4.6 BIOLOGICAL RESOURCES

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INTRODUCTION

The purpose of this section includes the following:

- identify biological resources including vegetation, wetlands, fish and wildlife, and special-status species known or suspected to occur in the planning area;
- assess the potential impacts of the project and alternatives, including impacts on existing vegetative cover, reduction in extent of sensitive natural community types, disturbance to wildlife habitat and disruption of movement corridors, potential "take" of special-status species, and modification to jurisdictional wetlands or other waters; and
- recommend modifications to the OCMP and its implementing ordinances, to ensure identified significant impacts are adequately mitigated.

This assessment of the biological resources within the planning area involved: a preliminary literature review, interpretation of existing mapping, and a field reconnaissance. Prior to conducting the field reconnaissance, available literature and resource mapping were reviewed to provide information on general resources in the area, the location of known wetland resources, the distribution of special-status species and sensitive natural communities, and opportunities for habitat restoration along the Cache Creek corridor. Literature and mapping reviewed included: the *Biological Resources Study* (EIP Associates, 1995) of the *Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan* (Technical Studies); biological assessments and habitat restoration plans prepared as part of the five individual mining applications now being considered by the County (Jones & Stokes Associates, 1993 and 1993a; Zentner and Zentner, 1994, 1995, 1995a, and 1995b); environmental documentation for previous projects in the vicinity, such as the EIRs prepared for three interim short-term mining use permits (Baseline, 1995; and MBA Associates, 1995); the *Lower Cache Creek Riparian Corridor Restoration Recommendations* (Jones & Stokes Associates, 1995); the *Draft Inventory of the Wetlands and Riparian Habitats of Yolo County, California* (Jones & Stokes Associates, Inc., 1990); the *R4 Draft Report, Northern California Streams, Cache Creek Environmental Restoration, California, Draft Reconnaissance Report* (U.S. Army Corps of Engineers, 1995); the *Yolo County Draft Habitat Conservation Plan* (EIP Associates, 1995a); the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants* (CNPS, 1992); mapping prepared as part of the National Wetland Inventory (U.S. Fish and Wildlife Service, 1985); and records maintained by the California Natural Diversity Data Base (CNDDB).

The Technical Studies provide a discussion of the historic condition and existing biological resources of the planning area, and serves as a primary source of information for this section. The Technical Studies provides background information on the ecology of riparian habitat, and describes the changes and trends in vegetation, wildlife, and fisheries in the lower Cache Creek area. This includes information on special-status species and sensitive natural communities, focusing on the riparian habitat of the creek corridor. A discussion of the potential for enhancement and the limitations for riparian habitat restoration within the planning area are also provided in the chapter, together with general planting guidelines for restoration sites along Cache Creek. Chapter 6 of the Technical Studies includes recommendations pertaining to riparian habitat. A subsequent assessment and *Restoration Recommendations* by Jones & Stokes Associates (1995) provided somewhat different conclusions and recommendations for restoration of the lower Cache Creek corridor that were incorporated into the draft CCRMP.

Identification of the biological resources within the planning area was based primarily on existing information, and no detailed field surveys were conducted as part of this assessment. A field reconnaissance was conducted by automobile and foot on 13 January 1996 to confirm previous mapping, verify the location of important biological features, and determine the relationship of existing and proposed mining operations to known sensitive resources.

Relevant Regulatory Setting

In addition to the environmental protection provided by the California Environmental Quality Act (CEQA), other state and federal regulations have been enacted to provide for the protection and management of sensitive biological resources. Relevant policies of the State Mining and Reclamation Act (SMARA) serve to protect important habitat and establish minimum reclamation standards for mined lands. Implementation of policies contained in the Yolo County General Plan also serves to regulate development and provide for conservation of important resources on a local level.

State and federal agencies have a leading role in the protection of biological resources through their authority as set forth in various statues and regulations. The U.S. Fish and Wildlife Service (USFWS) is responsible for implementation of the federal Endangered Species Act and the Migratory Bird Treaty Act, while the U.S. Army Corps of Engineers (Corps) has primary responsibility for protecting wetlands under §404 of the Clear Water Act. At the state level, the California Department of Fish and Game (CDFG) is responsible for administration of the State Endangered Species Act, and for protection of streams, water bodies, and riparian corridors through the Streambed Alteration Agreement process under §1601-1606 of the California Fish and Game Code.

Special-Status Species and Sensitive Natural Communities

Special-status species[1] are plants and animals that are legally protected under the state and/or federal Endangered Species Acts[2] or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Species with legal protection under the Endangered Species Acts often represent major constraints to development, particularly when they are wide ranging or highly sensitive to habitat disturbance and where proposed development would result in a "take"[3] of these species.

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1 Special-status species include:

- Officially designated (rare, threatened, or endangered) and candidate species for listing by the CDFG.

- Officially designated (threatened or endangered) and candidate species for listing by the USFWS.

- Species considered to be rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those identified on lists 1A, 1B, and 2 in the *Inventory of Rare and Endangered Vascular Plants of California*.

- And possibly other species which are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on lists 3 and 4 in the CNPS *Inventory* or identified as animal "Species of Special Concern" by the CDFG. Species of Special Concern have no legal protective status under the state Endangered Species Act but are of concern to the CDFG because of severe decline in breeding populations in California.

2 The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal taxa. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California taxa.

3 "Take" as defined by the FESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" a threatened or endangered species. "Harm" is further defined by the USFWS to include the killing or harming of wildlife due to significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modification or degradation. The CDFG also considers the loss of listed species habitat as "take", although this policy lacks statutory authority and case law support under the CESA.

Two sections of FESA contain provisions which allow or permit "incidental take." Section 10(a) provides a method by which a state or private action which would result in "take" may be permitted. The applicant must provide the USFWS with an acceptable conservation plan and publish notification for a permit in the Federal Register. Section 7 pertains to a federal agency which proposes to conduct an action which may result in "take," requiring consultation with USFWS and possible issuance of a jeopardy decision. Under the CESA, "take" can be permitted under Section 2081 of the Fish and Game Code. The applicant must enter into a habitat management agreement with the CDFG, which defines the permitted activities and provides adequate mitigation.

The primary information source on the distribution of special-status species in California is the CNDDB inventory, which is maintained by the Natural Heritage Division of the CDFG. Occurrence data is obtained from a variety of scientific, academic, and professional organizations, private consulting firms, and knowledgeable individuals, and entered into the inventory as expeditiously as possible. The CNDDB records have been included in the County's GIS files, and are updated regularly. Extensive information on occurrence records has also been compiled during the preparation of the County-wide habitat management program, and has been incorporated into the *Draft Habitat Conservation Plan* (EIP Associates, 1995a).

The presence of a population of species-of-concern in a particular region is an indication that an additional population may occur at another location within the region, if habitat conditions are suitable. However, the absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from the area in question, only that no data has been entered into the CNDDB inventory. Detailed field surveys are generally required to provide a conclusive determination on presence or absence of sensitive resources from a particular location.

In addition to species-oriented management, preserving habitat on an ecosystem-level is increasingly recognized as vital to the protection of natural diversity in the state. The CNDDB has developed a classification system for "natural communities" which are described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (CDFG, 1986). The CDFG maintains occurrence information in the CNDDB inventory of those natural communities which are considered particularly rare or threatened, comprising about 125 of the approximately 375 described as occurring in the state. Although these natural communities have no legal protective status under the state or federal Endangered Species Acts, they are provided some level of protection under the CEQA Guidelines. Based on Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if it would "substantially diminish habitat for fish, wildlife or plants." Further loss of a sensitive natural community could be interpreted as substantially diminishing habitat, depending on the relative abundance, quality and degree of past disturbance, and the anticipated impacts to a known occurrence of a specific community type with a high inventory priority.

Wetlands

Although definitions vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the Corps and the USFWS, which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation.

The CDFG and Corps have jurisdiction over modifications to stream channels, river banks, lakes, and other wetland features. Jurisdiction of the Corps is established through the provisions of §404 of the Clean Water Act, which prohibits the discharge of dredged or fill material into "waters" of the United States without a permit, including wetlands and unvegetated "other waters." All three of the identified technical criteria must be met for an area to be identified as a wetland under Corps jurisdiction, unless the area has been modified by human activity. Wetland impacts (defined as direct fill or indirect effects of fill) of less than one acre do not require an Individual 404 permit. Certain activities in wetlands or "other waters" are automatically authorized, or granted a General Permit which allows filling where impacts do not exceed one acre. The Corps assumes discretionary approval over proposed projects which may impact between one and ten acres, issuing either a Nationwide or an Individual Permit. An Individual Permit would be automatically required where 10 acres or more would be affected by a project.

The USFWS classification system is used by the CDFG to determine wetlands. This classification system is generally more encompassing than that used by the Corps, requiring that only one of the criteria be met for an area to be considered wetlands, rather than all three as required by the Corps. Jurisdictional authority of the CDFG over wetland areas is established under §1601-1606 of the Fish and Game Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. The Fish and Game Code stipulates that it is "unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake" without notifying the Department, incorporating necessary mitigation, and obtaining a Streambed Alteration agreement. The Wetlands Resources Policy of the CDFG states that the Fish and Game Commission will "strongly discourage development in or conversion of wetlands...unless, at a minimum, project mitigation assures there will be no net loss of either wetland habitat values or acreage." The Department is also responsible for commenting on projects requiring Corps permits under the Fish and Wildlife Coordination Act of 1958.

In recognition of the importance of wetlands, in 1977 the USFWS began a systematic effort to classify and map remaining wetlands in the country, now known as the National Wetlands Inventory Program (NWI). Using the USGS topographic maps as a base, the wetlands mapping effort provides a generalized inventory of wetlands according to the *Classification of Wetlands and Deepwater Habitats of the United States* (USFWS, 1979) used by the USFWS. Mapping has been prepared through interpretation of aerial photographs, with only limited ground confirmation, which means that a more thorough ground and historical analysis may result in a revision to wetland boundaries in a specific location. As noted above, the classification system also varies from that used by the Corps, and the inventory is not an attempt to define the limits of proprietary jurisdiction of any federal, state, or local agency.

Surface Mining and Reclamation Act

Minimum acceptable practices and performance standards have been developed as part of SMARA to provide for the protection of important fish and wildlife habitat and the successful revegetation of mined lands. The following standards apply to the proposed project.

§3503(c)	All reasonable measures shall be taken to protect the habitat of fish and wildlife.
§3503(g)	When the reclamation plan calls for revegetation, available research addressing revegetation methods and the selection of species having good survival characteristics, for the topography, resoiling characteristics, and climate of the mined areas shall be used.
§3703(a)	Rare, threatened or endangered species and their habitat shall be conserved. If avoidance cannot be achieved through available alternatives, mitigation shall be provided.
§3703(b)	Wildlife habitat shall be established in a condition at least as good as that which existed before lands were disturbed by surface mining.
§3703(c)	Wetland habitat shall be avoided.
§3705(a)	A vegetative cover suitable for the proposed end use and capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer shall be established on disturbed land unless an artificially maintained landscape is consistent with the approved reclamation plan.
§3705(b)	Test plots conducted simultaneously with mining shall be required to determine the most appropriate planting procedures to be followed to ensure successful implementation of the proposed revegetation plan.
§3705(g)	Native plant species shall be used for revegetation, except when introduced species are necessary to meet the end uses specified in the approved reclamation plan.
§3705(h)	Planting shall be conducted during the most favorable period of the year for plant establishment.
§3705(j)	Operator must demonstrate that vegetation has been self-sustaining without irrigation for minimum of two years prior to release of the financial assurances by the lead agency, unless an artificially maintained landscape is consistent with the approved end use.
§3705(k)	Noxious weeds shall be managed: (1) when they threaten the success of the proposed revegetation; (2) to prevent the spreading to nearby areas; and (3) to eliminate fire hazard.
§3705(m)	Success of revegetation shall be judged based on effectiveness of the vegetation for the approved end use, and by comparing the quantified measures of vegetative cover, density, and species-richness of the reclaimed lands to similar parameters of naturally occurring vegetation in the area.

Yolo County General Plan

One of the goals of the Yolo County General Plan is to establish natural and wildlife areas. The following policies pertain to this goal and aspects of the proposed project, numbered here as they area in the Open Space and Conservation elements of the General Plan:

OS 11 Yolo County Shall plan to safeguard existing and encourage additional areas of wildlife habitat as part of its open space preservation program.

CON 28 Yolo County shall establish a tree planting program. Yolo county shall adopt a tree preservation ordinance and shall require extensive use of trees on private and public lands.

CON 30 Yolo County shall safeguard existing and encourage development and protection of additional wildlife habitat and shall coordinate with other agencies and programs to enhance and create wildlife preserves and to preserve and rehabilitate wildlife habitat areas suitable for ecological education sites.

CON 33 Existing natural vegetation shall be conserved where possible, integrated into new development and its life and continuity shall be assured by means of Conditional Use Permit procedures applied to permit approvals for new or reconstruction work.

Yolo County Draft Habitat Conservation Plan

In 1992, the County entered into a Memorandum of Understanding with the CDFG, USFWS, and the cities of Davis, West Sacramento, Winters, and Woodland to develop a framework to address the potential impacts of development on special-status species, particularly Swainson's hawk. The primary purpose of this effort was to prepare a Habitat Conservation Plan (HCP) for the County.

A Draft HCP was recently completed and is undergoing public review and comment (EIP Associates, 1995a). The Draft HCP addresses impacts of anticipated urban development and agricultural facilities on 29 "target" species of concern. The HCP is intended to form the basis for an "incidental take permit" to be issued by the Federal Government under §10(a)(1)(B) of the ESA, and a "managed take permit" under §2081 of the Fish and Game Code. The HCP is also intended to fulfill mitigation requirements related to significant impacts on biological resources from local development projects requiring CEQA review, exclusive of aggregate mining/reclamation applications. While mining activities within the Cache Creek MRZ have not been included as part of the anticipated development considered in the HCP, much of the planning area has been designated as having a high preservation or restoration level as mitigation sites. Lands within the planning area could be used for mitigation required under the HCP, possibly coordinated with restoration efforts proposed as part of mining reclamation plans.

SETTING

Vegetation

In the last century, grazing, agricultural production, and mining activities have substantially altered the vegetative cover in the planning area. The introduction of livestock grazing in the mid-1800s, followed by removal of oak woodland, and eventual irrigation and year-round farming in the 1900s has resulted in the elimination of most of the native plant communities. In-channel aggregate mining during the past 90 or more years has resulted in substantial modification to the historic riparian cover along the Cache Creek corridor.

Most of the original native riparian forest, oak woodland, and perennial grassland communities have been replaced by agricultural crops, with remnants of the native communities generally limited to small segments along the Cache Creek corridor. Native riparian cover has also partially regenerated along the creek through natural processes, forming a narrow band of herbaceous cover and willow scrub within the in-channel area.

Figure 4.6-1 shows the extent of the remaining natural communities in the planning area, indicating their concentration within the in-channel area proposed under the CCRMP. The extent of exposed gravel wash and herbaceous cover, neither of which represent distinct natural communities, provides an indication of the degree of past and on-going disturbance within the creek. Outside the delineated in-channel area, large stands of oak woodlands and bands of riparian forest and willow scrub remain upstream from Capay Bridge. Remnants of riparian forest also occur outside the in-channel area upstream from Stephens Bridge, forming a large stand at the Yolo Flying Club south of the creek and extending along Gorton Slough north of the creek and just south of Road 20.

Agricultural Fields and Developed Areas

Most of the planning area now supports a cover of agricultural crops, consisting primarily of grain and row crops, with limited areas of pasture and orchard crops. Ornamental landscaping occurs in the vicinity of the communities of Capay, Esparto, and Madison, and surrounds rural residences in the fields and orchards. Landscape species are primarily non-native ornamentals, including a mixture of trees, shrubs, groundcovers, and turf. Mature native oaks also occur sporadically in landscaped areas.

Fencerows

The margins of agricultural fields and edge of roadways tends to support a cover of ruderal species and non-native grassland, but sometimes form a fencerow or "hedgerow" of scattered native oaks and dense shrubs. Grassland species typical of these margins include: wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum leporinum*), wild radish (*Rhaphanus sativus*), bindweed (*Convolvulus arvensis*), cheeseweed (*Malva parviflora*), bur clover (*Medicago polymorpha*), and yellow-star thistle (*Centaurea solstitialis*). Valley oak (*Quercus lobata*) and black walnut trees (*Juglans hindsii*) compromise the dominant tree species along these margins. Several shrubs sometimes form dense thickets as well, including California rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) or Himilaya-berry (*Rubus procerus*), and occasionally blue elderberry (*Sambucus mexicana*).

Oak Woodland

Valley oaks form remnant stands of oak woodland in the western portion of the OCMP area, at times integrating with valley oak riparian forest along the fringe of the in-channel area. The Technical Studies estimate that 76 acres of oak woodland remain along Cache Creek, most within the OCMP area (EIP Associates, 1995). The understory layer is

also a long, narrow band of Soboba gravelly sandy loam (Sn) and Loamy alluvial land (Lm) along the outer edges of the Cache Creek channel, both Class IV soils.

California Department of Conservation (CDC)

In California, the CDC Prime Farmland Mapping and Monitoring Program has been working collaboratively with the USDA since 1980 to map many of the State's agricultural lands, on a county-by-county basis, according to their suitability for agricultural production. The CDC has prepared several Important Farmland Maps for Yolo County, with the most recent map updated in 1994. The maps are now updated by CDC every two years.

The CDC Important Farmland Map for Yolo County (CDC, 1994), similar to the USDA Soil Survey, indicates that over 11,000 acres of the MRZ-2 areas on either side of Cache Creek are designated as Prime Farmland (Figure 4.5-2). CDC defines "prime farmland" as:

> [L]and which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime farmland must have been used for the production of crops at sometime during the last two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

The farmland mapping of the planning area indicates other large areas of significant agricultural land, including Farmland of Statewide Importance. These lands generally have a good combination of physical and chemical features for the production of agricultural crops but do not meet the requirements for Prime Farmland designation. Relatively small areas of these lands are designated in north of the creek. The designation Unique Farmland applies to lands of lesser soil quality that are, nonetheless, used for production of leading cash crops. One large area south of Cache Creek is designated as Unique Farmland, corresponding to the USDA-identified San Ysidro loam soils along SR 16 near Jacobs Corner. The least productive soils in the western end of the planning area are designated as Farmlands of Local Importance (quality lands that are not currently irrigated), Grazing Land, and Other lands (primarily areas within and adjacent to the Cache Creek channel).

Williamson Act and Yolo County SMRO

The Williamson Act and both the existing and draft Yolo County Surface Mining Reclamation Ordinances' definition of prime farmland are similar. Prime farmlands are defined as:

- All land that qualifies as Class I or Class II in the Soil Conservation Service land use capability classifications.
- Land that qualifies for ratings 80 through 100 in the Storie Index Rating.

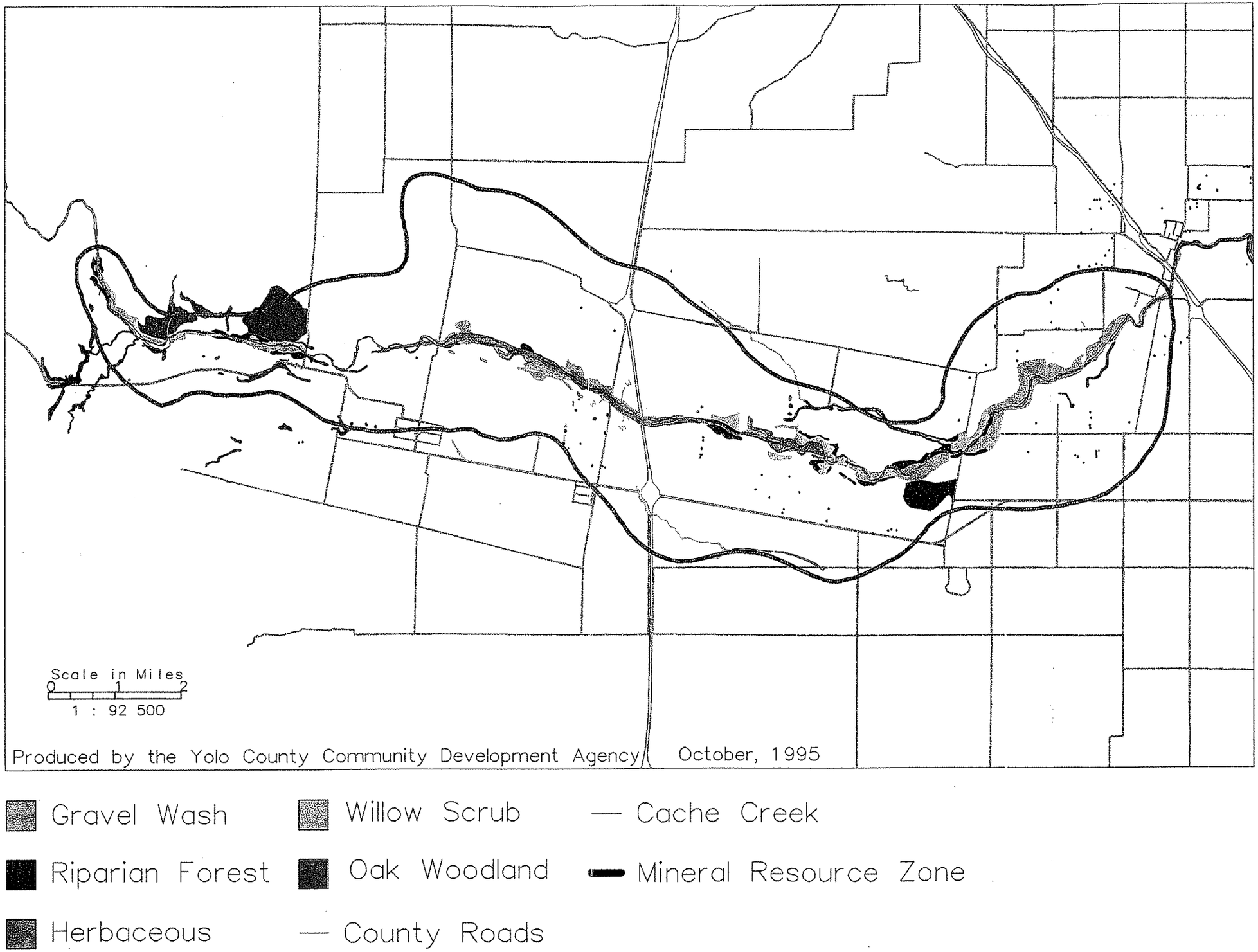

Figure 4.6-1 Riparian Habitat Types

SOURCE: YOLO COUNTY COMMUNITY DEVELOPMENT AGENCY

generally poorly developed or composed of non-native grassland species. Other tree species and shrubs, such as live oak (*Quercus agrifolia*), California buckeye (*Aesculus californica*), and elderberry occasionally occur in the woodland. Poison oak (*Toxicodendron diversilobum*) sometimes forms dense thicket on the woodland floor or up the trunks of trees.

Riparian Forest and Scrub

While most of the remaining riparian forest and scrub habitat occurs within the in-channel area, some limited stands occur within the actual OCMP area or along the fringe of the creek channel. The riparian habitat of the in-channel area is a highly diverse and dynamic mosaic of vegetation, surface water, and wash areas. Outside the creek channel where flood flows and severe scouring does not influence vegetative cover, the remnant cover consists of a more mature expression of riparian habitat characterized by mature trees. Golf course improvements have suppressed regeneration and replaced understory cover in the large stand of riparian forest at the Yolo Flying Club. The forest along Gorton Slough, although narrow over most of its length, is some of the highest quality riparian habitat in the County, forming a mostly closed-canopy valley oak forest.

Wetlands

Mapped wetlands in the planning area consist primarily of emergent, scrub, and forested palustrine and riverine systems[4] along the Cache Creek corridor, which are generally restricted to the in-channel area of the CCRMP. Several smaller tributary drainages are located outside the in-channel area, such as Gorton Slough. The fringe of the in-channel mining pits and a few irrigation canals and ditches also support wetland indicator species, but these features are of man-made origin and would most likely be exempt from jurisdictional authority of the Corps or the CDFG. No areas of extensive seasonal wetlands or unique vernal pools have been mapped within the OCMP area, and extensive agricultural development precludes occurrence of the latter. Detailed wetland delineations and verification by jurisdictional agencies would be required to conclusively determine presence or absence of jurisdictional wetland resources on individual parcels. A background discussion of the regulatory framework regarding wetlands is provided at the beginning of this section.

4 As defined by the USFWS (1979), the riverine system generally includes all wetlands and deepwater habitat contained within a channel, with the exception of (1) wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses or lichens, and (2) habitat with water containing ocean derived salts. The palustrine system generally includes all the nontidal wetland exceptions to the riverine system, specifically wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses or lichens.

Wildlife

Although native vegetation within the planning area has been substantially altered, the Cache Creek corridor remains a feature of regional importance and contributes to the habitat value of the surrounding agricultural lands, collectively supporting a diverse assemblage of resident and migrant wildlife species. In general, each habitat differs in its relative value to specific species and can be characterized by both vegetation and associated animal species, although the majority of wildlife species utilize more than one habitat type. The relative value and wildlife species typically associated with each of the habitat types in the planning area is summarized below.

Agricultural

Agricultural practices and intensive grazing tend to eliminate important cover for wildlife, but the relative vastness of the planning area and limited human activity permits utilization by smaller mammals and birds as well as larger predatory species. Insect and rodent populations fluctuate with the seasons as cover becomes reestablished and the hay and grain crops mature in early summer. When prey population levels are high, they provide an abundant food source for mammalian predators such as long-tailed weasel, raccoon, and coyote, as well as avian predators such as white-tailed kite, American kestrel, red-tailed hawk, barn owl, great horned owl, common egret, and great blue heron. Because of its four-year average lifespan, alfalfa tends to provide a relatively stable foraging base for rodents such as California meadow vole, Bottae pocket gopher, and western harvest mouse, and can provide important foraging habitat for raptors, including Swainson's hawk, a state-listed threatened species.

Fencerow

The lack of protective cover in the agricultural fields intensifies the importance of fencerows and isolated trees which serve as nesting, denning, and retreat areas for a variety of birds and mammals. Established fencerow vegetation and areas of grassland margins provide protective cover and permit recolonization of agricultural fields. Species commonly associated with fencerows, ruderal grassland, and fringes of agricultural fields include ring-necked pheasant, American kestrel, California ground squirrel, California vole, striped skunk, black-tailed jackrabbit, gopher snake, and western fence lizard.

Oak Woodlands

The scattered oaks and remnant woodlands provide important nest sites, roosting substrate, and cover for wildlife, particularly for raptors and other birds. Wildlife commonly associated with woodland habitat include: deer mouse, ringneck snake, California newt, California slender salamander, western flycatcher, plain titmouse, rufous-sided towhee, and bushtit. Dead limbs and cavities in older trees are often used for nesting or denning by owls, raccoon, and opossum. The abundant crop of acorns in the fall provide an important source of food for numerous woodpeckers, jays, squirrels, and black-tailed deer.

Riparian

Cache Creek is a habitat feature of regional importance for wildlife, providing a source of drinking water, protective cover and nesting substrate, and serving as a movement corridor. The creek channel is used as a movement corridor for larger wildlife species, such as grey fox, black-tailed deer, striped skunk, muskrat, beaver, raccoon, and opossum. The creek supports aquatic amphibians, reptiles, and resident and migratory fish species. Species dependent on aquatic habitat of the creek include: carp, green sunfish, bluegill, bass, perch, pacific treefrog and bullfrog. Areas with emergent vegetation and seasonal ponding are particularly attractive features to waterfowl and colonial nesting birds, such as herons, egrets, and red-winged blackbird. Several species of swallow use the varied habitat along the creek corridor for foraging and nesting, including bank swallows, a state-listed threatened species. Mammals typically found in adjacent grassland and agricultural fields, such as California vole, California ground squirrel, and numerous species of birds, most likely use areas of dense riparian growth as protective cover and refuge from summer heat and drought. Blue elderberry shrubs along the riparian corridor provide suitable habitat for a federally-listed threatened insect, valley elderberry longhorn beetle.

Developed Areas

In general, urbanized areas have low to poor wildlife habitat value due to replacement of natural communities, fragmentation of remaining open space areas and parks, and intensive human disturbance. Trees and shrubs used for landscaping provide nest sites and cover for wildlife adapted to developed areas. Typical species include: mourning dove, northern mockingbird, American robin, house finch, rock dove, house sparrow, Norway rat, and house mouse.

Special-Status Species and Sensitive Natural Communities

Review of records maintained by the CNDDB, together with other relevant information, indicates that occurrences of several plant and animal species with special-status have been recorded from or are suspected to occur in western Yolo County. A number of the natural communities in the planning area have a high inventory priority with the CNDDB due to rarity and threats, and are considered sensitive resources. As noted previously, detailed biological surveys would be necessary to determine presence or absence of any species of concern or sensitive natural communities in a particular location. A background discussion of the regulatory framework regarding special-status species and sensitive natural communities is provided at the beginning of this section.

Plant Species

No special-status plant species have been reported from the planning area or vicinity by the CNDDB. Based on recorded geographic range and characteristic habitat, some plant species with special-status have a limited potential for occurrence within the planning area.

These include: deep-scarred cryptantha (*Cryptantha excavata*), palmate bird's-beak (*Cordylanthus palmatus*), adobe-lily (*Fritillaria pluriflora*), wooly-headed lessingia (*Lessingia hololeuca*), and Heller's bush mallow (*Malacothamnus helleri*). Most of these are considered rare (list 1B) by the CNPS, but only palmate bird's-beak actually has legal protective status, which is a state- and federally-listed endangered species. Due to the extent of past disturbance, however, the likelihood that populations of any plant species of concern occurring in the planning area is considered very low. Northern California black walnut (*Juglans californica* var. *hindsii*), which is a candidate (Category 2) for federal-listing, occurs throughout the riparian habitat and occasionally along fencerows and developed areas. However, its occurrence within the planning area is a result of naturalization from agricultural practices, and therefore not considered of significance.

Animal Species

The Technical Studies provide information on a total of 11 animal species which are: 1) known from the planning area or reliably believed to be present; 2) known from the region and for which suitable habitat is present within the planning area; and 3) species for which habitat is marginally suitable or unsuitable, but which could benefit from reclamation or habitat restoration efforts. These include: Swainson's hawk (*Buteo swainsoni*), bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Cooper's hawk (*Accipiter cooperi*), California yellow warbler (*Dendroica petechia brewsteri*), ringtail (*Bassariscus astutus*), northwestern pond turtle (*Clemmys marmorata*), Sacramento anthicid beetle (*Anthicus sacramento*), white-faced ibis (*Plegadis chihi*), and double-crested cormorant (*Phalacrocorax auritus*).

Review of biological assessments for the five individual mining applications and other information sources indicate that several other special-status species have been reported or are suspected to occur in the planning area and should be included in the above list of species of concern. These include: loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), white-tailed kite (*Elanus caeruleus*), burrowing owl (*Athene cunicularia*), golden eagle (*Aquila chrysaetos*), giant garter snake (*Thamnophis couchi gigas*), American badger (*Taxidea taxus*), valley oak ant (*Proceratium californicum*), and ancient ant (*Smithistruma reliquia*).

Table 4.6-1 provides information on the name, status, and preferred habitat for each of these species. It should be noted that there remains a potential for occasional use of the planning area by other species of concern as well, such as Ferruginous hawk (*Buteo regalis*), long-billed curlew (*Numenius americanus*), mountain plover (*Charadrius montanus*), merlin (*Falco columbarius*), American peregrine falcon (*Falco peregrinus anatum*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), sharp-shinned hawk (*Accipiter striatus*), pale big-eared bat (*Plecotus townsendii pallescens*), Townsend's western big-eared bat (*Plecotus townsendii townsendii*), and pallid bat (*Antrazous pallida*). This, however, tends to be restricted to occasional wintering activity by migratory bird species or possible foraging activity by bat species for which essential breeding habitat would not be affected by mining or reclamation activities.

Four of the species in Table 4.6-1 are considered to be of particular concern due to their legal status under the Endangered Species Acts, or their dependence on riparian habitat which could be affected by management objectives of the OCMP and CCRMP: Swainson's hawk, bank swallow, valley elderberry longhorn beetle, and tricolored blackbird. The following provides a discussion of the status, relevant management information, and occurrence records for each of these four species. Nesting habitat for the numerous raptors and other bird species of concern is also of importance, and general information on these species is summarized below.

Swainson's Hawk

Swainson's hawk is a summer breeding resident of the Central Valley, generally occurring in areas where riparian woodland and surrounding agricultural lands provide roosting, nesting, and foraging habitat. The loss of nesting and foraging habitat has greatly reduced the breeding range and abundance of Swainson's hawk in California, with an estimated decline of 90 percent in the breeding population between 1900 and 1979. Originally adapted to open grasslands, it has become increasingly dependent on agricultural lands as native plant communities have been converted to agricultural uses.

Agricultural crop patterns currently influence the distribution and abundance of Swainson's hawk in the Central Valley, and foraging behavior reflects changes in prey density and availability. Swainson's hawk is an opportunistic feeder, foraging in different areas as agricultural practices expose prey or prey populations become abundant. Suitable foraging habitat currently includes open grassland or lightly-grazed dryland pasture, alfalfa and other hay crops, fallow fields, and combinations of hay, grain, and row crops such as tomato and beets. Areas devoted to alfalfa generally remain in production for four to five years after planting because this is a perennial species, contributing to the importance of this crop-type as relatively stable foraging habitat for the hawk. Unsuitable foraging habitat includes any crop-type in which prey are inaccessible, or which do not support adequate prey populations, such as vineyards, orchards, and cotton fields.

Records maintained by the CNDDB indicate several active nests and numerous sightings in the eastern portion of the planning area. Biological assessments conducted for individual mining applications detected additional nests in the planning area. These include a nest in the dense riparian forest along Gorton Slough (Jones & Stokes Associates, 1993) and a nest in an isolated tree approximately one half mile west of I-505, midway between the creek and Road 19. The majority of the reported sightings are from isolated nest trees in agricultural fields (Jones & Stokes Associates, 1993a). Based on the

Table 4.6-1 Special-Status Species Known or Suspected to Occur in the Planning Area		
Species	Status Federal/State	Habitat Type
Insects:		
Valley elderberry longhorn beetle	FT/-	Riparian, fencerows with elderberry
Ancient ant	*/-	Oak woodland
Valley oak ant	*/-	Oak woodland
Sacramento anthicid beetle	*/-	Riverine sand deposit
Reptiles:		
Giant garter snake	FT/ST	Marshland, streams, channels, ponds
Northwestern pond turtle	*/CSC	Ponds, rivers, streams
Birds:		
Swainson's hawk	-/ST	Riparian, grassland, agricultural
Golden eagle	-/CSC, CP	Grasslands, agricultural
Northern harrier	-/CSC	Grasslands, agricultural, marshland
Prairie falcon	-/CSC	Grasslands, rock outcrops
Cooper's hawk	-/CSC	Riparian, woodland, agricultural
White-tailed kite	-/CP	Riparian, grassland, agricultural
Burrowing owl	-/CSC	Grassland, agricultural
Tricolored blackbird	*/CSC	Marshland, agricultural
Bank swallow	-/ST	Riparian, agricultural
Loggerhead shrike	*/CSC	Grassland, agricultural
California yellow warbler	-/CSC	Riparian
Double-crested cormorant	-/CSC	Open water
White-faced ibis	*/CSC	Emergent wetlands, agricultural
Mammals:		
Ringtail	-/CP	Riparian
American badger	-/CSC	Grassland

Federal Status

FE = Listed as Endangered under the Federal Endangered Species Act.

FT = Listed as Threatened under the Federal Endangered Species Act.

* = These species were considered to be Category 2 candidate taxa for federal listing until 28 February 1996 when the USFWS revised their status classification system. These species no longer have any candidate designation, but are unofficially classified as species of concern and could be added to the candidate list if information demonstrates they warrant listing.

State Status

SE = Listed as Endangered under the California Endangered Species Act.

ST = Listed as Threatened under the California Endangered Species Act.

CP = California fully protected species; individual may not be possessed or taken at any time.

CSC = Considered a species of special concern by the California Department of Fish and Game; taxa have no formal legal protection but nest sites and communal roosts are generally recognized as significant biotic features.

concentration of recorded nesting activity to the east, the planning area may represent the western fringe of the range for nesting pairs in this part of Yolo County.

Most of the agricultural fields within the planning area meet the two basic criteria used by the CDFG in determining presence of potential foraging habitat for Swainson's hawk (CDFG, 1993). These criteria include: location within a ten-mile radius of an active nest site, and suitable foraging habitat type. All of the OCMP area falls within a ten-mile radius of known nesting territories, considering the CNDDB occurrence records and other nest locations reported from the planning area. The CDFG considers all agricultural and pasture land within an active nesting territory not devoted to unsuitable crop types (i.e., vineyards, mature orchards, and cotton) to be potential foraging habitat, including plowed or fallow lands and fields under crop rotation which are currently planted with a crop where prey are inaccessible.

Bank Swallow

This migrant species is found primarily in riparian and other lowland habitat of the state, arriving from South America in early April and leaving California by mid-September. Typically a colonial breeder, this species requires vertical banks and cliffs with fine-textured or sandy soils along stream banks, rivers, ponds, and other bodies of water for nesting, where it excavates a hole for breeding. Although it generally nests along exposed channel banks, stockpiled or exposed topsoil in gravel mines and even trenches have been used for nesting. It has been known to colonize the vertical faces of trenches within one day of excavation. This species was once believed to be more common as a breeder in California, but now only a few larger colonies remain.

The CNDDB records indicate that several active colonies of bank swallows have been observed along Cache Creek from the late 1980's. These include: colonies within a few thousand feet of either side of the I-505 crossing; a colony midway between the I-505 crossing and Stevens Bridge; and a colony to the west of the planning area. Suitable habitat for this species is generally restricted to the in-channel area of the CCRMP, where steep, exposed banks are present. Two of the reported occurrences are from gravel pits, providing an indication of the need to ensure mining activities do not inadvertently result in "take" of individual birds and the potential to establish additional suitable nesting habitat as part of reclamation of off-channel aggregate mining.

Valley Elderberry Longhorn Beetle

This subspecies is dependent on elderberry plants (*Sambucus* spp.) for food, cover, and pupation. It is known primarily from riparian habitats of the Central Valley from near Red Bluff south to the Tule River in Tulare County, though occurrences in other areas have been recorded. The presence of valley elderberry longhorn beetle (VELB) is usually detected by characteristic exit holes in young stems of elderberry shrubs where larvae have emerged. The USFWS considers any stand of elderberry to be potentially suitable habitat for the beetle, and generally requires that existing plants be protected, transplanted,

or replaced at a specified ratio specified in the USFWS *General Compensation Guidelines for the Valley Elderberry Longhorn Beetle*. While the CNDDB contains no records for VELB occurrence in the planning area, detailed mapping of elderberry shrub locations and evidence of VELB presence have been noted in biological assessments conducted for individual mining applications.

Tricolored Blackbird

Although it has declined substantially in recent years, the tricolored blackbird is widespread in marshes and agricultural fields of the Central Valley. It usually nests in cattails or tules, sometimes in thickets of willow, blackberry and other riparian habitat near available surface water. Due to the absence of well-developed marshland vegetation, suitable nesting habitat is generally absent outside the immediate Cache Creek corridor. A colony of approximately 1,000 tricolored blackbird was reported in 1992 from the in-channel area near the Coors parcel on Teichert Aggregates property west of Road 94B (Jones & Stokes Associates, 1993). Emergent wetlands associated with reclaimed quarry wet pits could provide suitable nesting habitat for this species in the future.

Other Birds and Raptors

Several other bird species of concern are known to forage in the agricultural fields of the planning area and vicinity, including: loggerhead shrike, white-tailed kite, northern harrier, Cooper's hawk, prairie falcon, burrowing owl, and golden eagle. Of particular concern for these species, which have no legal protective status under the Endangered Species Acts, is the protection of active nest locations. Raptor nests in active use are protected under the provisions of the Migratory Bird Treaty Act[5] and the State Fish and Game Code. Information on each of these species is summarized below:

- White-tailed kite is a fairly common permanent resident of annual grasslands and agricultural fields of the Central Valley. The CDFG gives special consideration to communal roosts and nests of this species when reviewing environmental documents.

- Northern harrier is a fairly common resident of grasslands, marshlands, and agricultural areas of the Central Valley.

- The remnant woodlands and riparian forest in the planning area may provide nesting locations for Cooper's hawk, which utilize a wide range of habitat types and generally nests in riparian zones.

[5] The Migratory Bird Treaty Act does not provide protection for habitat of migratory birds, but does prohibit the destruction or possession of individual birds, eggs, or nests in active use without a permit from the USFWS.

- Prairie falcon is probably a regular winter visitor to agricultural fields and grasslands in the planning area, but requires cliffs and rock outcrops for nesting, which are absent.

- Golden eagle is occasionally observed over grasslands and agricultural areas in western Yolo County, but no nests have been reported from the planning area. Golden eagles typically prefer to nest in tall trees or cliffs in remote areas.

- Loggerhead shrike is most likely a resident of the planning area, foraging in grasslands and agricultural areas, and nesting in areas with dense cover.

- Burrowing owl is a ground nesting species, which tends to occupy burrows of ground squirrels and other rodents. Suitable habitat occurs throughout the planning area, although no records of established colonies have been reported.

Natural Communities

The riparian forest, riparian scrub, and valley oak woodland natural community types within the planning area are considered to have a high inventory priority with the CNDDB. These communities have been designated as sensitive due to rarity and continuing loss as a result of development, flood control improvements, and other factors, and should receive appropriate recognition in planning for the OCMP and the CCRMP.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The project would have a significant effect on biological resources if it would:

- Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources.

- Substantially limit or fragment range and movement (geographic distribution of animals and/or seed dispersal routes).

- Disrupt critical time periods (nesting, breeding) for fish and other wildlife species.

- Reduce the numbers of any rare, threatened, or endangered species or their habitats (including, but not limited to, the removal of any healthy oak tree or tree containing a Swainson's hawk nest).

- Substantially impact locally designated species or locally designated natural communities.

- Remove wetland habitat (e.g., marsh, riparian, and vernal pool).

- Conflict with adopted plans or programs designed to preserve or enhance biological resources.

Impact 4.6-1
Impact on Existing Vegetative Cover

Mining activities would require removal of the existing vegetative cover in areas where extraction is to occur. Disturbed areas would create ideal conditions for establishment of noxious weeds such as yellow star thistle, tamarisk, and giant reed unless revegetation is successfully accomplished and weeds adequately managed. Provisions in SMARA specify performance standards for revegetation where suitable for the approved end use, including management of noxious weeds. Wildlife habitat enhancement would provide for revegetation with native plant species, serving to restore native habitat, where appropriate.

Draft OCMP and Implementing Ordinances

Most of the vegetative cover affected by mineral extraction in the OCMP area consists of agricultural fields. This cover type is of man-made origin, is not considered a sensitive natural community, and its loss would not be a significant impact on vegetation resources. Limited disturbance and vegetation removal could occur in areas supporting sensitive natural communities or other important vegetation resources such as mature native trees. This would be a significant impact, as concluded in the evaluation of Impact 4.6-2.

Agricultural cover would be reestablished on approximately 988 acres of the 2,256 acres disturbed by mining in the planning area. Disturbed areas would create suitable conditions for establishment and spread of noxious weeds, without adequate management as called for in SMARA. In addition, mining activities could inadvertently disturb areas of existing vegetation cover to be preserved unless adequate restrictions are incorporated into individual mining plans.

The following Action Policy and Performance Standard in the OCMP address protection of existing vegetation to be retained and emphasize the importance of management of noxious weeds. Together with performance standards in SMARA, these policies would serve to ensure that potential adverse impacts on general vegetation resources are fully mitigated.

6.4-5 Promote the eradication of invasive species, such as the giant reed and tamarisk, in areas where they inhibit the growth and development of native riparian vegetation, especially Zone 5 of the Recommended Management Activity Zones described in the Technical Studies.

6.5-1 Existing vegetation and habitat to be retained shall be enclosed by temporary fencing to restrict access, protect against damage, and/or provide buffers to reduce the impact of dust. Temporary fencing shall be a minimum four (4) feet high.

Alternative 1a - No Project (Existing Conditions)

Existing vegetative cover would continue to be removed in areas with approved mining permits, including in-channel operations. The benefits of riparian habitat restoration associated with the CCRMP would not occur under this and other alternatives where the County would not prepare the OCMP, as the two are companion documents. While the majority of the affected vegetative cover would be agricultural crops, riparian vegetation would be routinely removed from the Hungry Hollow, Madison, and Guesisosi subreaches, and portions of the Dunnigan Hills and Hoppin subreaches. In-channel mining and skimming would continue to suppress reestablishment of riparian habitat along much of the Cache Creek corridor, and severely limit opportunities for riparian habitat restoration. As the affected vegetation would generally consist of agricultural crops and disturbed riparian habitat, the primary effect of this alternative and others for which the OCMP and CCRMP are not implemented, is the absence of the restoration benefits, which not be a significant adverse impact requiring mitigation.

Alternative 1b - No Project (Existing Permits and Regulatory Condition)

This alternative would also allow for the continued removal of in-channel and off-channel mineral resources in areas with approved mining permits. Vegetation cover affected by off-channel mining would consist primarily of agricultural crops. As with Alternative 1a, reestablishment of riparian habitat along much of the Cache Creek corridor would be suppressed, limiting restoration opportunities. This would be a significant and unavoidable impact.

Alternative 2 - No Mining (Alternative Site)

Potential impacts on general vegetation resources under this alternative would depend on the cover types at the alternative site location. As mining activities are dependent on alluvial deposits, it is likely that affected vegetation could include a combination of agricultural crops, pastureland, riparian, grassland, oak savanna, and oak woodland cover. With the elimination of mining activities in the planning area, the anticipated potential impacts on vegetative cover would not occur under this and other off-site alternatives. This would include the beneficial elimination of in-channel mining along the Cache Creek corridor, which would remove a major factor suppressing natural reestablishment of riparian habitat.

Alternative 3 - Plant Operation Only (Importation)

The effects on vegetation resources would be similar to those in Alternative 2, again dependent on the cover types at the source of the alluvial deposits. Disposal of fines separated at the existing processing plants in the planning area could affect areas of agricultural or ruderal cover, but this would not be considered a significant impact.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Mining activities would affect a similar area under this alternative, with the only difference being the depth of extraction. This alternative would also affect primarily agricultural crops. Mining would continue on the Granite and Schwarzgruber sites, but overall this would be a reduction in the extent of disturbance to the creek corridor and would actually be located outside the active channel.

Alternative 5a - Decreased Mining (Restricted Allocation)

Restrictions on overall gravel extraction could reduce the extent of vegetative cover disturbed by mining activities. Commercial in-channel mining would cease because of the revised channel boundary, but extraction on the Granite and Schwarzgruber sites could still affect limited areas of riparian vegetation on the upper terrace.

Alternative 5b - Decreased Mining (Shorter Mining Period)

Restrictions on annual allocations and time frame could reduce the extent of existing cover affected by mining activities under this alternative. Commercial in-channel mining would cease, but extraction on the Granite and Schwarzgruber sites could still affect limited areas of riparian vegetation.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

This alternative would result in substantially greater disturbance to existing vegetative cover, consisting primarily of agricultural crops and possibly grasslands from borrow areas.

Mitigation Measure 4.6-1a (OCMP, A-1a, A-1b, A-2, A-3, A-4, A-5a, A-5b, A-6)

No additional mitigation would be required.

Revegetation required as part of reclamation in §3705 of the SMARA Reclamation Regulations would provide for revegetation of mined areas for the project and alternatives. Vegetation affected under the OCMP and Alternatives 1a, 1b, 4, 5a, 5b and 6 would generally be limited to agricultural cover and no additional mitigation would be required. The effects of Alternatives 2 and 3 on vegetation would depend on the resources present at the alternative sites, but it is assumed that these consist primarily of agricultural fields and disturbed grazing lands. The beneficial effects of restoration with the OCMP and CCRMP would not occur under Alternatives 1a, 1b, 2, and 3, and no enforceable mitigation is available for these alternatives to ensure these benefits are implemented.

Impact 4.6-2
Impact on Sensitive Natural Community Types

Mining activities could affect sensitive natural community types which have a high inventory priority status with the CNDDB. Further loss of these community types would contribute to their rarity in the State, and diminish the extent of habitat available to dependent wildlife species. The SMARA Reclamation Regulations contain no provisions specifically addressing protection of sensitive natural community types. These provisions focus on protection of important wildlife habitat and revegetation standards.

Draft OCMP and Implementing Ordinances

Mining activities associated with the OCMP would be located outside the in-channel area of the CCRMP where most of the remaining sensitive riparian habitat is located. Proposed mining sites outside the in-channel area would not affect the large stands of oak woodland upstream from Capay Bridge, or the remnant riparian forests at the Yolo Flying Club and along Gorton Slough west of Road 94B. Narrow bands of riparian forest cover along the fringe of the creek corridor and scattered mature oaks in agricultural fields could, however, be removed on mining sites within the OCMP area unless protected or replaced as part of revegetation during reclamation. Further loss of these sensitive community types would be considered a significant impact.

Biological inventories and assessments for individual mining applications, required under §10-4.502(b)(1) of the Off-Channel Surface Mining Ordinance, would presumably identify areas of sensitive natural communities as "significant habitat." However, the need to evaluate impacts on sensitive natural communities should be clearly identified in this section of the Mining Ordinance to ensure their protection and replacement where complete avoidance is not possible.

The following Goal and Performance Standards of the OCMP call for protection of the existing riparian habitat within the off-channel planning area. However, no policies address the importance of protecting remaining areas of oak woodland habitat, including scattered mature specimen trees, or for providing replacement habitat where avoidance is unavoidable.

6.3-1 Conserve and protect existing riparian habitat within the off-channel planning area.

6.5-1 Existing vegetation and habitat to be retained shall be enclosed by temporary fencing to restrict access, protect against damage, and/or provide buffers to reduce the impact of dust. Temporary fencing shall be a minimum four (4) feet high.

6.5-4 Off-channel excavations shall be set back a minimum of twenty-five (25) feet from riparian vegetation.

Numerous policies in the OCMP pertain to the importance of protecting and enhancing sensitive riparian habitat, including 6.2-1, 6.3-2, 6.4-1, 6.4-8, 6.4-9, 6.4-10, 6.5-2, and 6.5-6. These policies are listed in the discussion of Impact 4.6-6, and range from preparation

of detailed restoration plans consistent with recommendations contained in the *Technical Studies*, to encouraging cooperative agreements with private landowners which would benefit the biological resources of Cache Creek. Most of the existing riparian habitat is contained within the in-channel area of the CCRMP. However, restoration efforts in off-channel areas, such as establishment of wetland and riparian habitat on the slopes of reclaimed wet-pits and restoration of oak woodland at higher elevations, would serve to enhance the overall value of the Cache Creek corridor.

Performance Standard 6.5-2, listed below, addresses protection of riparian vegetation, but simply states that vegetation will be "retained or replaced" rather than emphasizing the importance of preserving and enhancing existing vegetation to the extent possible. This could contribute to a short-term loss of important riparian forest and scrub cover if vegetation is indiscriminately removed and replaced as part of revegetation and habitat restoration. Further biological assessment required for individual mining applications would serve to identify sensitive habitat, including riparian vegetation.

6.5-2 Riparian vegetation, including identified off-channel vegetation, shall be retained or replaced according to a habitat restoration plan prepared by a qualified biologist, consistent with the goals of this plan.

Alternative 1a - No Project (Existing Conditions)

Mineral extraction in off-channel areas would affect primarily agricultural cover. Continued mining within the in-channel area would suppress the restoration potential of the creek corridor under this alternative. Riparian vegetation would be routinely removed from the Hungry Hollow, Madison, and Guesisosi subreaches, and portions of the Dunnigan Hills and Hoppin subreaches, but these areas generally have been routinely disturbed by past mining activities. The benefits of riparian habitat restoration associated with the CCRMP would likely not occur under this and other alternatives if the OCMP and CCRMP are not adopted.

Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Mineral extraction in off-channel areas would affect primarily agricultural cover. Continued mining within the in-channel area would suppress the restoration potential and routinely disturb riparian cover along segments of the creek corridor under this alternative.

Alternative 2 - No Mining (Alternative Site)

The degree to which natural communities area affected under this alternative would depend on the vegetation types at the alternative site location, which could include a number of sensitive natural communities, such as vernal pools at Mather Field and riparian habitat along Morrison Creek in Sacramento County, as well as mature native trees. Anticipated impacts associated with mining activities within the planning area would not occur under this and other off-site alternatives. This would include elimination of

commercial in-channel mining along the Cache Creek corridor, which would remove a major factor suppressing natural reestablishment of riparian habitat.

Alternative 3 - Plant Operation Only (Importation)

As with Alternative 2, effects on sensitive natural communities would depend on the vegetation types at the alternative site location.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Mining under this alternative would affect primarily agricultural crops, but continued mining on the Granite and Schwarzgruber sites could affect limited riparian habitat on the upper terrace outside the active channel.

Alternative 5a - Decreased Mining (Restricted Allocation)

Restrictions on off-channel extraction and cessation of commercial in-channel mining could reduce the degree to which sensitive natural communities and mature native trees would be affected by mining activities.

Alternative 5b - Decreased Mining (Shorter Mining Period)

As with Alternative 5a, restrictions on annual allocations could reduce the degree to which sensitive natural communities and mature native trees would be affected by mining activities.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

The potential for disturbance to sensitive natural communities and mature native trees would increase under this alternative due to the additional earth-borrow areas necessary to generate pit fill material, depending on the resources associated with the borrow areas. Limitations on reclamation would limit the opportunities to restore sensitive natural community types under this alternative.

Mitigation Measure 4.6-2a (OCMP, A-4, A-5a, A-5b, A-6)

Section 10-4.502(b)(1) of the Off-Channel Surface Mining Ordinance shall be revised as follows to indicate that the biological inventory and analysis shall address sensitive natural communities:

> *...The analysis shall propose appropriate measures to reduce any potential adverse impacts to species of concern, sensitive natural communities, or significant habitat...*

The following revisions shall be made to Performance Standard 6.5-2 of the OCMP to clarify the importance of preserving existing riparian habitat.

6.5-2. Avoid disturbance of rRiparian vegetation, including identified off-channel vegetation ~~shall be retained~~. Replacement habitat shall be established where complete avoidance is not possible ~~or replaced~~ according to a habitat restoration plan prepared by a qualified biologist, consistent with the goals of this plan.

The following shall be included as an additional Performance Standard in Chapter 6 of the OCMP to provide for protection or replacement of oak woodland habitat and mature native trees.

6.4-12. Avoid disturbance of oak woodland vegetation and mature oaks. Replacement habitat and plantings shall be established where complete avoidance is not possible according to a habitat restoration plan prepared by a qualified biologist, consistent with the goals of this plan.

Implementation of this mitigation would reduce the impact of the OCMP and Alternatives 4, 5a, 5b, and 6 on sensitive natural communities to a less-than-significant level. While the restoration policies of the OCMP would still apply to Alternative 6, restrictions on alternative forms of reclamation under this alternative would limit the restoration potential in the off-channel areas, but this would not be a significant adverse impact.

Mitigation Measure 4.6-2b (A-1a, A-1b, A-2, A-3)

No enforceable mitigation is available.

Revegetation required as part of reclamation in §3705 of the SMARA regulations would provide for revegetation of mined areas for Alternatives 1a, 1b, 2, and 3. The beneficial effects of restoration with the OCMP and CCRMP would not occur under these alternatives, but these would not be significant adverse impacts requiring mitigation. However, sensitive natural community types are not afforded any legal protective status under the Endangered Species Acts and protection is not clearly defined under SMARA, and potential impacts on these sensitive resources should be considered significant.

Impact 4.6-3
Disturbance to Wildlife Habitat and Disruption of Movement Corridors

Mining activities would result in disturbance to existing wildlife habitat in mining and overburden removal areas. Small resident mammals and reptiles would be eliminated as vegetative cover and topsoil is removed and stockpiled. Sensitive habitat features, such as nest trees, dense protective cover, or other essential habitat could be removed. Creation of deep pits could disrupt movement of ground mobile species if important corridors along creeks or other physical features are altered. Standards in the SMARA Reclamation Regulations call for the protection of wildlife and wildlife habitat, focusing on conservation of special-status species and reestablishment of wildlife habitat on disturbed lands.

Draft OCMP and Implementing Ordinances

In general, anticipated mining activities within the OCMP area would not directly affect the important stands of oak woodland and remnant riparian forest habitat, and would be restricted outside the sensitive in-channel area of Cache Creek. Wildlife habitat affected by mining in the OCMP area would be largely limited to agricultural fields, and no essential movement corridors would be obstructed.

Species adapted to areas of agricultural cover already experience routine disturbance and population fluctuations due to agricultural practices. The small mammal and reptile populations collectively provide an important foraging base for Swainson's hawk and other raptors, as discussed below under Impact 4.6-4, but are themselves common to the area and tend to rapidly recolonize disturbed areas. This adaptability, however, assumes that the limited retreat habitat provided by fencerows, roadway margins, and undisturbed creek setbacks would be preserved or replaced as part of reclamation. The OCMP currently contains no provisions to reestablish fencerow habitat, and complete elimination of these narrow but important habitat features would therefore represent a significant impact on wildlife resources.

The Open Space and Recreation Element of the OCMP includes policies that would encourage future recreational and educational uses along Cache Creek, with access provided at regular intervals. While access to the creek corridor may increase public awareness and presumably an appreciation of creek ecology, it would also increases opportunities for disturbance to sensitivity wildlife habitat. Action Policies 7.4-3 and 7.4-8 of the OCMP, listed below, provide only limited recognition of the need to minimize disturbance to sensitive habitat areas. Without an additional policy clearly restricting access to sensitive habitat, the potential effect of increased human disturbance should be considered a significant adverse impact of the OCMP.

7.4-3 Identify specific locations for future recreational and educational uses along Cache Creek. Sites shall be located at regular intervals throughout the planning area, with access to a County Road or State Highway. Intensive recreational uses shall be located away from designated habitat areas.

7.4-8 Design and manage recreational sites so that trespassing, vandalism, and other undesirable activities are discouraged. Suggested options include controlled and gated access, day-use fees, and volunteer docents to patrol the site.

Goals 6.2-1 and 6.2-2 of the OCMP, listed below, recognize the importance of maintaining and enhancing the function of Cache Creek as a diverse ecosystem and movement corridor. Off-channel habitat enhancement proposed as part of reclamation for individual mining applications in the OCMP area would contribute to the overall value of the creek corridor, providing additional retreat cover, foraging opportunities, and breeding habitat for a number of wildlife species.

6.2-1 Provide for a diverse riparian ecosystem within the off-channel planning area along Cache Creek, that is self-sustaining and capable of supporting wildlife.

6.2-2 Create a continuous corridor of riparian and wetland vegetation to link the foothill habitats of the upper watershed with those of the settling basin.

Alternative 1a - No Project (Existing Conditions)

In-channel mining associated with this alternative would continue to suppress the riparian habitat of the creek and could disrupt movement of wildlife within the creek corridor. Off-channel mining in agricultural fields could result in loss of important fencerow habitat, with no provisions for reestablishment as part of revegetation.

Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Potential impacts of this alternative on wildlife resources would be similar to those in Alternative 1a, disturbing riparian cover, suppressing the restoration potential of the creek corridor, and contributing to a loss of fencerow habitat.

Alternative 2 - No Mining (Alternative Site)

The effect of this alternative on wildlife would depend on the habitat types present at the alternative site location, and the degree to which sensitive features such as nest locations, colonial breeding locations, and important movement corridors are protected. Anticipated loss and disturbance of existing wildlife habitat in the planning area due to mining activities would not occur under this alternative.

Alternative 3 - Plant Operation Only (Importation)

As with Alternative 2, effects on important wildlife habitat would depend on the resources present at the alternative site location.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Restrictions on mining depths under this alternative would not result in any additional adverse impacts on wildlife resources affected by mining activities.

Alternative 5a - Decreased Mining (Restricted Allocation)

Restrictions in this alternative could reduce the extent of wildlife habitat affected by mining activities, including greater limitations on disturbance within the creek corridor.

Alternative 5b - Decreased Mining (Shorter Mining Period)

As with Alternative 5a, this alternative could reduce the extent of disturbance to wildlife habitat due to restrictions on mining activities.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

This alternative would disturb existing wildlife habitat over a substantially greater extent due to additional disturbance in the borrow areas. The degree to which sensitive habitat features would be affected would depend on the resources present at the borrow areas. Restrictions on alternative forms of reclamation would also limit the opportunities for habitat restoration and enhancement.

Mitigation Measure 4.6-3a (OCMP, A-4, A-5a, A-5b, A-6)

The following shall be incorporated as an additional Action policy in Chapter 6 of the OCMP to preserve and enhance the habitat value of agricultural lands. This policy would also provide visual buffering, as described in Section 4.10 of this EIR.

> *6.4-13. Where fence row habitat previously existed, reestablish fence row habitat as part of reclamation to agricultural use to replace and improve the wildlife habitat value of agricultural lands, allowing for reestablishment of scattered native trees, shrubs, and ground covers along the margins of reclaimed fields. Reestablished habitat can be in locations other than where occurred originally. Restoration plans should specify ultimate fence row locations, identify planting densities for trees and shrubs, and include provisions for monitoring and maintenance to ensure establishment.*

The following shall be incorporated as an additional Action policy in Chapters 6 and 7 of the OCMP to prevent disturbance of sensitive wildlife habitat.

> *6.4-14 and 7.4-9. Avoid disturbance to important wildlife habitat features such as nest trees, colonial breeding locations, elderberry host plants for VELB, and essential cover associated with riparian forest and oak woodland habitat. This should include sensitive siting of haul roads, trails, and recreational facilities away from these features.*

Implementation of this mitigation would reduce the impact of the OCMP and Alternatives 4, 5a, 5b, and 6 to a less-than-significant level. Restrictions on alternative forms of reclamation under Alternative 6 would limit the opportunities for habitat enhancement, but this would not be a significant adverse impact.

Mitigation Measure 4.6-3b (A-1a, A-1b, A-2, A-3)

No enforceable mitigation is available.

The beneficial effects of reestablishing fencerow habitat, restricting access to sensitive wildlife features, and habitat enhancement associated with the OCMP and CCRMP, which would serve to alleviate impacts on general wildlife resources, would not occur under Alternatives 1a, 1b, 2, and 3, and no enforceable mitigation would be available under these four alternatives.

Impact 4.6-4
Impact on Special-Status Species

Mining activities could result in "take" of species with legal protective status under the Endangered Species Acts, and eliminate essential habitat for a number of other special-status species. Loss of essential habitat such as nests, colonial breeding locations, and larval host plants could contribute to a cumulative reduction in population levels, and possibly further aggravate the status of species-of-concern. Section 3703(a) of the SMARA Reclamation Regulations calls for the conservation of rare, threatened or endangered species, with mitigation to be provided where complete avoidance is not possible. This provision of SMARA would apply to the five individual mining/reclamation applications, and will be analyzed in greater detail in the project-level EIRs.

Of particular concern is the potential impact mining could have on Swainson's hawk. Habitat loss is the most significant threat to the remaining populations of Swainson's hawk, as agricultural practices change or agricultural lands are converted to urban uses and nest trees are destroyed. Conversion of agricultural and grassland cover types would result in a further reduction of Swainson's hawk foraging habitat. In the absence of adequate mitigation, the CDFG would consider the loss of foraging habitat to constitute "take" under Section 2081 of the Fish and Game Code.

The *Draft Mitigation Guidelines for Swainson's Hawk in the Central Valley of California* were prepared by the CDFG to provide information on recommended management, natural history and population status, nesting and foraging requirements, and mitigation criteria for Swainson's hawk, with a general goal of no net loss of breeding or foraging habitat (CDFG, 1993). The guidelines are intended to provide lead agencies and project sponsors with an interim framework for developing adequate measures to mitigate the loss of habitat until a comprehensive Swainson's Hawk Habitat Resource Plan is completed by the CDFG. The mitigation criteria specified in the guidelines include: consultation with representatives of the Department; restrictions on disturbance within one-half mile of a known nest site from March 1st through August 15th; prevention of loss of nest trees; maintenance of sufficient foraging habitat to support breeding pairs and successful fledging of young; and restoration and enhancement of nesting and foraging habitat.

The County currently considers even the temporary loss of suitable foraging habitat for Swainson's hawk to be a significant impact which requires mitigation. Adequate mitigation could include preparation of a project-specific plan to provide for replacement habitat, or participation in a County-wide effort to establish a program for habitat management and conservation of "threatened" and "endangered" species.

In addition to potential impacts on Swainson's hawk, potential impacts on bank swallow and VELB, which are both threatened species, are also of particular concern in the planning area. Mineral extraction could result in the removal of elderberry shrubs and a reduction in suitable habitat for VELB unless existing shrubs are preserved or appropriate mitigation is provided consistent with the USFWS *General Compensation Guidelines*

(1994). Even temporary storage of topsoil (for one or more days) with a vertical face would allow colonization by swallows. Ensuring that no vertical faces are created in mining and stockpile areas would prevent colonization by bank swallow and possible take of the species if grading activities were to inadvertently destroy a nesting colony.

In 1992, the County entered into a Memorandum of Understanding with the CDFG, USFWS, and the cities of Davis, West Sacramento, Winters, and Woodland to develop a framework to address the potential impacts of development on special-status species, particularly Swainson's hawk. The primary purpose of this effort was to prepare a Habitat Conservation Plan (HCP) for the County. Objectives of the HCP include: evaluation of potential impacts of planned growth on taxa of concern; identification of essential habitat and recommended habitat protection zones; establishment of a funding mechanism through which developers can provide replacement habitat while meeting the goal of no net loss of habitat value; and preparation of a long-range implementation program to carry out the mitigation measures adopted as part of the HCP. Interim measures have been established which allow applicants to pay a development fee or provide for acquisition, enhancement, and long-term management of habitat to offset impacts of specific projects.

A Draft HCP was recently completed and is undergoing public review and comment (EIP Associates, 1995a). The Draft HCP addresses impacts of anticipated urban development and agricultural facilities on 29 "target" species of concern. The Draft HCP includes: background information and a description of biological, land use, and agricultural conditions; a discussion of alternative conservation strategies; and details on the conservation strategy, mitigation plan, and financing for the HCP. The HCP is intended to form the basis for an "incidental take permit" to be issued by the Federal Government under §10(a)(1)(B) of the ESA, and a "managed take permit" under §2081 of the Fish and Game Code. The HCP is also intended to fulfill mitigation requirements related to significant impacts on biological resources from local development projects requiring CEQA review, exclusive of aggregate mining/reclamation applications. Mitigation options in the Draft HCP include payment of a mitigation fee, land dedication, or other in-kind resources such as habitat restoration services. While mining activities within the Cache Creek Mineral Resource Zone have not been included as part of the anticipated development considered in the HCP, much of the planning area has been designated as having a high preservation or restoration level as mitigation sites. Lands within the planning area could be used for mitigation required under the HCP, possibly coordinated with restoration efforts proposed as part of mining reclamation plans.

Draft OCMP and Implementing Ordinance

Mining in the planning area would affect habitat for a number of special-status species, including Swainson's hawk, bank swallow, VELB, and numerous other species of birds. Biological inventories and assessments for individual mining applications, required under §10-4.502(b)(1) of the Off-Channel Surface Mining Ordinance, would presumably identify essential habitat for species of concern, and provide appropriate mitigation where complete avoidance is not possible. Further environmental review of individual mining/reclamation

applications would provide a confirmation on the adequacy of these assessments. Localized resources such as a raptor nest or elderberry larval host plant for VELB could be protected by preserving the feature and providing an appropriate buffer area.

Due to the wide ranging and opportunistic behavior of Swainson's hawk, providing adequate protection of essential foraging habitat for this species is less easily defined. Acreage estimates indicate that collectively over 2,932 acres would be temporarily disturbed as mining in the planning area proceeds over the next 50 years. However, proposed end uses for the 676 acres to be rezoned to Sand and Grave Reserve (SG/R) are not known at this time. Approximately 1,044 acres would eventually be reclaimed to a use that would be unsuitable as foraging habitat. Of the approximately 988 acres to be reclaimed for agricultural use, an estimated 446 acres would be planted in tree crops, which would provide little if any foraging habitat value for Swainson's hawk. Ultimately, foraging habitat for Swainson's hawk could be reduced by at least 1,500 acres in the planning area.

The biological inventory and analysis required under §10-4.502(b)(1) of the Off-Channel Mining Ordinance would presumably provide for adequate measures to reduce potential adverse impacts on special-status species. However, the OCMP has no general policies addressing the need to preserve and enhance habitat for special-status species known or suspected to occur in the planning area. The few policies pertaining to special-status species refer to mitigation of Swainson's hawk foraging habitat, avoidance of inadvertent take of bank swallow, and compliance with the County-wide HCP. Including additional policies which address protection and management for all species of concern would provide greater consistency with §3703(a) of the SMARA Reclamation Regulations.

Performance Standard 6.5-7 of the OCMP, listed below, calls for coordination of mitigation and habitat enhancement efforts. However, the two primary agencies responsible for approving mitigation plans for special-status species, the USFWS and CDFG, were not included in the policy, which would greatly limit the effectiveness of the coordination effort.

6.5-7 Proposed habitat restoration or mitigation plans shall be sent to the U.S. Army Corps of Engineers for review and comment to ensure that the projects do not conflict with other existing habitat enhancement efforts.

Action policy 6.4-4 of the OCMP, listed below, would require that each mining operation affecting suitable foraging habitat for Swainson's hawk obtain an individual 2081 Permit from the CDFG. Performance Standard 6.5-8, listed below, calls for compliance with the County-wide "Habitat Management Plan," which is now referred to as the HCP. One of the primary purposes for the Yolo County HCP is to establish a managed take permit under Section 2081 of the Fish and Game Code, addressing all anticipated urban development but not aggregate mining activities. As such, the Performance Standard inaccurately implies that the Draft HCP contains provisions to which individual mining applicants should comply. Much of the planning area has been designated as having a high suitability level for use as mitigation sites, and individual mining applicants could be encouraged to participate in the mitigation aspects of the HCP. The preservation and enhancement

measures identified in the Draft HCP also provide a framework which would improve habitat value in general on reclaimed lands, which should be considered in the restoration component of reclamation plans.

6.4-4 Require that all proposed off-channel surface mining operations that will result in the short-term loss of row crop agricultural lands and/or grasslands, obtain a 2081 Permit from the California Department of Fish and Game. The 2081 Permit will provide mitigation for the temporary effects of mining on Swainson's hawk habitat.

6.5-8 All surface mining operations and reclamation plans shall complement the requirements of the Yolo County Habitat Management Plan.

Action Policy 6.4-1 of the OCMP, listed below, would serve to enhance suitable habitat for bank swallow in the planning area. Performance Standard 6.5-3 of the OCMP, listed below, is intended to prevent inadvertent take of bank swallow which may utilize stockpiles if vertical slopes of 10 feet or more are present. However, there remains a high likelihood that bank swallow would attempt to establish colonies on vertical slopes of less than 10 feet. The policy also calls for "verification" of swallow activity with no definition of how or the necessary qualifications to competently perform such as task.

6.4-7 Encourage reclamation plans to include the creation of permanent tall banks in loamy and sandy soils near open bodies of water, to provide nesting habitat for bank swallows.

6.5-3 If any vertical slopes are inadvertently created on soil and/or overburden stockpiles, in excess of ten (10) feet, the slopes shall be immediately regraded after verification that no bank swallows have begun nesting activities in the slope areas.

Alternative 1a - No Project (Existing Conditions)

In-channel mining associated with this alternative would continue to disturb sensitive habitat within the creek corridor and limit restoration and enhancement opportunities for a number of special-status species. Off-channel mining in upland areas would contribute to a reduction in suitable foraging habitat for Swainson's hawk and could affect essential habitat for other species of concern. Compliance with requirements of the state and federal Endangered Species Acts would mitigate impacts on special-status species for this and other alternatives for which the OCMP and CCRMP would not be implemented.

Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Potential impacts of this alternative on special-status species would be similar to those in Alternative 1a, disturbing habitat within the creek corridor, limiting opportunities for habitat enhancement, and contributing to a loss of foraging habitat.

Alternative 2 - No Mining (Alternative Site)

Potential impacts of this alternative on special-status species would depend on the presence or absence of essential habitat for species of concern at the alternative site

location. As the site would be located outside Yolo County, it would not have to comply with the provisions of the Draft HCP. Anticipated impacts on special-status species associated with mining activities in the OCMP planning area would not occur once operations ceased.

Alternative 3 - Plant Operation Only (Importation)

As with Alternative 2, the affect on special-status species would be dependent on the resources at the alternative site location. As the plant operations in the planning area are existing facilities, no significant impacts on most species of concern within the planning area are anticipated. Process fines would be unsuitable for colonial nesting by bank swallow, and piles in the vicinity of the existing plants should not pose a risk to this species.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Restrictions on mining depths under this alternative would not result in any additional adverse impacts on special-status species affected by mining activities. The emphasis on reclamation to agricultural use may benefit Swainson's hawk and other raptors assuming appropriate enhancement and suitable crop types are planted.

Alternative 5a - Decreased Mining (Restricted Allocation)

A reduction in the aerial extent of mining activities and cessation of in-channel activities would reduce potential adverse impacts on special-status species. This could include a reduction in the acreage of suitable Swainson's hawk foraging habitat temporarily lost as a result of mining activities.

Alternative 5b - Decreased Mining (Restricted Allocation)

As with Alternative 5a, a reduction in the extent of existing cover affected by mining activities could reduce impacts on special-status species, particularly Swainson's hawk.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

Increased disturbance to existing habitat to obtain pit fill materials could affect essential habitat for a number of special-status species, depending on the location of the borrow area. In particular, this would most likely result contribute to an increase in the temporary loss of potential foraging habitat for Swainson's hawk.

Mitigation Measure 4.6-4a (OCMP, A-4, A-5a, A-5b, A-6)

The following shall be included as additional Action policies in Chapter 6 of the OCMP to ensure protection of essential habitat for special-status species:

6.4-15. Essential habitat for special-status species shall be protected and enhanced, or replaced as part of mitigation plans prepared by a qualified biologist.

6.4-16. Restoration components of reclamation plans should include provisions to enhance habitat for special-status species, where feasible.

Performance Standard 6.5-3 of the OCMP shall be replaced with the following to prevent inadvertent take of bank swallow.

6.5-3. Slopes on stockpiled soils shall be graded to 2:1 for long-term storage to prevent use by bank swallows. At no time during the active breeding season (1 May through 31 July) shall slopes on stockpiles exceed 1:1, even on a temporary basis. Stockpiles shall be graded to a minimum 1:1 slope at the end of each work day where stockpiles have been disturbed during the active breeding season.

Performance Standard 6.5-7 of the OCMP shall be revised as follows to include review by all jurisdictional agencies.

6.5-7. Proposed habitat restoration or mitigation plans shall be sent to the California Department of Fish and Game, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers for review and comment to ensure that the projects do not conflict with other existing habitat enhancement efforts.

Performance Standard 6.5-8 of the OCMP shall be revised as follows to accurately refer to the Habitat Conservation Plan.

6.5-8 All surface mining operations and reclamation plans shall complement the preservation and enhancement measures in ~~requirements of~~ the Yolo County Habitat ~~Management~~ Conservation Plan. Mining operators with lands designated as having a moderate to high potential for use as mitigation areas in the HCP shall be encouraged to participate in the Developer HCP Participation Options, including use of lands as mitigation sites.

Implementation of this mitigation would reduce these impacts to a less-than-significant level for the OCMP and Alternatives 4, 5a, 5b, and 6.

Mitigation Measure 4.6-4b (A-1a, A-1b, A-2, A-3)

No additional mitigation would be required.

Provisions in the Endangered Species Acts would protect essential habitat and prevent inadvertent take of special-status species. Alternatives 2 and 3 would disturb habitat in locations outside Yolo County, and would therefore not have to comply with the Draft HCP. However, as specified in §3703(a) of the SMARA Reclamation Regulations, essential habitat for special-status species must be protected and enhanced, or adequate mitigation provided where complete avoidance would not be possible.

Impact 4.6-5
Modifications to Jurisdictional Wetlands or Other Waters

Section 3703(c) of the SMARA Reclamation Standards states that wetland habitat shall be avoided as part of mining activities, and that mitigation shall be provided at a minimum one-to-one replacement ratio for both wetland acreage and habitat value. Wetland habitat is generally restricted to the in-channel area along lower Cache Creek, and no unique wetland features such as vernal pools are believed to occur in the planning area.

Draft OCMP and Implementing Ordinances

The biological inventory and assessment for individual mining applications, required under §10-4.502(b)(1) of the Off-Channel Surface Mining Ordinance, would include a delineation to determine presence or absence of wetland features on a particular site. While the potential for sensitive wetland resources within the planning area is low, the OCMP contains no clear policy stating that wetlands should be preserved or replaced to provide consistency with the SMARA Reclamation Standards. In addition, Performance Standard 6.5-7, listed below, does not include the CDFG in review of mitigation plans. These "plans" could include wetland mitigation plans affecting Cache Creek, which would technically fall within their jurisdiction under §1601-1603 of the Fish and Game Code.

6.5-7 Proposed habitat restoration or mitigation plans shall be sent to the... U.S. Army Corps of Engineers for review and comment to ensure that the projects do not conflict with other existing habitat enhancement efforts.

In addition to the numerous policies addressing riparian habitat and restoration identified in the discussion of Impacts 4.6-2 and 4.6-6, the Performance Standards and Action Policy listed below provide details on reclamation to wetland and open water habitat. Implementation of the OCMP and the CCRMP would ultimately contribute to an increase in wetland and riparian habitat in the planning area as part of the reclamation process.

6.4-3 Encourage the development of shallow areas along reclaimed off-channel excavations that extend below the groundwater level, to provide wetland and riparian habitat.

6.5-5 Off-channel excavations that are proposed to be reclaimed to wetland habitat shall include appropriate features such as: scalloped basin perimeters with extended peninsulas, islands, and stepped benches of various widths at approximately three (3) foot vertical intervals both above and below the groundwater level.

6.5-9 If any wet pit is proposed to be reclaimed for recreational uses and/or riparian habitat, the application shall design the facility to account for fluctuations in the groundwater table.

Alternative 1a - No Project (Existing Conditions)

Continued mining activities within the in-channel area would limit the wetland and riparian habitat value of the Cache Creek corridor. No additional adverse impacts on wetland resources are anticipated in off-channel areas, although detailed wetland delineations

would be required to confirm absence of sensitive jurisdictional wetlands for any future permitted areas.

Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Potential impacts under this alternative would be similar to those in Alternative 1a, with no additional adverse impacts anticipated for off-channel areas. Continued mining within the in-channel area would suppress the habitat value of wetland and riparian habitat along much of the Cache Creek corridor.

Alternative 2 - No Mining (Alternative Site)

Potential impacts of this alternative on jurisdictional wetlands would depend on the presence or absence of wetland resources at the alternative site, particularly at the Mather Field and Morrison Creek locations in Sacramento County. This could include disturbance to streams and other drainages, and possibly unique vernal pool wetlands.

Alternative 3 - Plant Operation Only (Importation)

As with Alternative 2, the affect of this alternative on wetland resources would depend on the extent of any jurisdictional wetlands at the alternative site.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

No additional adverse impacts on wetland resources would be anticipated under this alternative. The shallow depth of mining under this alternative would inhibit establishment of open water and wetland habitat within reclaimed wet pits.

Alternative 5a - Decreased Mining (Restricted Allocation)

No additional adverse impacts on wetland resources are anticipated under this alternative. Cessation of in-channel mining would improve opportunities for restoration of riparian and wetland habitat along the Cache Creek corridor.

Alternative 5b - Decreased Mining (Shorter Mining Period)

As with Alternative 5a, no additional impacts on wetland resources are anticipated under this alternative, and opportunities for restoration of the Cache Creek corridor would increase.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

It is possible that additional wetland resources could be affected by disturbance associated with earth-borrow activities under this alternative. Restrictions on alternative forms of reclamation would limit the amount of open water and wetland habitat in reclaimed wet pits.

Mitigation Measure 4.6-5a (OCMP, A-4, A-5a, A-5b, A-6)

The following shall be included as an additional Action policy in Chapter 6 of the OCMP to protect wetland resources.

> *6.4-14. Existing jurisdictional wetlands shall be retained to the extent possible. Replacement wetlands shall be provided where complete avoidance is not possible according to a habitat restoration plan prepared by a qualified wetland specialist and approved by jurisdictional agencies, ensuring no net loss of wetland acreage or habitat value.*

Performance Standard 6.5-7 of the OCMP shall be revised as recommended in Mitigation Measure 4.6-4a to include review by all jurisdictional agencies.

Implementation of this mitigation would reduce this impact to a less-than-significant level for the OCMP and Alternatives 4, 5a, 5b, and 6.

Mitigation Measure 4.6-5b (A-1a, A-1b, A-2, A-3)

No additional mitigation would be required.

Impacts associated with Alternatives 2 and 3 would be potentially significant depending on wetland resources present at the alternative site locations and possible need for jurisdictional approval, but existing regulations would ensure adequate mitigation. As required by §3703(c) of the SMARA Reclamation Regulations, wetland resources would be preserved to the extent possible, with replacement provided where complete avoidance is not possible.

Impact 4.6-6
Compatibility and Consistency of Restoration Provisions

Habitat restoration objectives for the lower Cache Creek corridor must recognize a number of competing factors which affect management of the creek corridor and adjacent lands. These include mineral resource recovery, flood protection, and agricultural viability. These factors tend to conflict with the restoration objectives and to some degree limit the potential for restoration, and require that a balance be achieved with regard to management of the creek corridor. Successful restoration and enhancement of native habitat will require a clear definition of the ultimate objectives, feasible methods to implement these objectives, and establishment of a mechanism to monitor and manage the effort.

Draft OCMP and Implementing Ordinances

Together, the OCMP and CCRMP represent an attempt to provide a balanced approach to management of the economic opportunities, hydrologic constraints, and biological resources in the planning area. Most of the policies in the Biological Resources Element of the OCMP are directed toward defining goals, objectives, and performance standards for riparian habitat enhancement along the creek corridor. These include policies

addressing further definition of restoration standards, control and eradication of noxious weeds, provisions to minimize conflicts with adjacent agricultural uses, recognition of groundwater fluctuations in designing improvements, and need to coordinate the restoration effort. Relevant policies pertaining to restoration are listed below.

6.4-2 Coordinate with the U.S. Army Corps of Engineers to ensure that proposed habitat restoration projects do not conflict with the Off-Channel Mining Plan.

6.4-5 Promote the eradication of invasive species, such as the giant reed and tamarisk, in areas where they inhibit the growth and development of native riparian vegetation, especially Zone 5 of the Recommended Management Activity Zones described in the Technical Studies.

6.4-6 Adopt guidelines for the development of habitat restoration projects.

6.4-8 Encourage cooperative agreements and voluntary conservation easements with private landowners to preserve, protect, and enhance the biological resources of Cache Creek, and to implement provisions of the OCMP.

6.4-9 Require that all surface mining applications within the planning area include a proposal for providing a "net gain" to the County, consisting of restoration of a previously disturbed portion of Cache Creek; promotion of educational and interpretive values relating to Cache Creek; provisions of public recreational opportunities along Cache Creek; other projects that result in social and/or economic benefits to the County; or participation in an established program whose goals are consistent with the activities described above.

6.4-10 Restore riparian habitat throughout the planning area, wherever appropriate. However, revegetative efforts should be primarily focused on Zones 1 and 2 of the Recommended Management Activity Zones, as described in the Technical Studies.

6.4-11 Include vegetated buffers between restored habitat areas and adjoining farmlands, in order to minimize the potential for riparian areas to serve as harbors for predators and insect pests. Said buffers will also reduce the noise, dust, and spraying generated by agricultural operations.

6.5-6 Site-specific planting plans shall be developed for proposed habitat restoration projects along Cache Creek. The plans shall generally follow the Riparian Habitat Planting Guidelines described in the Technical Studies.

6.5-7 Proposed habitat restoration or mitigation plans shall be sent to the Cache Creek Conservancy and the U.S. Army Corps of Engineers for review and comment to ensure that the projects do not conflict with other existing habitat enhancement efforts.

6.5-9 If any wet pit is proposed to be reclaimed for recreational uses and/or riparian habitat, the application shall design the facility to account for fluctuations in the groundwater table.

Coordination of habitat restoration and mitigation plans recommended in Action policy 6.4-2 and Performance Standard 6.5-7 of the OCMP is limited to the Cache Creek Conservancy and the Corps. The two primary agencies responsible for approving mitigation plans for special-status species and managing habitat on a federal and state level, the USFWS and CDFG, were not included in these policies. These agencies should also be involved in the coordination effort to improve its effectiveness.

Action policy 6.4-10 states that restoration should emphasize revegetation of Zones 1 and 2 of the Recommended Management Activity Zones identified in Chapter 6 of the *Technical Studies*. Subsequent recommendations were developed by Jones & Stokes Associates as part of the *Lower Cache Creek Riparian Corridor Restoration Recommendations*, and have been incorporated into the CCRMP. The assessment by Jones & Stokes concluded that revegetation and riparian habitat restoration was occurring naturally along the Dunnigan subreach, which roughly corresponds with Zone 2, and that active management was not needed within most of the channel floodplain in this area. Jones & Stokes concurred that the Hoppin subreach, which roughly corresponds with Zone 1, was an area where near-term restoration efforts should be focused, together with portions of the Hungry Hollow and Guesisosi subreaches. Action policy 6.4-10 should be revised to reflect this modification in the recommended restoration efforts along the creek corridor.

Alternative 1a - No Project (Existing Conditions)

Restoration components of the OCMP and CCRMP would not occur under this alternative, and commercial in-channel mining would continue to suppress riparian vegetation along segments of the Cache Creek corridor.

Alternative 1b - No Project (Existing Permits and Regulatory Condition)

As with Alternative 1a, restoration components of the OCMP and CCRMP would not be implemented and commercial in-channel mining and disturbance to riparian vegetation would continue.

Alternative 2 - No Mining (Alternative Site)

Restoration and enhancement opportunities for Cache Creek addressed as part of the OCMP and CCRMP would not occur under this alternative due to cessation of mining activities in the planning area.

Alternative 3 - Plant Operation Only (Importation)

As with Alternative 2, restoration opportunities in the OCMP and CCRMP would not occur with cessation of mining activities in the planning area.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Restrictions on the depth of mining would preclude opportunities for habitat enhancement as part of reclamation of wet pits under this alternative.

Alternative 5a - Decreased Mining (Restricted Allocation)

Cessation of mining within the in-channel area under this alternative would allow for enhancement and restoration within the Cache Creek corridor. Reclamation of wet pits and upland habitat would also provide opportunities for restoration of off-channel areas.

Alternative 5b - Decreased Mining (Shorter Mining Period)

As with Alternative 5a, cessation of mining within the in-channel area would allow for enhancement and restoration within the Cache Creek corridor.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

This alternative would limit the complimentary impact reclamation of wet pits to open water and wetland habitat would have on the overall habitat value of the Cache Creek corridor.

Mitigation Measure 4.6-6a (OCMP, A-4, A-5a, A-5b, A-6)

Action Policy 6.4-2 of the OCMP shall be revised as follows to include review by all trustee agencies.

6.4-2. Coordinate with the California Department of Fish and Game, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers to ensure that proposed habitat restoration projects ~~do not conflict~~ are consistent with or complement the Off-Channel Mining Plan.

Performance Standard 6.4-10 of the OCMP shall be revised as follows to avoid emphasis on specific Management Zones and recognize recommendations incorporated into the CCRMP.

6.4-10. Restore riparian habitat throughout the planning area, wherever appropriate. However, revegetative efforts should be primarily focused on implementing recommendations ~~Zones 1 and 2 of the Recommended Management Activity Zones, as~~ described in the Technical Studies and the subsequent Restoration Recommendations incorporated into the CCRMP.

Performance Standard 6.5-9 of the OCMP shall be revised as follows to clarify the importance of considering fluctuations in groundwater levels when designing restoration components of wet pits.

6.5-9. If any wet pit is proposed to be reclaimed for recreational uses and/or riparian habitat, the ~~application shall~~ design shall ~~the facility to~~ account for fluctuations in the groundwater table.

Performance Standard 6.5-7 of the OCMP shall be revised as recommended in Mitigation Measure 4.6-4a to include review by all trustee agencies.

Implementation of this mitigation would reduce the impact of the OCMP and Alternatives 4, 5a, and 5b to a less-than-significant level. While the policies of the OCMP would still apply, restrictions on alternative forms of reclamation under

Alternative 6 would limit the restoration opportunities under this alternative. This, however, would not be a significant adverse impact, only a limitation on the beneficial effects of the OCMP.

Mitigation Measure 4.6-6b (A-1a, A-1b, A-2, A-3)

None required.

The beneficial effects of restoration associated with the OCMP and CCRMP would not occur under Alternatives 1a, 1b, 2, and 3, but these would not be significant adverse impacts and would not require mitigation.