

## **Explanation of Boundary Determination for the Priority Project Area Map for the Central Valley Project Conservation Program and the CVPIA Habitat Restoration Program**

### **I. Definition and Purpose**

The Central Valley Project Conservation Program (CVPCP)/CVPIA Habitat Restoration Program (HRP) Priority Project Area Map depicts a general geographical area where current and future Program conservation actions will be directed. The map illustrates the relationship of the Central Valley Project (CVP) to species and habitats in and around CVP facilities and Service Areas and the most current CVP Consolidated Place of Use boundary.

The central purpose of the map is to provide conservation action proponents with guidance related to locations deemed important for recovery and protection of CVP impacted species, in particular for project applicants during annual solicitation of proposals

While the map does correlate past and ongoing impacts of the CVP with species and habitats, it is not intended to be a comprehensive depiction of all areas historically impacted by the CVP, either directly or indirectly, nor is it meant to illustrate areas impacted by implementation of the Central Valley Project Improvement Act (CVPIA). The “Priority Project Area,” therefore, represents a project area where the relationship between past, ongoing, and future CVP impacts –in relation to species’ needs – is clear.

A single map was chosen for both the CVPCP and HRP, though some differences in program requirements exist. As specified in Fish and Wildlife Service (Service) biological opinions, the CVPCP addresses past, ongoing, and future impacts of the project, while the HRP (established under section 3406 (b)(1) “other” of the CVPIA) is meant to address historical impacts of the CVP (prior to establishment of the Act, 1992). It was determined, however, that given the large degree of geographic overlap, creation of two separate maps would not be warranted and may confuse project proponents.

### **II. General Criteria**

Determining the Priority Project Area boundary was accomplished using three basic criteria: 1) existing and past CVP Consolidated Place of Use, 2) priority habitats impacted by the CVP (as identified in existing biological opinions and “critical needs” analysis related to CVP contracts and operations), and 3) U.S. Forest Service (USFS) Ecological subregion (Section and Subsection) boundaries that could be associated with CVP impacted habitats as a way of “enclosing” the project area.

In developing the map, areas were divided into quadrants to simplify the process. The general mapping criteria are described below, followed by more detailed information regarding

inclusion of habitats and subregions within each quadrant.

- 1) CVP Consolidated Place of Use. The place of use is the area authorized by the California State Water Resources Control Board to be entitled to water service under Bureau of Reclamation (Reclamation) CVP water service contracts. Existing, and past, CVP place of use boundaries were encompassed to formulate the “core” project area, since place of use areas generally represent regions of direct and indirect CVP impacts, past and future.
- 2) Priority Habitats Impacted by the CVP. Habitats known to be impacted directly or indirectly by the CVP have been identified in biological opinions related to CVP contract renewals and operations. These habitats have also been specified during annual priority-setting meetings with Service and Reclamation managers, as needs and priorities are updated. These habitats are indicated below. A shortage of serpentine and gabbro soil habitat mapping information precluded depiction of this habitat type on the map, though key areas have been included in the project area boundary.

*Serpentine soil and associated habitats supporting endemic species, such as the bay checkerspot butterfly and serpentine plants, in Santa Clara County*

*Grassland, alkali sink, and alkali scrub habitat in the Central Valley*

*Vernal pool habitat throughout the Central Valley*

*Gabbro soil chaparral habitat in El Dorado County*

*Riparian, aquatic (including wetlands) and associated habitat mosaics (including oak woodlands) in the Central Valley and associated foothills*

- 3) USFS Ecological Subregions of California. Ecological subregions are defined in *The Ecological Subregions of California, Section and Subsection Descriptions* (USFS, Pacific Southwest Region, 1998 online). Elaborate descriptions of these sections and subsections can be obtained by consulting the USFS website. For mapping purposes, a section encompassing the above priority habitats was included, as well as a subsection boundary that had a biological connection (overlapping species/habitats) with priority habitats. For the most part, subsection boundaries were a function of lower elevation, foothill communities associated with the Central Valley floor.

### **III. Mapping Quadrants**

For practical purposes, the Priority Project Area Map was broken into four areas (quadrants). This was done to allow mappers to focus more narrowly on the ecological relationships between priority habitat types, CVP consolidated place of use boundaries, and USFS ecoregion contour lines. The following are general descriptions of the area encompassed by a quadrant, and the USFS ecoregions associated with priority habitats and CVP Place of Use, which were selected for inclusion. Locating actual ecoregion contour lines (section and subsections) can be accomplished through accessing the USFS website.

## 1. Southwest Quadrant

This quadrant includes all of Contra Costa and Alameda counties, most of Santa Clara and San Benito counties, and portions of San Mateo, Santa Cruz, and Monterey counties. It also includes the western portions of San Joaquin, Stanislaus, Merced, Fresno, Kings, and Kern counties. Additionally it includes the southeastern portion of San Luis Obispo County in order to encompass the Carrizo Plain National Monument, and address critical needs of CVP-impacted species that utilize the Monument area and are associated with habitats of the Central Valley floor. The quadrant terminates to the south at the northern boundaries of Ventura and Santa Barbara counties. For this quadrant, CVP priority habitats include:

*Central Valley grassland, alkali sink and alkali shrub*

*Central Valley vernal pools*

*Riparian, aquatic (wetlands) and associated upland, including oak woodlands*

*Serpentine soil and associated species – for this quadrant, this is defined as habitat for the bay checkerspot butterfly.*

*Eastern Contra Costa County*

The Great Valley, Sierra Nevada Foothills, Central California Coast Ranges, and Central California Coast ecological sections encompass CVP Consolidated Place of Use boundaries and the above five priority habitat areas. These sections include numerous subsections that were utilized as mapping boundaries. A brief description of these sections and subsections is as follows:

- a) Great Valley (Section 262A). This section contains the alluvial plains of the San Joaquin Valley. It includes the habitat types listed above, and many CVP-impacted special status species. All USFS subsections of the Great Valley section in the Southwest quadrant are included in the project area. Predominant potential communities relevant to the proposal action area include the California annual grassland series, purple needlegrass series, valley oak series, vernal pools and wetland communities, blue oak series, allscale series and saltgrass series.
- b) Sierra Nevada Foothills (Section M261F). This section includes the riparian, aquatic (wetlands) and associated upland habitat types. The USFS subsection is:
  - i) San Emigdio Mountains (subsection M261Fe). This subsection is located in western Kern County. The predominant natural plant community is the blue oak series, with ponderosa pine series and Jeffrey pine series at higher elevations. Also, there are some needlegrass grasslands series, canyon live oak series on steep canyon slopes, chamise series and mixed chaparral shrublands on shallow and rocky soils, and valley oak series in valleys.
- c) Central California Coast Ranges (Section M262A). This section includes Central Valley grassland, alkali sink and alkali shrub, and the riparian, and aquatic (wetlands) and associated upland habitat types. The USFS subsections are:

- i) Carrizo Plain (subsection M262Ai). The predominant natural plant communities are the California annual grassland series, needlegrass grasslands, saltgrass series, and emergent aquatic communities.
  - ii) Caliente Range – Cuyama Valley (M262Aj). The predominant natural plant communities are the blue oak series, needlegrass grasslands, chamise series on shallow soils, and California annual grassland series around Cuyama Valley. Around Cuyama Valley, the allscale series is present on salty soils, and the iodine bush series is present on very salty soils. The California juniper series is present on the south side of Cuyama Valley.
  - iii) Temblor Range (M262Ak). Relevant plant communities are the blue oak series, California juniper series, needlegrass grasslands, chamise series, and California annual grassland series.
  - iv) Kettleman Hills and Valleys (M262Ag). The predominant natural plant community is the California annual grassland series.
  - v) Eastern Hills (M262Ad). The predominant natural plant community is needlegrass grasslands. There is some blue oak series on north-facing slopes in wetter areas, and some chamise series on shallow soils. The valley oak series is common in valleys along the San Andreas fault zone.
  - vi) Diablo Range (M262Ac). The predominant natural plant communities are the blue oak series and, on shallow soils, the chamise series. There is the leather oak series on serpentine soils, and some mixed chaparral shrublands. The Sargent cypress series is present, but sparse, on serpentine soils. Also, there are some black oak and mixed conifer series on north-facing slopes at higher elevations, and the Jeffrey pine series on serpentine soils on San Benito Mountain.
  - vii) Western Diablo Range (M262Ab). The predominant natural plant communities are the blue oak series on south-facing slopes, and the coast live oak series on north-facing slopes. There is some chamise series on shallow soils, and some live oak chaparral shrublands on shallow soils at higher elevations and on north-facing slopes. The Valley oak series and needlegrass grasslands are common in valleys. Black oak series and mixed conifer series are present, but not extensive, on some north-facing slopes at higher elevations.
  - viii) Fremont-Livermore Hills and Valleys (M262Aa). The predominant natural plant community is needlegrass grasslands in the hills around Livermore Valley and in the hills northeast of the Santa Clara Valley. The blue oak series and needlegrass grasslands occur on south-facing slopes, and the coast live oak series on north-facing slopes. The valley oak and California sycamore series are common plant communities on recent alluvial plains.
- d) Central California Coast (Section 261A). Predominant potential communities of this section include the blue oak series, purple needlegrass series, coast live oak series, chamise series, valley oak series, and California sagebrush series. It includes the Central Valley grassland,

alkali sink and alkali shrub, riparian, aquatic (wetlands) and associated upland, and the serpentine soils and associated species habitat types. The USFS subsections are:

- i) Santa Clara Valley (subsection 261Ae). The predominant natural plant communities are the valley oak series, and the California oatgrass series or needlegrass grasslands. The coast live oak series, needlegrass grasslands, and blue oak series occur on hills and terraces.
- ii) Leeward Hills (subsection 261Ag). The predominant natural plant communities are the coast live oak series and California bay series on north-facing slopes, the blue oak series on south-facing slopes, and the chamise series on shallow soils.
- iii) Watsonville Plain-Salinas Valley (subsection 261Ah). The predominant natural plant communities are the valley oak series and needlegrass grasslands in the Salinas Valley, and the coast live oak series and California oatgrass series on the Watsonville Plain. There are cottonwood woodlands in riparian areas along the Salinas River. Dunes support a succession of plant communities, from bare dune through herbaceous communities, and the coyote brush series to California sagebrush-black sage series on stabilized dunes on the southeast side of Monterey Bay. There is some pickleweed series in estuaries.
- iv) East Bay Terraces and Alluvium (subsection 261Ad). The predominant natural plant communities are the coast live oak series and California oatgrass series, or needlegrass grasslands on alluvial plains.
- v) East Bay Hills-Mt. Diablo (subsection 261Ac). The predominant natural plant communities are the coast live oak series in the East Bay hills, both the coast live oak series and blue oak series on Mt. Diablo, and the valley oak series on alluvial plains. The chamise series is extensive on shallow soils on Mt. Diablo, and the usual natural plant community on vertisols is needlegrass grassland. The California sagebrush series is present on shallow soils on south-facing slopes in the East Bay hills.

## **2. Southeast Quadrant**

This quadrant includes the eastern portions San Joaquin, Stanislaus, Merced, Fresno, Kings, and central Kern counties. It also includes the western portions of Calaveras, Tuolumne, Mariposa, Madera, and Tulare counties. The quadrant terminates to the south at the northern boundaries of Ventura and Los Angeles counties. For this quadrant, CVP priority habitats include:

*Central Valley grassland, alkali sink and alkali shrub*

*Central Valley vernal pools*

*Riparian, aquatic (wetlands) and associated upland, including oak woodlands*

The Great Valley and the Sierra Nevada Foothills ecological sections encompass CVP Consolidated Place of Use boundaries and the above three priority habitat areas. These sections include numerous subsections utilized as mapping boundaries. A brief description of these sections and subsections is as follows:

- a) Great Valley (Section 262A). This section contains the alluvial plains of the San Joaquin Valley. Predominant potential natural communities include the purple needlegrass series, valley oak series, vernal pools and wetland communities, blue oak series, allscale series and saltgrass series. It includes the CVP Place of Use, the three habitat types listed above, and most of the CVP-impacted special status species.
- b) Sierra Nevada Foothills (Section M261F). Predominant potential natural communities include the blue oak series, needlegrass grasslands, chamise series, mixed chaparral series, foothill pine series, and valley oak series. This section includes the riparian, aquatic (wetlands) and associated upland habitat series.

All USFS subsections of the Great Valley section in the Southeast quadrant are included in the project area. The reason for including these subsections is that they have scattered riparian areas which are linked to the Central Valley floor. These riparian areas provide corridors and linkages for high priority species addressed by the programs. The USFS subsections are:

- i) Lower Granitic Foothills (subsection M261 Fc). The predominant natural plant community is the blue oak series. Also, there are some of the needlegrass grasslands series, chamise series on shallow and rocky soils, and valley oak series in valleys.
- ii) Southern Granitic Foothills (subsection M261Fd). The predominant natural plant community is the blue oak series. Also, there are some needlegrass grasslands, chamise series on shallow and rocky soils, and valley oak series in valleys.

One area of the Southern Granitic Foothill habitat in the southeastern part of the quadrant was eliminated from the project area. This is a valley in the interior of the Sierra Nevada Mountains surrounded by Sierra Nevada montane habitat. It shares the same habitat type as the foothills, but is too far removed from the Central Valley floor.

### **3. Northeast Quadrant**

This mapping area includes central portions of Shasta County to the north, portions of eastern Tehama County, and western portions of Butte, Yuba, Nevada, Placer, El Dorado, and Amador counties, extending south through Sacramento County and the Central Valley floor. For this quadrant, CVP priority habitats include:

*Central Valley vernal pools*

*Riparian, aquatic (wetlands) and associated upland, including oak woodlands*

*Gabbro soils chaparral habitat in El Dorado County*

The Great Valley and the Sierra Nevada Foothills sections encompass CVP Consolidated Place of Use boundaries and the above three priority habitat areas. The subsections, the Tuscan Flows and Lower Foothills Metamorphic Belt, were used to determine outer boundaries. A brief description of these sections and subsections is as follows:

- a) Great Valley (Section 262A). This section includes the Central Valley vernal pools, riparian,

aquatic (wetlands) and associated upland series. Predominant potential communities relevant to the proposal action area include the California annual grassland series, purple needlegrass series, valley oak series, vernal pools and wetland communities, blue oak series, allscale series, and saltgrass series.

- b) Sierra Nevada Foothills (Section M261F) – This section includes the Central Valley vernal pools, riparian, aquatic (wetlands) and associated upland, and the gabbro soils chaparral habitat in El Dorado County habitat types. Predominant potential natural communities include the blue oak series, needlegrass grasslands, chamise series, mixed chaparral series, foothill pine series and valley oak series. The USFS subsections are:
- i) Tuscan Flows (Section 261 Fa). The predominant natural plant community is the blue oak series. Needlegrass grasslands predominate on vertisols and shallow soils. Northern basalt flow and northern volcanic mudflow vernal pool habitats occur in this subsection.
  - ii) Lower Foothills Metamorphic Belt (Subsection M261Fb). The predominant natural plant community is the blue oak series. Also, there are some needlegrass grasslands series, chamise series on shallow and rocky soils, and valley oak series in valleys.

#### **4. Northwest Quadrant**

This quadrant includes portions of Trinity and western Shasta counties; Central Tehama County; eastern portions of Glenn, Colusa and Yolo counties; and all of Sutter County, south to the northern boundary of Solano County. *Solano County is not included in the project area since it is covered under a separate conservation program.* Additional counties include the northern portion of San Joaquin and Contra Costa counties, and northwest portions of Alameda County. For this quadrant, CVP priority habitats include:

*Central Valley vernal pools*

*Riparian, aquatic (wetlands) and associated upland, including oak woodlands*

The Great Valley, Central California Coast, Northern California Interior Coast Ranges, and Klamath Mountains ecological sections encompass CVP Consolidated Place of Use boundaries and the above two priority habitat areas. These sections included numerous subsections that were utilized as mapping boundaries. A brief description of these sections and subsections is as follows:

- a) Great Valley (Section 262A). This section includes the two habitat types listed above. All USFS subsections of the Great Valley section in the Northwest Quadrant are included in the project area. Predominant potential communities relevant to the priority project area include the California annual grassland series, purple needlegrass series, valley oak series, vernal pools and wetland communities, blue oak series, and the allscale series and saltgrass series.
- b) Northern California Interior Coast Ranges (Section M261C). Predominant potential natural communities include the blue oak series, chamise series, purple needlegrass series, and foothill pine series. This section includes the riparian, aquatic (wetlands) and associated upland and Central Valley vernal pools habitat types. The USFS subsections are:
  - i) Tehama Terraces (Subsection M261Cb). The predominant natural plant community is the

blue oak series. The needlegrass grasslands series predominates on some fine-textured alfisols, and northern claypan vernal pools are common.

- ii) Dunnigan Hills (Subsection M261Cc). The predominant natural plant community is the needlegrass grasslands series. The blue oak series is present, but not common, on soils other than vertisols.
- c) Klamath Mountains. Predominant potential natural communities are conifers, oaks, and chaparral. This section includes the riparian, aquatic (wetlands) and associated upland habitats, including oak woodlands series. The USFS subsection is:
  - i) Eastern Klamath Mountains (Subsection M261Ai). Almost all of the area is in this subregion. The predominant natural plant communities are mixed conifer series, Douglas fir-ponderosa pine series, and ponderosa pine series. Blue oak and mixed chaparral communities occur on south-facing slopes at lower elevations. The canyon live oak series is common on very steep rocky slopes with stony soils. The white fir series occurs at higher elevations. The elevation range is from about 700 feet adjacent to the Great Valley, up to 6,252 feet. Small amounts of four other subsections also occur. All are dominated by conifers and mostly at high elevations not appropriate for consideration by the CVPCP/HRP.