CEQA on special-status mammal species.

Native Fauna

The F-B LGA contains suitable habitat for native fauna, although the area of suitable habitat is limited due to the location of the F-B LGA through predominantly agricultural and urban lands. Nonetheless, native fauna would be permanently affected, both directly and indirectly, by project impacts associated with construction of the F-B LGA. Impacts would occur as a result of ground disturbance and the conversion from suitable natural habitat types to developed, hardscaped land uses. Despite the relatively limited area of habitat that would be affected, the F-B LGA would result in a measureable loss of this resource. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a significant impact under CEQA on native fauna.

BIO #3 – Construction Effects on Habitats of Concern

Special-Status Plant Communities

Construction of the project may result in direct and indirect impacts on special-status plant communities (black willow thicket) that occur within the Special-Status Plant Study Area. No other special-status plant communities occur in the Special-Status Plant Study Area. Table 3.7-8 provides a summary of direct impacts on special-status plant communities.

Table 3.7-8 Direct Impacts on Special-Status Plant Communities

Special-Status Plant Community Type (Common Name/Scientific Name/Alliance/Status)	Impact Type	F-B LGA Impact Acreage
Black willow thicket/ <i>Salix gooddingii</i>	Permanent	1.13
Woodland Alliance G3, S3	Temporary	0.41

Source: Authority and FRA, 2017

Global Rank

G3 = 21-100 element occurrences (Eos) OR 10,000-50,000 acres.

State Rank

S3 = 21-100 EOs OR 10,000-50,000 acres

Additional global and state ranking is included in Appendix 3.7-B, Attachment 3, of the Fresno to Bakersfield Section Final EIR/EIS.

F-B LGA = Fresno to Bakersfield Locally Generated Alternative

Construction impacts may result from all permanent ground-disturbing activities, including construction of the track, access roads, road crossings, and buildings. Impacts would result largely from the use of heavy machinery (including bulldozers, motor graders, scrapers, excavators, earth compaction equipment, and cranes) to clear, grub, excavate, compact, or otherwise prepare the ground surface for the construction of permanent features. The construction of these features may result in permanent loss of special-status plant communities in the project footprint.

Identified special-status plant communities would be directly and temporarily impacted by construction (e.g., aerial structure construction and construction staging areas). These impacts would result from clearing vegetation or grubbing in areas that would be allowed to reestablish following construction.

Permanent and temporary indirect construction impacts on special-status plant communities would include fragmentation and introduction of nonnative, invasive plant species. These changes would result in decreased viability and gradual loss of special-status plant communities. Fragmentation would result from the construction of permanent features, especially linear features, including track and access roads that bisect special-status plant communities.

Construction activities could facilitate the spread of nonnative invasive plant species through introduction of seeds by construction equipment, vehicles, and personnel, and could provide ample habitat for colonization where permanent and temporary ground-disturbing activities occur.

Due to the presence of unsurveyed habitats that have the potential to support special-status plant communities, the F-B LGA may result in a measurable loss to special-status plant species. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a significant impact under CEQA on special-status plant communities.

Jurisdictional Waters

Jurisdictional waters, including canals/ditches, culverts, retention/detention basins, and riverine features, are present at various locations throughout the F-B LGA (Figure 3.7-3). The construction of roads, rail track, and associated infrastructure would result in the removal or alteration of jurisdictional waters through filling, hydrological interruption, or other activities that will impact these resources. In the case of man-made features, these impacts would cause the loss or disruption of the limited biological functions these features provide. In natural areas, these activities would remove or disrupt the hydrology, vegetation, wildlife utilization, water quality conditions, and other biological functions provided by these resources. Table 3.7-9 quantifies permanent and temporary direct impacts on jurisdictional waters in the Wetland Study Area of the F-B LGA. For a comparison of the permanent and temporary direct impacts on jurisdictional waters between the May 2014 Project and the F-B LGA, please refer to Table 8-2 in Chapter 8 and Table 8-A-72 of Technical Appendix 8-A.

Table 3.7-9 Direct Impacts on Jurisdictional Waters

Wetlands and Other Waters	Impact Type	Impact Acreage
Wetlands	Permanent	—
	Temporary	—
Canal/Ditch	Permanent	13.45
	Temporary	0.11
Retention/Detention Basin	Permanent	1.38
	Temporary	0.66
Seasonal Riverine	Permanent	1.13
	Temporary	0.41
Other Waters of the United States Total	Permanent	15.96
	Temporary	1.18
Total Impacts	Permanent	15.96
	Temporary	1.18
Additional Waters of the State ¹	Permanent	—
	Temporary	—
Additional CDFW Riparian ²	Permanent	—
	Temporary	—

Source: Authority and FRA, 2017

— = No impact or not applicable

¹ Additional waters of the State documents any aquatic features not previously identified as waters of the U.S.

² Additional CDFW Riparian documents any riparian habitat not previously identified as waters of the US.

CDFW = California Department of Fish and Wildlife

The construction of various project components (e.g., embankments, railbeds, road overcrossings, and aerial structure footings) would result in direct impacts on jurisdictional waters. Construction would require the use of heavy machinery to contour the landscape and place fill materials (such as culverts, dirt, and/or engineering structures) in both man-made jurisdictional waters (such as basins) and in natural features (riverbeds). The contouring and placement of fill in jurisdictional waters would result in the permanent loss of jurisdictional water functions and values.

Potential indirect impacts on jurisdictional waters include a number of water-quality-related impacts: erosion and transport of fine sediments or fill downstream of construction to unintentional release of contaminants into jurisdictional waters that are outside of the project footprint. These discharges would indirectly impact adjacent or downstream jurisdictional waters.

The F-B LGA would affect primarily man-made jurisdictional waters (e.g., basins and canals) but would also affect natural jurisdictional waters associated with the Kern River, and would constitute a measurable loss to these features. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a substantial adverse effect to jurisdictional waters under CEQA.

Canals/Ditches

Most impacts to jurisdictional waters in canals/ditches would be avoided via bridges and elevated structures (e.g., viaducts). However, a section of both the Callaway Canal and Lerdo Canal will be realigned to provide a perpendicular crossing for the F-B LGA alignment. Realignment will result in permanent and temporary impacts to canal/ditches.

Many of the canals/ditches are heavily managed by local irrigation districts, which serve public water needs and agricultural production. As a result, the biological functions of these man-made

features include limited habitat for wildlife and capacity for water storage or release. A number of these waters have been previously degraded or impacted by existing roads and railroad infrastructure. The construction of the F-B LGA would avoid further degradation of these man-made jurisdictional waters.

Retention/Detention Basins

Direct impacts on natural and man-made features include the removal or modification of local hydrology, the redirection of flow, and the placement of fill material in retention/detention basin features. In the case of man-made features, these impacts would remove or disrupt the limited biological functions that these features provide.

Seasonal Riverine

The Kern River, the only seasonal riverine feature in the F-B LGA Study Areas, would be spanned by a bridge; however, some minor permanent impacts to the Kern River would result from placement of supports. The redirection of flow and the placement of fill material could remove or disrupt the hydrology, vegetation, wildlife use, water quality conditions, and other biological functions provided by the resources within the seasonal riverine area.

The seasonal riverine waters are heavily managed by local irrigation districts, which serve public water needs and agricultural production. As a result, the biological functions of these features include limited habitat for wildlife and capacity for water storage or release. There are also areas that have been previously degraded or impacted by existing roads and railroad infrastructure. The construction of the F-B LGA would avoid further degradation of the seasonal riverine areas.

Conservation Areas

Recovery Plans

The F-B LGA overlaps the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). A portion of the F-B LGA crosses a linkage area along the Kern River that is identified in this recovery plan. Project impacts associated with the F-B LGA would result in temporary and permanent disturbance of this recovery plan linkage area.

As a result of the 1.13-acre permanent impact to the Kern River, the F-B LGA would result in measurable loss to recovery plan areas. Therefore, prior to the implementation of mitigation measures, the F-B LGA would result in a significant impact under CEQA on recovery plans.

Habitat Conservation Plans

The F-B LGA overlaps the Metropolitan Bakersfield Habitat Conservation Plan (HCP) area (City of Bakersfield and Kern County 1994). Construction of the F-B LGA would result in permanent and temporary impacts within the MBHCP area. Construction period impacts of the F-B LGA do not conflict with the provisions of the MBHCP because proposed mitigation ratios for F-B LGA are similar to the “adequate mitigation” ratios presented in the MBHCP. No additional mitigation will be required to comply with all mandated provisions of the MBHCP. Also, the F-B LGA does not overlap with the Conceptual Focus Areas identified as potential preserve areas. Therefore, the F-B LGA would have no impact on HCPs under CEQA.

Protected Trees

Protected trees are present in the F-B LGA, and project construction activities would both alter and remove some portion of these resources. Construction of the project would result in the permanent removal or modification of all trees that are located within the project footprint (Table 3.7-10).

Table 3.7-10 Impacts on Protected Trees

Tree Type	Trees to Be Removed
Willow Species	4
Eucalyptus Species	113
Pine Species	31
Landscape/Ornamental/Non-Native	165
Unknown ¹	99
Total	412

Source: Authority and FRA, 2017

¹ Clusters of trees where the number of trees have been estimated were identified as "tree clusters" and were added to the "unknown" category.

All or most of the protected trees currently in areas where permanent infrastructure (e.g., rail track and road overpasses) and temporary activities (e.g., materials staging, temporary access roads, and construction rights-of-way) are proposed would need to be removed during construction. Where the alignment is located at-grade, removal or trimming of all protected trees is anticipated. In urban areas and where the alignment is located on an elevated structure and where the majority of the landscaped ornamental trees are located, trimming and limited removal of protected trees would occur.

Because some trees could not be identified due to lack of permission to enter, some of these trees are likely protected by local regulations, while others likely are not.

The regional and contextual importance of protected trees in the Special-Status Plant Study Area varies based on the species of tree and its location. Native tree species and trees found in riparian areas are ecologically valuable because natural habitats and riparian areas have been greatly reduced in the Central Valley, and these trees, therefore, represent a rare resource for wildlife. However, the majority of protected trees present, besides those of unknown type, are landscape, ornamental, or nonnative trees, which are less ecologically significant because they do not provide natural habitat or are less likely to provide native species preservation value.

Construction of the F-B LGA would result in the removal or modification of protected trees within the construction footprint, which could conflict with the objectives goals, and/or provisions identified in approved local, regional, or state conservation plans. Therefore, construction period impacts of the F-B LGA would result in a significant impact under CEQA.

BIO #4 – Construction Effects on Wildlife Movement Corridors

The construction of the HSR project may result in direct impacts and/or indirect impacts in habitat types where linkages and potential movement corridors have been identified. Direct impacts include the obstruction of wildlife movement because of project infrastructure, security fencing and construction fencing. Indirect impacts may occur as a result of noise, vibrations, and visual or light pollution that could result in temporary shifts in use of corridors, foraging patterns or territories, nursery or rookery abandonment and increased predation.

In the case where the rail would be constructed on elevated structures, the project would have negligible interferences to linkages because the elevated portions of the rail would span several miles and would allow unimpeded wildlife passage. In the case of at-grade portions of the rail, linkages would be at risk of losing their functionality, and construction and operations would further impair the tenuous habitat linkages between existing natural habitat blocks.

The major linkage identified in the F-B LGA is associated with the Kern River. Although the infrastructure would not impede movement of aquatic species, construction activities could obstruct wildlife movement and migration through the Kern River linkage for between two to five consecutive years, resulting in greater impacts to wildlife using the linkage. Therefore, prior to the implementation of mitigation measures, the project would result in a significant impact under CEQA.

BIO #5 – Project Effects on Special Status Plant Species

Direct Effects

Direct effects associated with operation and maintenance will be limited to where habitats within the project footprint were modified or degraded during construction. Wherever suitable lands are modified or degraded during construction, special-status plant species are unlikely to reoccur and operational activities that require maintenance of the railway are unlikely to result in direct effects to special-status plant species.

Where construction will occur in special-status plant species habitat, special-status plant species may be present and may colonize a portion of the operational right-of-way where maintenance activities are minimal. If operations and maintenance activities occur where any special-status plant species re-colonize, potential direct effects may occur where maintenance-associated ground disturbance, clearing, or grubbing are required. These direct effects may be either permanent or temporary (if the plants are able to reestablish) in duration. These effects would be caused by similar mechanisms as those described above for construction, but to a lesser degree, as operational activities have a smaller footprint than construction activities.

Indirect Effects

Indirect effects to special-status plant species may occur in the operations phase where potentially suitable habitats within the Special-Status Plant Study Area were not modified or degraded during construction. Because potentially suitable habitat will be converted and made unsuitable during construction, operational activities that require maintenance of the railway are not expected to result in indirect effects to special-status plant species.

Where construction will occur in special-status plant species habitat, special-status plant species may occur and may colonize a portion of the operational right-of-way if some areas are left relatively undisturbed with minimal maintenance activities. If operation and maintenance activities occur where any special-status plant species recolonize the area, indirect effects may occur where ground disturbing, clearing, or grubbing are required. Such effects would be caused by similar mechanisms as those described above for construction, but to a much lesser degree, given that operation activities have a smaller footprint than construction activities.

BIO #6 – Project Effects on Special Status Wildlife Species

Direct Effects

Direct effects associated with operation and maintenance will be limited to where habitats within the project footprint were modified or degraded during construction. Wherever suitable lands are modified or degraded during construction, special-status wildlife species are unlikely to reoccur and operational activities that require maintenance of the railway are unlikely to result in direct effects to special-status wildlife species.

Where construction will occur in special-status wildlife species habitat, special-status wildlife species may be present and may colonize a portion of the operational right-of-way where maintenance activities are minimal. If operations and maintenance activities occur where any special-status wildlife species re-colonizes, potential direct effects may occur where maintenance-associated ground disturbance, clearing, or grubbing are required. These direct effects may be either permanent or temporary (if special-status wildlife species habitats are able to reestablish) in duration. These effects would be caused by similar mechanisms as those described above for construction, but to a lesser degree, as operational activities have a smaller footprint than construction activities.

Indirect Effects

Indirect effects to special-status wildlife species may occur in the operations phase where potentially suitable habitats within the Habitat Study Area were not modified or degraded during construction. Because potentially suitable habitat will be converted and made unsuitable during construction, operational activities that require maintenance of the railway are not expected to result in indirect effects to special-status wildlife species.

Where construction will occur in special-status wildlife species habitat, special-status wildlife species may occur and may colonize a portion of the operational right-of-way if some areas are left relatively undisturbed with minimal maintenance activities. If operation and maintenance activities occur where any special-status wildlife species recolonize the area, indirect effects may occur where ground disturbing, clearing, or grubbing are required. Such effects would be caused by similar mechanisms as those described above for construction, but to a much lesser degree given that operation, activities have a smaller footprint than construction activities.

BIO # 7 Project Effects on Habitats of Concern

Special status plant communities

Direct Effects

Direct effects associated with operation and maintenance will be limited to where habitats within the project footprint were modified or degraded during construction. Wherever suitable lands are modified or degraded during construction, special-status plant communities are unlikely to reoccur and operational activities that require maintenance of the railway are unlikely to result in direct effects to special-status plant communities.

Indirect Effects

Because special-status plant communities in the operations area will be converted and made unsuitable during construction, operational activities that require maintenance of the railway are not expected to result in indirect effects to special-status plant communities.

Jurisdictional waters

Direct Effects

The operation of the HSR System may result in direct effects to jurisdictional waters during routine maintenance activities at existing water crossings or in areas where jurisdictional waters have established subsequent to project construction. Routine maintenance activities include visual inspections, drain cleaning, vegetation control and litter removal, which generally result in negligible effects to jurisdictional waters. Direct maintenance of tracks would be performed by specialized trains and are not expected to result in effects to jurisdictional waters.

Indirect Effects

Operational indirect effects to jurisdictional waters are limited to those features with direct hydrological connection to direct impact locations. Jurisdictional waters that meet this criterion are limited to the Kern River, Calloway Canal and Lerdo Canal. Potential indirect effects on jurisdictional waters, including changes in drainage patterns or water circulation and downstream increases in erosion and sediment transport, may result from permanent project features (e.g., piles and culverts). However, the potential for indirect effects would be minimal due to existing disturbance levels and hydromodification associated with urban and agricultural land uses, and as a result of project design intended to minimize potential indirect effects (e.g., pile placement, orientation, implementation of scour-control measures, etc.). Furthermore, the F-B LGA would fully maintain existing hydrological functions (both irrigation supply and drainage) through installation of properly sized culverts at every crossing.

Conservation areas

The F-B LGA will comply with all mandated provisions of existing conservation plans except for the VFHCP, which has not been officially adopted and is currently in draft form. In the event that the VFHCP is adopted prior to project implementation, the project will be required to comply with the mandated provisions of the VFHCP. Therefore, the project is not required to avoid conflicts with the provisions of the plan at this time.

Protected Trees

Direct and indirect effects to protected trees are expected during operations. However, effects would be limited to trimming and pruning. No additional protected trees would be removed during routine operations and maintenance.

BIO # 8 Project Effects on Wildlife Movement Corridors

Direct Effects

Direct effects associated with operation and maintenance will be limited to the Kern River linkage within the project footprint. Operations and maintenance activities along the viaduct railway crossing at the Kern River will result in direct effects to the Kern River linkage wildlife migration corridor, but to a lesser degree than construction activities, as operational activities have a smaller footprint than construction activities.

Indirect Effects

Operations may result in indirect effects to the Kern River linkage wildlife migration corridor during maintenance activities along the viaduct structure over the Kern River. Indirect impact include temporary migration deterrents such as noise, vibrations, and occasional clearing and grubbing activities, but to a lesser degree than construction activities, as operational activities have a smaller footprint than construction activities.

3.7.5 Avoidance and Minimization Measures

All of the avoidance and minimization measures (referred to as project design features in Section 3.7.6 of the *Fresno to Bakersfield Section Final EIR/EIS*) are applicable to the F-B LGA. The applicable list is provided in Technical Appendix 2-G Mitigation Monitoring and Enforcement Plan, the Authority and FRA would implement measures to reduce impacts on biological resources based on applicable design standards. Technical Appendix 2-H describes how implementation of these two measures would reduce adverse effects on biological resources. As shown in Table 3.7-11, the following Avoidance and Minimization Measures would be applicable to the May 2014 Project as well as the F-B LGA.

Table 3.7-11 Avoidance and Minimization Measures Applicable to the F-B LGA

Number	Description
BIO-AM#1	<p>In addition to the mitigation measures described below in Table 3.7-12, multiple project design features have been developed for the Fresno to Bakersfield Section to avoid and minimize potential impacts and effects on biological resources.</p> <p>At multiple locations, the route of the alternative alignments was altered to avoid impacts and effects to biological resources.</p> <p>During project design and construction, the Authority and FRA would implement measures to reduce impacts on air quality and hydrology based on applicable design standards. Implementation of these measures would also reduce impacts to biological resources. The design standards applicable to the project are listed in Appendix 2-D and the measures to be applied are summarized in Section 3.3, Air Quality and Global Climate Change and Section 3.8, Hydrology and Water Resources.</p>
BIO-AM#2	<p>Wildlife crossing opportunities will be available through a variety of engineered structures, including dedicated wildlife crossing structures, elevated structures, bridges over riparian corridors, road overcrossings and undercrossings, and drainage facilities (i.e., large-diameter [60- to 120-inch] culverts and paired 30-inch culverts). For a more detailed discussion of the crossing structures, including figures depicting the frequency and locations of these structures, refer to Figures 3-3a through 3-3d and Section 5.6 of the <i>Fresno to Bakersfield Section: Biological Resources and Wetlands Technical Report</i> (Authority and FRA 2012a).</p>

The avoidance and minimization measures developed for biological resources and wetlands in the Fresno to Bakersfield Section Final EIR/EIS, as listed in Table 3.7-11 are applicable to the F-B LGA. The F-B LGA will include avoidance and minimization measures that would provide wildlife crossing opportunities (i.e., at the Kern River) and minimize disturbance to natural habitat (and therefore minimize disturbance to wildlife usage). Additional information regarding project design features is included in Technical Appendix 2-G of this Supplemental EIR/EIS. No additional avoidance and minimization measures for biological resources and wetlands were developed for the F-B LGA, as there are no additional biological resources affected by the F-B LGA that were not previously evaluated in the Fresno to Bakersfield Section Final EIR/EIS.

Refer to the *Fresno to Bakersfield Section Mitigation and Monitoring Enforcement Plan* (Authority and FRA 2014: page 2-3) for additional information on these measures and their relative effectiveness for impact reduction.

3.7.5.1 Mitigation Measures Identified in the Fresno to Bakersfield Section Final EIR/EIS

The following mitigation measures summarized in this section were approved under the *Fresno to Bakersfield Section Mitigation and Monitoring Enforcement Plan* (Authority and FRA 2014). The majority of these measures are applicable to the F-B LGA and are summarized in Table 3.7-12. Five measures are only partially applicable and 13 measures are not applicable to the F-B LGA; these measures are summarized in Table 3.7-13 and include an explanation of why the measure is only partially or not applicable. These measures and how they reduce impacts are discussed in further detail within the *Fresno to Bakersfield Section Mitigation and Monitoring Enforcement Plan* (Authority and FRA 2014: pages 1-8 through 1-44).

Table 3.7-12 Mitigation Measures Applicable to the F-B LGA

Number	Description
BIO-MM#1	Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor(s)
BIO-MM#2	Regulatory Agency Access
BIO-MM#3	Prepare and Implement a Worker Environmental Awareness Program
BIO-MM#4	Prepare and Implement a Weed Control Plan and Annual Vegetation Control Plan
BIO-MM#5	Prepare and Implement a Biological Resources Management Plan
BIO-MM#6	Prepare and Implement a Restoration and Revegetation Plan
BIO-MM#7	Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in field)
BIO-MM#8	Wildlife Exclusion Fencing
BIO-MM#9	Equipment Staging Areas
BIO-MM#10	Mono-Filament Netting
BIO-MM#11	Vehicle Traffic
BIO-MM#12	Entrapment Prevention
BIO-MM#13	Work Stoppage
BIO-MM#14	"Take" Notification and Reporting
BIO-MM#15	Post-Construction Compliance Reports
BIO-MM#16	Conduct Protocol-Level Preconstruction Surveys for Special-Status Plant Species and Special-Status Plant Communities
BIO-MM#17	Prepare and Implement Plan for Salvage, Relocation and/or Propagation of Special-Status Plant Species

Number	Description
BIO-MM#22	Conduct Preconstruction Surveys for Special-Status Reptile and Amphibian Species
BIO-MM#23	Conduct Special-Status Reptile and Amphibian Monitoring, Avoidance, and Relocation
BIO-MM#29	Conduct Preconstruction Surveys and Delineate Active Nest Exclusion Areas for Other Breeding Birds
BIO-MM#30	Conduct Preconstruction Surveys and Monitoring for Raptors
BIO-MM#31	Bird Protection
BIO-MM#32	Conduct Protocol and Preconstruction Surveys for Swainson's Hawks
BIO-MM#33	Swainson's Hawk Nest Avoidance and Monitoring
BIO-MM#34	Monitor Removal of Nest Trees for Swainson's Hawks
BIO-MM#35	Conduct Protocol Surveys for Burrowing Owls
BIO-MM#36	Burrowing Owl Avoidance and Minimization
BIO-MM#40	Conduct Preconstruction Surveys for Special-Status Bat Species
BIO-MM#41	Bat Avoidance and Relocation
BIO-MM#42	Bat Exclusion and Deterrence
BIO-MM#43	Conduct Preconstruction Surveys for American Badger and Ringtail
BIO-MM#44	American Badger and Ringtail Avoidance
BIO-MM#45	Conduct Preconstruction Surveys for San Joaquin Kit Fox
BIO-MM#46	Minimize Impacts on San Joaquin Kit Fox
BIO-MM#47	Restore Temporary Riparian Impacts
BIO-MM#48	Restore Temporary Impacts on Jurisdictional Waters
BIO-MM#49	Monitor Construction Activities within Jurisdictional Waters
BIO-MM#50	Mitigation and Monitoring of Protected Trees
BIO-MM#51	Install Flashing or Slats within Security Fencing
BIO-MM#52	Construction in Wildlife Movement Corridors
BIO-MM#58	Compensate for Loss of Swainson's Hawk Nesting Trees
BIO-MM#59	Compensate for Loss of Burrowing Owl Active Burrows and Habitat
BIO-MM#60	Compensate for Destruction of San Joaquin Kit Fox Habitat
BIO-MM#61	Compensate for Permanent Riparian Impacts
BIO-MM#62	Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan
BIO-MM#64	Compensate for Impacts on Protected Trees
BIO-MM#65	Offsite Habitat Restoration, Enhancement, and Preservation

Table 3.7-13 Mitigation Measures Partially or Not Applicable to the F-B LGA

Number	Description	Reasoning
Mitigation Measures Partially Applicable to the F-B LGA		
BIO-MM#37	Conduct Surveys for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse	This measure is applicable to the F-B LGA, except for the portion of the measure specific to Dulzura pocket mouse, as no suitable habitat for this species is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#38	Implement Avoidance and Minimization Measures for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse	This measure is applicable to the F-B LGA, except for the portion of the measure specific to Dulzura pocket mouse, as no suitable habitat for this species is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#53	Compensate for Impacts on Special-Status Plant Species	This measure is applicable to the F-B LGA, except that compensation will be in accordance with the USFWS Biological Opinion dated April 2014.
BIO-MM#57	Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel	This measure is applicable to the F-B LGA, except for the portion of the measure specific to blunt-nosed leopard lizard, as no suitable habitat for this species is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#63	Compensate for Permanent and Temporary Impacts on Jurisdictional Waters	This measure is applicable to the F-B LGA, except for the portions of the measure specific to vernal pool branchiopods and California tiger salamander as no suitable habitat for these species is present in the habitat study area; therefore, the F-B LGA will not affect these species. In addition, the portion of the measure specific to conservation areas is not applicable to the F-B LGA, as the project footprint will not affect any conservation areas.
Mitigation Measures Not Applicable to the F-B LGA		
BIO-MM#18	Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna	This measure is not applicable to the F-B LGA as no suitable habitat for vernal pool fauna is present within the habitat study area; therefore, the F-B LGA would not affect vernal pool fauna.
BIO-MM#19	Seasonal Vernal Pool Work Restriction	This measure is not applicable to the F-B LGA as no suitable habitat for vernal pool fauna is present within the habitat study area; therefore, the F-B LGA would not affect vernal pool fauna.
BIO-MM#20	Implement and Monitor Vernal Pool Protection	This measure is not applicable to the F-B LGA as no suitable habitat for vernal pool fauna is present within the habitat study area; therefore, the F-B LGA would not affect vernal pool fauna.
BIO-MM#21	Implement Avoidance and Minimization Measures for the Valley Elderberry Longhorn Beetle	This measure is not applicable to the F-B LGA as the project area is no longer within the range of the Valley Elderberry Longhorn Beetle federal designation; therefore, the F-B LGA would not affect this species.
BIO-MM#24	Conduct Protocol and Preconstruction Surveys for California Tiger Salamander	This measure is not applicable to the F-B LGA as no suitable habitat for California tiger salamander is present in the habitat study area; therefore, the F-B LGA would not affect this species.

Number	Description	Reasoning
BIO-MM#25	Implement Avoidance and Minimization Measures for California Tiger Salamander	This measure is not applicable to the F-B LGA as no suitable habitat for California tiger salamander is present in the project area; therefore, the F-B LGA would not affect this species.
BIO-MM#26	Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard	This measure is not applicable to the F-B LGA as no suitable habitat for blunt-nosed leopard lizard is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#27	Phased Preconstruction Surveys for Blunt-Nosed Leopard Lizard	This measure is not applicable to the F-B LGA as no suitable habitat for blunt-nosed leopard lizard is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#28	Blunt-Nosed Leopard Lizard Avoidance	This measure is not applicable to F-B LGA as no suitable habitat for blunt-nosed leopard lizard is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#39	Implement Avoidance and Minimization Measures for Fresno Kangaroo Rat	This measure is not applicable to the F-B LGA as no suitable habitat for Fresno kangaroo rat is present in the habitat study area; therefore, the F-B LGA would not affect this species.
BIO-MM#54	Compensate for Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp	This measure is not applicable to the F-B LGA as no suitable habitat for vernal pool fauna is present within the habitat study area; therefore, the F-B LGA would not affect vernal pool fauna.
BIO-MM#55	Compensate for Impacts on Valley Elderberry Longhorn Beetle	This measure is not applicable to the F-B LGA as the project area is no longer within the range of the Valley Elderberry Longhorn Beetle federal designation; therefore, the F-B LGA would not affect this species.
BIO-MM#56	Compensate for Impacts on California Tiger Salamander	This measure is not applicable to the F-B LGA as no habitat for California tiger salamander is present in the project area; therefore, the F-B LGA would not affect this species.

F-B LGA = Fresno to Bakersfield Locally Generated Alternative
 USFWS = United States Fish and Wildlife Service

The majority of the mitigation measures (or portions of the measures) developed for biological resources and wetlands in the Fresno to Bakersfield Section Final EIR/EIS, as listed in Section 3.7.5.1, are applicable to the F-B LGA. Those measures that are not applicable, or only partially applicable to the F-B LGA, are also discussed above in Section 3.7.5.1 and Table 3.7-11.

Refer to the *Fresno to Bakersfield Section Mitigation and Monitoring Enforcement Plan* (Authority and FRA 2014: pages 1-8 through 1-44) and the Fresno to Bakersfield Section Final EIR/EIS (pages 3.7-213 through 3.7-225) for additional information on these measures and their relative effectiveness for impact reduction and an evaluation of impacts resulting from the implementation of the mitigation measures.

3.7.5.2 Mitigation Measures Identified in the Fresno to Bakersfield Section July 2017 Biological Opinion

Subsequent to certification of the Fresno to Bakersfield Section Final EIR/EIS, in September 2014, the Authority, on behalf of the FRA, requested reinitiation of formal consultation with the USFWS and was issued a revised Biological Opinion for the Fresno to Bakersfield Section in July 2017 (USFWS 2017a). This revised USFWS Biological Opinion included the BVLOS which was

not considered in the 2014 USFWS Biological Opinion (USFWS 2014). Results of recent trapping and camera detection efforts and the discovery of a carcass in an area previously not known to support the species, indicate that the range of BVLOS overlaps the project alignment, and that the project footprint contains areas of potentially suitable habitat (USFWS 2011).

The 2017 USFWS Biological Opinion also revises project effects to multiple species to take into account project activities that have been added since the 2014 USFWS Biological Opinion. These revisions are as follows: revised effects for the federally-listed as endangered Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*) and blunt-nosed leopard lizard (*Gambelia sila*); effects of additional activities on the federally-listed as threatened Central California Distinct Population Segment of the California tiger salamander (*Ambystoma californiense*); and revised effects due to increased disturbance acreage for the federally-listed as endangered blunt-nosed leopard lizard, San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat, Kern mallow (*Eremalche kernensis*), San Joaquin woolly-threads (*Monolopia congdonii*) and the federally-listed as threatened Hoover's spurge (*Chamaesyce hooveri*). Revised effects occur as a result of relocation activities and/or burrow excavation (trapping, handling, holding, transporting, and relocating), and Cultural Resources Management activities required to mitigate project impacts to cultural resources.

Also subsequent to certification of the Fresno to Bakersfield Section Final EIR/EIS (2014), the USFWS withdrew a proposal to delist the Valley elderberry longhorn beetle on September 16, 2016 (USFWS 2016). As a part of this withdrawal, the USFWS refined the range of the Valley elderberry longhorn beetle. Revisions to this species' range were based on a USFWS review of published scientific literature and consultations with experts on the Valley elderberry longhorn beetle. As a result, the USFWS no longer considers Kings, Kern, and Tulare counties within the Valley elderberry longhorn beetle range. Any elderberry shrubs within these counties are no longer considered Valley elderberry longhorn beetle habitat and are not subject to the USFWS's Valley elderberry longhorn beetle guidelines and conservation measures.

New mitigation measures applicable to the F-B LGA are described below and their relationship to the conservation measures of the biological opinion are summarized in Table 3.7-14.

BIO-MM#66: Implement Avoidance and Minimization Measures for BVLOS

The following Avoidance and Minimization Measures will be implemented for BVLOS:

1. The FRA and Authority will conduct habitat suitability determinations in potentially suitable BVLOS habitat not subject to previous field assessments to determine if the area falls into the suitable more xeric or suitable more mesic habitat categories. A report documenting the result of the habitat assessment and concluding if the area is either not suitable, marginal habitat or suitable mesic or xeric habitat will be prepared and submitted to the USFWS for review and concurrence.
2. In all suitable habitat areas, all above-ground herbaceous vegetation within the construction footprint will be cleared using hand tools (which can include weed whackers or mowers) under the supervision of a USFWS-approved BVLOS biological monitor. All leaf litter will be removed using rakes, or similar hand tools. All woody vegetation will be cut as closely to the ground as possible using hand tools (which can include chainsaws). Vegetation will be removed immediately and stored away from suitable BVLOS habitat. Such vegetation hand-removal efforts will be implemented in those areas that require vegetation removal in order to clearly detect Buena Vista Lake ornate shrew, and will continue at each habitat area until it is reasonably certain that Buena Vista Lake ornate shrew can be detected within the cleared areas.
3. After vegetation has been cleared from BVLOS suitable habitat areas, non-disturbance exclusion fencing will be installed. In those areas where installation of fencing may not be feasible, the USFWS will be contacted and will provide direction on a case-by-case basis. The fencing will be installed under the supervision of the USFWS-approved biologist along the project footprint within BVLOS suitable habitat areas. Fencing will be placed between areas of active construction and adjacent or nearby suitable habitat to preclude BVLOS from

running across the construction site and into harm's way. The configuration of the fencing will likely vary between areas, and placement will be at the direction of the USFWS-approved biologist with input from the USFWS, as required. Fencing may consist of a combination of both Environmentally Sensitive Area fencing and Wildlife Exclusion fencing with one way exit/escape points.

4. If a shrew is subsequently found within the fenced work area, work will cease immediately and a section of fence removed so that the shrew may leave the fenced area on their own volition. The USFWS-approved biologist will monitor the shrew to ensure that any shrew has moved and remains outside the fence.
5. Prior to the start of construction activities in areas of marginal and suitable habitat (more mesic and more xeric) for BVLOS, the FRA and Authority will prepare a BVLOS monitoring and relocation plan. The plan will identify the handling and relocation methodology for any BVLOS encountered during construction activities. Handling and relocation will be conducted consistent with the USFWS's *Survey Protocol for Determining Presence of the Buena Vista Lake Ornate Shrew* (USFWS 2012). The plan will identify the process for the relocating of any captured BVLOS and will be approved by the USFWS prior to construction.

BIO-MM#67: Compensate for Impacts on BVLOS

The compensatory mitigation ratios for BVLOS are based on the type of habitat being affected (more mesic or more xeric) by the project.

Impacts to more mesic suitable habitat will be compensated at a 3:1 ratio through acquisition and preservation into perpetuity of occupied more mesic suitable habitat, or creation of occupiable more mesic suitable habitat. All proposed suitable BVLOS habitat compensation properties will be reviewed and approved by the USFWS.

Impacts to more xeric suitable habitat will be compensated at a 1:1 ratio by providing one acre of more xeric suitable habitat directly associated with (within 200 feet of) more mesic suitable habitat within a preserved or created mitigation parcel; or at a 0.33:1 ratio by preserving or creating one acre of more mesic suitable habitat for every three acres of more xeric suitable habitat disturbed. Final habitat compensation may consist of a combination of these, as approved by the USFWS. The overall goal is to provide contiguous blocks of more mesic habitat accompanied by more xeric habitat which supports the more mesic areas, or to provide suitable habitat of either type to serve as dispersal corridors among larger occupied or occupiable areas.

Table 3.7-14 Correspondence of Mitigation Measures to Applicable Conservation Measures of the 2017 USFWS Biological Opinion

Number	Description	Reasoning
Mitigation Measures Applicable to the F-B LGA		
BIO-MM#66	Implement Avoidance and Minimization Measures for BVLOS	This measure corresponds to Conservation Measures 1 through 5 in the 2017 USFWS Biological Opinion. These measures are applicable to the F-B LGA, as suitable habitat for this species is present in the habitat study area.
BIO-MM#67	Compensate for Impacts on BVLOS	This measure corresponds to Conservation Measure 6 in the 2017 USFWS Biological Opinion. This measure is applicable to the F-B LGA, as suitable habitat for this species is present in the habitat study area.

BVLOS = Buena Vista Lake ornate shrew

F-B LGA = Fresno to Bakersfield Locally Generated Alternative

USFWS = United States Fish and Wildlife Service

3.7.5.3 Mitigation Measures Specific to the F-B LGA

Summary of CEQA Significance after Mitigation

The overall effect of the HSR project on biological resources would be dependent on the intensity of the project's effects, the context in which these effects occur, and the measures implemented to mitigate the impacts of the project. The overall intensity of the project impacts for the resource-specific context under CEQA are summarized for each biological resource below.

Special-Status Plant Species

Through implementation of the mitigation measures (BIO-MM#1 through 7, 9, 11, 13 through 17, 47, 53, 61 through 62, and 65) applicable to special-status plant species listed in Section 3.7.5, which would include purchase of credits from an existing mitigation bank or through a special-status plant re-establishment program at a 1:1 ratio, effects to special-status plant species would be slight and would result in a less than significant impact under CEQA.

Special-Status Wildlife Species

Through implementation of the mitigation measures (BIO-MM#1 through 15, 22 through 23, 29 through 38, 40 through 46, 51 through 52, 57 through 62, and 65 through 67) applicable to special-status wildlife species listed in Section 3.7.5.1, which would include habitat replacement through purchasing credits at a mitigation bank or other means (e.g., permittee responsible mitigation), effects to special status wildlife species would be less than significant under CEQA. Mitigation ratios vary depending on the amount of habitat affected, the type of habitat, and the type of impact, and will be determined in consultation with the appropriate agencies. Mitigation ratios and mitigation options are discussed in more detail in Section 7.2.1 of the *F-B LGA: Biological Resources and Wetlands Technical Report* (Authority and FRA 2017: page 7-1 through 7-3).

Special-Status Plant Communities

Potential effects of the F-B LGA on special-status plant communities would be minimized through implementation of the applicable mitigation measures (BIO-MM#1 through 7, 9, 11, 13 through 17, 47, 53, 61 through 62, and 65) listed in Section 3.7.5.1 resulting in regional impacts of less than significant under CEQA.

Jurisdictional Waters

The mitigation measures (BIO-MM#1 through 7, 9, 11, 13, 47 through 49, 61 through 63, and 65) applicable to jurisdictional waters listed in Section 3.7.5.1 would be implemented on a watershed scale; thus, effects to jurisdictional waters would be less than significant under CEQA, and will result in no net loss of wetlands in accordance with Section 404 of the Clean Water Act.

Conservation Areas

Potential effects of the F-B LGA on conservation areas would be minimized through implementation of the applicable mitigation measures (BIO-MM#1 through 7, 17, 47 through 49, 52, 61 through 63, and 65) listed in Section 3.7.5.1, which would include restoring nearby areas to suitable habitat and/or by purchasing credits in a mitigation bank at a sufficient ratio to comply with all mandated provisions of conservation areas. Permanent impacts to special-status plant communities (i.e., black willow thickets) within the Kern River linkage area identified in the Recovery Plan for Upland Species of the San Joaquin Valley, California will be mitigated at a ratio of 2:1 (acres of mitigation to acres of impact), as determined in consultation with appropriate agencies (e.g., CDFW). Proposed mitigation ratios for the project are similar to the "adequate mitigation" ratios presented in the Metropolitan Bakersfield Habitat Conservation Plan. Therefore, the effects of the F-B LGA on recovery areas would be less than significant under CEQA, and will result in no net loss of wetlands in accordance with Section 404 of the Clean Water Act. The F-B LGA would have no impact on HCPs under CEQA.

Protected Trees

Through implementation of the applicable mitigation measures (BIO-MM#50 and 64) listed in Section 3.7.5.1, which would include transplanting and/or replacing trees in good condition or contributing to a planting fund, project construction and operation impacts would be less than significant under CEQA.

Wildlife Movement

Through implementation of the applicable mitigation measures listed in Section 3.7.5.1, specifically implementation BIO-MM-#52 Construction in Wildlife Movement Corridors, which would be accomplished through implementation of compensatory mitigation for jurisdictional waters and special-status wildlife species, the F-B LGA project effects to wildlife movement would be less than significant under CEQA.