2 EXISTING CONDITIONS AND ISSUES

2.1 PARK SUMMARY

The following section summarizes the significant natural and cultural resources at Bidwell-Sacramento River State Park (Park), as well as surrounding land uses, recreational and aesthetic resources, and interpretive facilities that characterize the existing conditions at the Park. The evaluation of existing conditions focuses on the current boundaries of the Park, but may address a larger planning area for some issues, where data are readily available and important to the understanding of regional resource conditions affecting the Park; moreover, regional-oriented resource information also provides context to information collected for the Park itself. Information on existing conditions is based on the *Resources Inventory* and *Interpretive Prospectus* that were prepared for the Park, recent field work, and additional research conducted during the General Plan preparation process. This information provides the baseline data for developing the area plans and goals/guidelines that comprise the foundation of this document.

2.1.1 STATE PARK CLASSIFICATION

The State Park System is organized by a multi-level classification system. The classifications are described in Sections 5019.50 et seq. of Article 1.7 of the Public Resources Code. In 1990, the State Parks and Recreation Commission named and classified the Bidwell River Park Project and the Irvine Finch River Access area as Bidwell-Sacramento River *State Park*.

- **State Parks.** Units that consist of spacious areas having outstanding natural, cultural, and scenic resources. Preservation of these resources for present and future generations is the primary purpose of State Parks. Improvements may be undertaken in State Parks to make these resources and the recreational opportunities they provide available to the public.

2.1.2 LAND USE

REGIONAL LAND USE CONTEXT

The properties bordering the individual Park subunits are predominantly agricultural land owned by private landowners or open space that is owned and managed for conservation purposes by various federal/state agencies and conservation organizations. These land uses are reflective of the entire Sacramento River corridor, which is an important farming and natural resource conservation region throughout northern California.

Agricultural land uses are prevalent adjacent to the more stable subreaches of the river (i.e., stretches of the river protected by levees), but can also be found in proximity to native riparian woodland habitat. In the project area, orchard crops, mainly walnuts, almonds, prunes and plums, and row crops are the primary land uses adjacent to the Sacramento River. Orchards are intensively maintained and are generally devoid of native vegetation.

Conservation is the other key type of land use in the project area. Many properties adjacent to the Park are owned and managed by other public agencies, such as the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG); conservation activities are also undertaken by private non-profit organizations, such as The Nature Conservancy (TNC). These conservation lands are typically subject to separate planning processes, which are described in more detail in Section 2.2.2.

PARK-WIDE LAND USES

The Park currently consists of four distinct subunits: (1) Irvine Finch River Access Area, (2) Pine Creek Landing, (3) Indian Fishery, and (4) Big Chico Creek Riparian Area (Exhibit 2-1). These subunits range in size from just less than 5 acres (Pine Creek Landing) to roughly 100 acres (Indian Fishery), and each is characterized by unique land use environments, as described below. In addition, information on surrounding land uses is provided. Understanding the land uses surrounding the Park subunits is important to the planning process. Future land use decisions and management strategies must consider the land use context within which they are proposed to avoid potential land use incompatibilities and to promote consistency in the land use character of the local area. Table 2-1 summarizes the land use characteristics for each of the four subunits. Exhibits 2-1A to 2-1E illustrate existing land uses and facilities at these subunits.

Table 2-1
Park-Wide Land Uses

Subunit	Approx. Size (acres)	Existing Land Use & Activities
Irvine Finch River Access	5.2	▸ Developed recreation (boat launch that facilitates motor-boating, kayaking, canoeing, tubing, and fishing; picnicking; and en-route camping)
Pine Creek Landing	4.8	▸ Developed recreation (boat launch that facilitates motor-boating, kayaking, canoeing and fishing, and picnicking); ▸ Dispersed recreation (nature viewing); ▸ Interpretation (interpretive panel)
Indian Fishery	100.9	▸ Developed recreation (picnicking); ▸ Dispersed recreation (trail use, nature viewing, hiking, and bank fishing); ▸ Interpretation and Education (trail with interpretive/educational stations, local school group visits) ▸ Park administration
Big Chico Creek Riparian Area	96.7	▸ Dispersed recreation (bank fishing, trail use, nature viewing, sunbathing, and small boat take-out); ▸ Conservation/restoration
Total	207.6 acres	--

Source: Department of Parks and Recreation (DPR) 2003, EDAW 2003

Exhibit 2-1 Overview of Park Subunits

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Exhibit 2-1 Overview of Park Subunits

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Exhibit 2-1A Irvine Finch River Access

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Exhibit 2-1A: Irvine Finch River Access

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Exhibit 2-1B Pine Creek Landing

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Exhibit 2-1B Pine Creek Landing

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Exhibit 2-1C Indian Fishery

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Exhibit 2-1C Indian Fishery

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Exhibit 2-1D Big Chico Creek Riparian Area

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Exhibit 2-1D Big Chico Creek Riparian Area (incl. Peterson Property)

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Irvine Finch River Access

Irvine Finch River Access – Entrance Station

The Irvine Finch River Access area is a small subunit representing the northernmost extension of the Park (Exhibit 2-1A). It is the only subunit located on the west side of the Sacramento River in Glenn County. It represents the most developed recreation area of the Park. It includes an entrance station/information kiosk, boat launch, picnic tables, permanent restroom facilities, water well, pump house, and an approximate 250-space paved parking area for automobiles, boat trailers, and recreation vehicles (RVs). Recreational opportunities available at Irvine Finch include boating (i.e., motor-boating, kayaking, canoeing, inner-tubing), fishing (facilitated by boat launching opportunities), en-route camping (it is the only subunit that permits overnight camping), and picnicking. Many visitors use the facilities at Irvine Finch to begin their sport-fishing and river-floating experience.

Irvine-Finch River Access – Picnic Area

Agricultural and conservation uses surround Irvine Finch. It is located directly adjacent to a walnut orchard to the south and a walnut/almond orchard to the west. The Sacramento River borders the property to the east, with the Sunset Ranch property located across the river; this property is presently owned by The Nature Conservancy (TNC) (the eastern portion of this property was transferred to the USFWS in 2003). State Route (SR) 32 borders the property on the north, with agricultural land located north of the highway.

Irvine Finch River Access – Boat Ramp

Irvine Finch River Access – Parking Area

Pine Creek Landing

Pine Creek Landing – Boat Ramp

The Pine Creek Landing subunit is two long and narrow non-contiguous properties located along Pine Creek, a tributary to the Sacramento River, and is the northern-most property on the east side of the Sacramento River in Butte County (Exhibit 2-1B). It is served by several access points off of River Road. The main facility is a joint boat launch and day-use area. This area contains a concrete boat launch, a recently paved parking area with approximately 22 parking spaces for boats and trailers, and three concrete picnic tables located on concrete pads (one is American Disabilities Act accessible); there are plans to construct shade ramadas at the picnic sites and install a vault toilet at this facility. . The area of Pine Creek Landing at the north end of the parking lot is the site of the historic Sea Scout Station. To the south of the boat launch facility, there are three additional pull-out areas on the west side of River Road. These are basically undeveloped areas, which are fenced and marked as State Park property. The pull-out immediately to the south contains a small picnic area and a short informal trail along the bank of Pine Creek that connects to the boat ramp area to the north. Continuing south, the next pull-out contains an interpretive panel that represents the approximate location of the Bidwell Ferry site. Recreation uses at Pine Creek Landing include boating (includes motor-boating and kayaking/canoeing), fishing, picnicking, hiking/walking, and nature viewing.

Pine Creek Landing – Parking Area

The area west of Pine Creek Landing is owned mainly by

Pine Creek Landing – Picnic Area Near Boat Ramp

CDFG as part of the Pine Creek unit of the Sacramento River Wildlife Area. This area is managed primarily for conservation and restoration, but limited nature-oriented recreation uses, including hunting, are also allowed. Also west of Pine Creek Landing, north of the CDFG property are other public lands, including the Pine Creek Unit of the Sacramento River National Wildlife Refuge (USFWS) and Reclamation Board property (Department of Water Resources). These lands, also managed primarily for conservation purposes, are either characterized by natural vegetation or are planned for restoration. Recreation activities on USFWS lands are similar to those allowed by CDFG, except hunting is currently prohibited.

A large red barn opposite (east) of the southern-most portion of Pine Creek may be of historical significance. It is described as having been a "hop barn," but is in the approximate location in old maps for the Bidwell Ferry site boathouse. Also located east of Pine Creek Landing, across River Road, is an active dairy operation.

Pine Creek Landing – Interpretive Panel

Scotty's Boat Landing is located to the south. Scotty's Boat Landing is a commercial facility that includes a private boat ramp, restaurant/bar, and a mobile home park.

Indian Fishery

Indian Fishery – Day-Use Area with Picnic Tables

The Indian Fishery subunit is characterized by native riparian habitat, and is located, in part, adjacent to an ox-bow lake formed by the river's meander. This area contains the Park's most prominent picnic area (8 concrete picnic tables and an unpaved parking area) and a small self-guided loop trail (0.75 mile) that provides opportunities for hiking, walking, nature and wildlife viewing, bank fishing at the ox-bow lake, and other passive recreation activities. Although not located directly on the river, this subunit provides river access via volunteer trails, and thus, indirectly provides bank fishing opportunities on the Sacramento River. In addition, the Park's administration facilities, which consist of several mobile and permanent buildings, are located here.

The Indian Fishery subunit contains the Old Chico Landing area, located on the southern portion of the property. The Old Chico Landing area is undeveloped, with no facilities, but does include an abandoned boat launch. Access to this area is provided by another small pull-out parking area off of River Road. Historically, this area served as a boat launch and landing for watercraft accessing the Sacramento River.

Active agricultural operations surround the Indian Fishery subunit to the northwest, east, and south. These areas are mainly in walnut production. The property directly to the west (Old Allinger Ranch), is owned and managed by CDFG, and represents a buffer between this subunit and the Sacramento River; nature study and wildlife observation are common activities on this property, and hunting is allowed as well.

Indian Fishery – Administrative Center

Indian Fishery – Nature Trail

Indian Fishery – Old Chico Landing Area

Big Chico Creek Riparian Area

Big Chico Creek Riparian Area – Gravel Bar

The Big Chico Creek subunit is located at the southern-most extension of the Park (Exhibit 2-1D). This area is characterized mainly by native riparian vegetation, but includes portions of a gravel bar created by the meander of the Sacramento River. River Road is a county roadway that physically divides this subunit. The portion of this subunit on the east side of River Road has historically been agricultural land, and is currently being managed for conservation/open space (subject to active restoration activities); no developed facilities are available. On the west side of River Road, the gravel bar area is a popular location for bank fishing and non-motorized boat or inner-tube take out. Other recreation uses available on the west side of the Big Chico Creek subunit include trail use, nature viewing, sunbathing, swimming, and picnicking (at undeveloped locations). Access to the gravel bar area is controlled by a gate which is locked during the winter months (due to flooding) and when necessary to control unauthorized use and vandalism. The Big Chico Creek subunit is bordered by the Sacramento River to the west, and to the south and east by Big Chico Creek, Mud Creek (a tributary to Big Chico Creek), and private properties. To the north is undeveloped private property, which is in agricultural production (walnut/almond orchards) and is characterized by historic channel topography. Private properties and county-owned land separate the Big Chico Creek Riparian Area from the Indian Fishery subunit to the north.

Big Chico Creek Riparian Area – Entrance Road to Gravel Bar Area

Big Chico Creek Riparian Area – Pull-Out Access From River Road

Big Chico Creek Riparian Area – Restoration of Riparian Habitat East of River Road

2.1.3 Park Access and Circulation

Access to and From the Park

Several public roadways provide access to and from the Park. SR 32 is an east-west oriented highway that borders the Park to the north. It provides direct access to the Irvine Finch subunit in Glenn County. River Road is a north-south oriented county roadway that provides access to the subunits on the east side of the river. It also serves as the eastern boundary for the Indian Fishery and Pine Creek Landing subunits, and bisects the Big Chico Creek Riparian Area subunit, physically separating the river frontage property to the west and the active restoration area to the east. West Sacramento Avenue is another county roadway that runs east-west, connecting the community of Chico to the Park via River Road.

Circulation

Roads

There is no paved roadway system on lands administered by the Department. Linkage between the Park subunits is provided by public roadways, including River Road serving the subunits on the east side of the river and SR 32 serving the Irvine Finch subunit on the west side of the river. SR 32 provides regional access to the Park, while West Sacramento Avenue and Chico River Road provide local connections between the Park and City of Chico and other nearby areas in Butte County. Other major roadways that provide indirect access to the Park include SR 45 and the Hamilton Nord Cana Highway.

SR 32 is a two-lane conventional highway that is maintained by the California Department of Transportation (Caltrans). It is a considered a regional highway that provides primary access through Glenn and Butte counties. SR 32 carries relatively high truck traffic and provides the primary connection between Interstate 5 at Orland and SR 99 at Chico. In 1995, the average annual daily trip (AADT) volume was 10,400 vehicular trips on the segment of SR 32

adjacent to the Park, and by 2002, the AADT volume on this segment increased to 11,800 trips (Caltrans 1997, 2003). In terms of projections, it is estimated that by 2005, the projected AADT volume on SR 32 would increase to 13,400 trips, and to 16,400 trips by 2015 (Caltrans 1997, 2003). Due to this growth in inter-regional traffic volume, the level of service (LOS)[1], which is a measure of delay experienced by drivers on the road, is projected to decline from LOS D to LOS E by 2015 if no roadway improvements are developed. Caltrans has recommended improvements, including roadway widening to four lanes and the addition of left-turn channelization, which would maintain the existing LOS D through 2015, but beyond 2015, additional roadway improvements would be required (Caltrans 1997, 2003). According to the Butte County 2001 Regional Transportation Plan, Caltrans would be adding a left turn lane to the T-intersection on the segment of SR 32 at River Road between Sacramento River and Rock Creek (BCAG 2001).

River Road is a two-lane rural collector road, maintained by Butte County, that connects Chico River Road to the south with SR 32 in the north. No traffic counts are available for River Road. However, roadway conditions may be inferred by accident rates. Based on data provided by the California Highway Patrol (CHP), there were 76 accidents on River Road during the two-year period of 1988 to 1990, making it the sixth most accident-prone street in Butte County (Butte County 1996); these accidents are commonly attributed to fog in the region. The intersection of River Road and West Sacramento Avenue, adjacent to the Park, is the fourth most-accident-prone intersection in Butte County during the two-year period. The intersection of River Road and Chico River Road, to the south of the Park, is the eighth most accident-prone intersection in Butte County. The majority of the accidents were single-vehicle accidents, indicating that River Road may be due for roadway safety improvements (Butte County 1996). Due to its close proximity to the Sacramento River, portions of the roadway, particularly near the Big Chico Creek Riparian Area subunit, are submerged during flood events. Bank erosion is another maintenance problem associated with this roadway, with roadway realignment a potential solution.

West Sacramento Avenue is a two-lane arterial road, maintained by Butte County, that directly connects the City of Chico to the Park. West Sacramento Avenue intersects River Road at a point adjacent to the Indian Fishery subunit. The AADT volume was 540 (LOS A) on the segment of this roadway adjacent to the Park, indicating little to no congestion (Caltrans 1997, 2003).

Chico River Road, a two-lane arterial road maintained by Butte County, does not provide direct access to the Park, but it is one of the three primary roadways that provide access to River Road from Chico. On the roadway segment east of River Road, the AADT volume was 970 (LOS A) (Caltrans 1997, 2003).

Hamilton Nord Cana Highway, maintained by Butte County, connects to SR 32 near the Park and provides regional access to the Park from Tehama County and the northern portion of

[1] LOS ranges from LOS A (free flow conditions with little to no delay) to LOS F (highest level of delay and congestion).

Butte County. The AADT volume in 1995 was 890 trips (LOS A) for the segment of this roadway just north of SR 32 (Caltrans 1997, 2003).

SR 45 is a two-lane roadway that connects to SR 32 at Hamilton City and provides regional access to the Park from the southern portion of Glenn County. It is a Caltrans-maintained roadway and experiences AADT volume of 2,300 trips (LOS B) in 2002 (Caltrans 1997, 2003). Travelers on this roadway segment experience reasonably free-flow conditions.

Parking

Although limited, parking at the Park is available at all subunits. Irvine Finch River Access, Pine Creek Landing, and the abandoned boat launch at Indian Fishery provide the only paved parking areas in the Park. At Irvine Finch, there is approximately 250 parking spaces, including six ADA-accessible parking spaces, three of which are located near the boat launch, as well as RV parking facilities. The Pine Creek Landing boat launch area has recently been paved, providing 22 boat/trailer and vehicle parking spaces, one of which is ADA accessible. At Indian Fishery, there is a small paved lot off of River Road near the abandoned Old Chico Landing boat ramp that has limited capacity. The other parking areas throughout the Park are gravel or dirt lots; there are currently no parking facilities on the east side of the Big Chico Creek Riparian Area.

During the peak holiday periods (i.e., Fourth of July and Labor Day weekends) when up to 20,000 people congregate at Irvine Finch for inner tubing gatherings, vehicles quickly fill all available parking capacity, and then park along SR 32 and on the Sunset Ranch property (as allowed by TNC), which serves as overflow parking for peak-period special events. Because of the lack of available parking during these two weekends, vehicles typically park illegally along roads creating public safety issues and are subject to citation and towing.

Sacramento River

The Sacramento River and its tributaries, which can be accessed by boat from all of the Park subunits except Indian Fishery, represent another mode of circulation in the Park. Based on the configuration of the Park, the river system provides connection between the Park subunits. In fact, recreational tubers often float the river between the Irvine Finch River Access area and the Big Chico Creek gravel bar.

2.1.4 Significant Resource Values

Natural Environment

Climate

The climate at the Park is categorized as Mediterranean, with hot, dry summers and cool, wet winters. The average annual temperature is 61 degrees Fahrenheit, average humidity is 37%, and average precipitation is 26.04 inches per year (Key to the City 2003). According to the Chico Chamber of Commerce, weather in the vicinity of Chico experiences an average of 219 clear days, 57 partly cloudy days, and 89 cloudy days. Summer temperatures average

in the 90-100°F range, although there are some days where temperatures are in excess of 110°F. Temperatures generally fall to or below freezing during 32 days of the year. Tule fog, which can be dense at times, occurs during the winter months of November through January. Table 2-2 summarizes the climate conditions in the project area.

Table 2-2
Average Climate Conditions

Season	Average Temperature			Rain (Inches)	Humidity (%) [1]
	Min.	Mean	Max.		
Winter	36	45	54	5.32	59
Spring	45	58	73	1.87	35
Summer	60	78	97	0.02	18
Fall	47	61	79	1.35	31
Year	47	61	75	26.04	37

[1] Humidity readings were taken at 4 p.m.
Source: Key to the City 2003

Air Quality

Air quality in the State Park is regulated by several jurisdictions including the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (ARB), and the Butte County Air Quality Management District (BCAQMD) and Glenn County Air Pollution Control District (GCAPCD). (Note: Because the Park is located predominantly in Butte County, the subsequent environmental setting discussion focuses on information pertaining to the BCAQMD). The U.S. EPA has established primary and secondary National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead, which are referred to as criteria air pollutants. The primary standards protect the public health and the secondary standards protect the public welfare. The California ARB has established California Ambient Air Quality Standards (CAAQS) for these same pollutants, as well as sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particulates, which in most cases are more stringent than the NAAQS. The BCAQMD is the agency primarily responsible for assuring that national and state ambient air quality standards are not exceeded and that air quality conditions are maintained in Butte County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. Butte County is classified non-attainment for the state 1-hour ozone and PM_{10}. The County recently attained the federal 1-hour ozone standard and, as a result, is currently designated "transitional nonattainment" for the federal 1-hour ozone standard. The County is in attainment or designated unclassified for all remaining CAAQS and NAAQS. Attainment status designations for the recently adopted federal 8-hour ozone and $PM_{2.5}$ standards have not yet been assigned (BCAQMD 2003).

In an attempt to achieve state ambient air quality standards and maintain the air quality, the BCAQMD, in coordination with the air districts in the Northern Sacramento Valley Air Basin (NSVAB), has completed the 2000 Air Quality Attainment Plan. The purpose of the plan is to achieve and maintain healthful air quality throughout the air basin. The plan evaluates the progress made in achieving previous goals and includes proposed modifications to the strategies necessary to attain the California ozone standard at the earliest practicable date.

Ambient Air Quality

The primary pollutants of regional concern within the Sacramento Valley Air Basin (SVAB) are ozone precursors (i.e., Reactive Organic Gasses [ROG] and NO_x) and airborne particulates. Over the last 5 years, ozone emissions in the SVAB, including Butte County, have been trending downward. The decreases in ozone precursors are largely due to increased motor vehicle controls and reductions in evaporative emissions. On August 25, 1999, Butte County experienced peak smoke impacts due to local wildfires, ozone levels at the local monitoring station reached 0.135 parts per million (ppm), well above the federal standard of 0.12 ppm. Prior to this exceptional event, Butte County exceeded the federal 1-hour standard only once in the past 20 years (BCAQMD 2003).

In contrast to ozone, emissions of PM_{10} have increased in the SVAB. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust sources. Directly emitted PM_{10} from mobile sources and stationary sources have remained relatively steady. The national 24-hour PM_{10} standard has not been exceeded in Butte County (BCAQMD 2003).

Topography

Located on the Sacramento Valley floor, elevation at the Park is fairly low, ranging between 108 to 150 feet above mean sea level (msl). Topography, on the other hand, varies by subunit, ranging from relatively flat land areas and gravel bars to steep, heavily vegetated river banks. Elevation tends to decrease traveling away from the riverbank, creating low floodplain areas. The Irvine Finch River Access area, with elevation ranging from 125 to 150 feet, is the only subunit within the Park that is located outside the designated 100-year floodplain; it is protected by a private levee. The remaining subunits, the elevations of which range from 108 to 145 feet above sea level, are highly prone to flooding.

Geology

The geology of the project area is characterized by its geologic history, a set of lithologic and structural features, geologic hazards, and mineral resources. The geologic characteristics of the Park, including fault systems, are described below and identified in Exhibit 2-2.

Three geomorphic provinces of California fall within the Chico Region. These are: the Sacramento Valley (Valley, which is the northern part of the great Central Valley, the Cascade Plateau, and the Sierra Nevada. In terms of geology, the Chico area is in a region characterized as a zone of transition, located between the fragmental volcanic rock and lava cap of the Sierra Nevada foothills and the deep, well-drained agricultural soils of the Valley.

Exhibit 2-2 Regional Geology

11X17 pg 1

Exhibit 2-2: Regional Geology

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The Valley is a huge basin filled with marine and non-marine sediments plus some extensive volcanic materials. These materials are an accumulation of sediments, which on the western side of the valley have been measured at depths of up to 35,000 feet, but along the eastern side (Chico), the sediments thin out, forming only a thin cover over the Sierra basement rocks below. The Valley is low (generally 200 feet above sea level) and flat, with a gentle slope toward the Sacramento River.

Geologic History

During the long history of the Sacramento Valley it has undergone many changes. One important feature to note is that the valley rocks have been bent downward to produce a geosyncline.

During drillings for natural gas south of Chico it was discovered that a great gorge was eroded in underlying rocks of the valley many millions of years ago and later filled with younger sediments. These underlying rocks were formed when the ocean occupied the Valley. The older marine sediments are not exposed in the Chico area, but can be identified through the use of borings penetrated to a sufficient depth.

The distribution and very nature of these deposits indicate a Mediterranean Sea once existed between the Sierra-Cascade and the Coast Ranges. This sea extended from Redding in the north to Bakersfield in the south. The Valley sediments, which form the surface of the Valley, were deposited by rivers originating in the mountains.

Lithologic and Structural Features

The Chico area is underlain with a sequence of volcanic mudflows, known as the Tuscan Formation. Most of the layers consist of poorly-sorted breccia composed of large and small fragments of volcanic rocks mixed with sand, silt, and mud-sized material, much of which is also of volcanic origin. The fine-sized material was originally mixed with water to form mud, which as it flowed downslope to the west, carried gravel and boulders along with it. Many of these mudflows accumulated one-above-the-other to form the Tuscan Formation. All of this occurred near the end of the Tertiary Period (Pliocene Epoch, about four million years ago).

Since the time that Tuscan mudflows flowed and came to rest they have become lithified by compaction and cementation. They are mainly composed of basalt and andesite. Overlying these layers of mudflow are younger sediments deposited here by Big Chico Creek. The sediment originated by weathering and erosion of the Tuscan Formation. They are formed as part of a large alluvial fan that Big Chico Creek has built, known as the Chico Fan.

The only identifiable geologic resources within or adjacent to the Park are the gravel bars created by the meander of the Sacramento River.

Geologic Hazards

Geologic hazards in the project area consist of slope and/or foundation instability, volcanic hazards, land subsidence, and seismicity hazards (including liquefaction).

Slopes in the project area are generally less than 2%; therefore landslides are determined not to be a hazard at the Park.

Volcanic activity poses little or no hazard in this area. Mount Lassen is considered to be an active volcano and is 50 miles northeast of Chico. As a result of the last eruption in 1917, the area experienced temporary impacts on air quality and sizeable amounts of ash and mud were deposited about the point of eruption, but no substantial effects were noted in the greater Chico area. It is believed that if another eruption occurs ash and mud flows probably would not have any significant effect beyond the confines of Lassen Park, and unless it were accompanied by major seismic events, would not present a serious hazard to the project area. The nearest hotsprings activity is at Richardson Springs, located northeast of the Park.

The entire Chico-Durham area has a high potential for land subsidence due to the heavy withdrawal of groundwater between Nord and Nelson. The area of heaviest withdrawal includes the Chico area. The groundwater underlying the Chico area was carried there from the foothills of the Sierra Nevada, east of Chico. The westerly tilt of the underlying Tuscan layers permits pumping of water out of the ground that fell years ago on the hills east of Chico. The Tuscan mudflows extend west under Chico where they are buried under younger sediment that has been deposited in the Sacramento Valley. Wells drilled through the younger valley sediments into the Tuscan Formation intercept this flow of water which can then be pumped to the surface for agricultural and domestic use. In general, the upper (eastern) part of an alluvial fan ought to subside less than the lower part, because of changes in the gravel/sand/clay ratio.

There are no known surface faults within the area, but the region of the Sierra Nevada foothills to the east of the Chico area is notorious for seismic activity. The Chico Tuscan Monocline, an area of complex faulting but undetermined activity, is located to the north and east. The nearest active fault to the project area is the Cleveland Hills Fault, which runs in a north-south direction, roughly 20 miles to the southeast of the Park. This fault resulted in the most recent significant earthquake recorded in Butte County, which occurred at Oroville in 1975 and measured 5.7 on the Richter Scale. Several other major fault systems outside Butte County are capable of producing earthquakes which could cause moderate to severe ground shaking within the County.

Ground acceleration and a generally moderate potential for soil liquefaction are two seismic hazards which must be given consideration on all projects throughout the Greater Chico Area.

Mineral Resources

There are no known mineral deposits located within the study area of sufficient grade to be of commercial value

Soils

Generally, soil in the region is a deep alluvial loam, deposited over thousands of years of river meandering. Soils within the Park consist primarily of silt loams or sandy loams that are composed of river deposits. The location of soil types reflect the different routes the river has traveled. The soil types located in the Park are summarized in Table 2-3 and illustrated in Exhibit 2-3.

Table 2-3
Soil Types

Subunit	Soil Type	Extent (acres)	Characteristics
Irvine Finch River Access	Columbia silt loam	5.0	0-2% slopes; very deep; moderately well drained;
	Not mapped (river channel)	0.2	--
Pine Creek Landing	Horst silt loam (occasionally flooded)	3.9	0-2% slopes; well-drained, very deep flood plain soils formed of alluvium from mixed sources deposited by the Sacramento River.
	Riverwash	0.7	Unstabilized, recent alluvial deposits of stratified sandy, silty, gravelly or cobbly sediments that are reworked by water almost every year. No permanent vegetation exists here because of flooding and churning of the components.
	Not mapped (river channel)	0.2	--
Indian Fishery	Horst silt loam (occasionally flooded)	65.0	*See above*
	Columbia soils	19.2	0-10% slopes; channeled
	Gianella loam (occasionally flooded)	9.8	0 to 2% slopes; well-drained, very deep flood plain soils formed of alluvium from mixed sources deposited by the Sacramento River and located along the meander belt.
	Riverwash	3.6	*See above*
	Not mapped (river channel)	3.3	--

Table 2-3 Soil Types (cont.)			
Subunit	Soil Type	Extent (acres)	Characteristics
	Kusal silty clay loam (occasionally flooded)	*<0.1*	0 to 2% slopes; somewhat poorly drained, very deep flood plain soils formed of alluvium derived from mixed sources deposited by the Sacramento River. Kusal soils are on flood plains and lack intersecting slickensides, do not crack, and formed from flood deposits deposited over basin materials.
Big Chico Creek Riparian Area	Maywood fine sandy loam (frequently flooded)	36.1	0 to 2% slopes; well-drained, very deep flood plain soils formed from alluvium deposited by the Sacramento River.
	Gianella fine sandy loam (occasionally flooded)	19.6	0 to 2% slopes; well-drained, very deep flood plain soils formed of alluvium from mixed sources deposited by the Sacramento River.
	Gianella loam	18.5	*See above*
	Horst silt loam (frequently flooded)	13.0	0 to 2% slopes; well-drained, very deep flood plain soils formed of alluvium from mixed sources deposited by the Sacramento River.
	Not mapped (river channel)	5.2	--
	Water	4.3	Water
Source: GIC 2003, EDAW 2003			

Much of the soil in the region is considered prime agricultural soil, which is why substantial amounts of native riparian vegetation have been cleared for agriculture. Prime soils are reflected in the mapping of "Important Farmland" by the California Department of Conservation (DOC) (Exhibit 2-4). *Important Farmland* is defined as "Prime Farmland," "Farmland of Statewide Importance," "Unique Farmland," or "Farmland of Local Importance" as mapped by the DOC; it also includes "Irrigated Farmland" for areas where modern soil survey information does not exist as is the case in Butte County. Approximately 2.8% of the Park area is considered to be *Important Farmland*, virtually all of which is represented by "Prime Farmland" at the Irvine Finch River Access area (DOC 2000). However, this subunit has been developed, including paved parking areas, which render it more urban/developed rather than agricultural-based in nature. The subunits on the east side of the river are classified primarily as "Other", which is intended to represent land not included in any other mapping category and includes riparian areas not suitable for livestock grazing.

Exhibit 2-3 Soils

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Exhibit 2-3: Soils

11x17 pg 2

Exhibit 2-4: Important Farmland

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Exhibit 2-4: Important Farmland

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Hydrology and Floodplain

The Sacramento River is a large, dynamic alluvial river that drains the northern portion of the Central Valley. The natural dynamics of intermittent flooding, river meander, and sediment deposition help to maintain a healthy riparian ecosystem that provides crucial habitat for resident and migratory birds, fish and wildlife species. It also provides a rich bed load of fine soil and nutrients in the floodplain that have enabled productive farming of lands along the river.

A river system consists of two major components: the river channel and the associated floodplain. The river channel is the deeper part of a river where water normally flows. In the project area, the extent of the river channel is represented by the "Inner River Zone," which is defined as the estimated portion of river system that has experienced river channel migration in the past 100 years and is likely to experience channel movement over the next 50 years (Sacramento River Conservation Area Forum [SRCAF] 2002).

Generally, the Sacramento River is classified as a meandering river, where "relatively stable, straight subreaches alternate with more sinuous, dynamic subreaches" (SRCAF 2002). The subreach of the river within the project area consists of a river channel that is relatively straight with the exception of two major bends. However, the presence of oxbow lakes, which are a result of dynamic erosion and deposition processes, is evidence of the constant shifting of the river channel.

The "floodplain" component of the river system refers to that part of the system that shows evidence of sediment deposition from flooding; however, boundaries of potential inundation areas in the floodplain may be altered by flood control features, such as levees, weirs, and dams. The extent of potential flood events is typically measured by the probability of flooding of an area during a single flood event based on a pre-defined historical period, as defined by the Federal Emergency Management Agency (FEMA). For planning purposes, the designated 100-year floodplain, which defines the area having a 1% chance of being inundated in any given year, is considered. Most major river systems contain areas subject to areas associated with the 100-year floodplain. However, some minor and intermittent streams do not have 100-year floodplain areas.

Flooding is a major concern in the project area. All of the subunits on the east side of the river are located within the 100-year floodplain; the only subunit located outside the 100-year floodplain is the Irvine Finch River Access Area, which is protected by a private levee (Exhibit 2-5). Flooding poses significant concerns related to the availability of existing facilities, new facility development, and visitor safety.

The close proximity and relatively flat topography define the subsurface hydrology in the Park. The water table in the Park is shallow. During the wet season, the water table on the east side of the Big Chico Creek Riparian Area is estimated to be within 10 feet of the ground surface (Sacramento River Partners 2000).

Biotic Resources

This section discusses the significant biological resources present in the project area. Information on these resources was obtained through a review of existing documentation, consultation with State Park resource staff, and observations made during reconnaissance-level field surveys. Documents and databases reviewed are referenced as appropriate throughout this section.

Regulatory Background

Many biological resources in California are protected because of their rarity or substantial recent declines in populations and/or habitat. The primary laws and regulations that protect biological resources and are applicable to implementation of the General Plan are listed below. Descriptions of these and other pertinent regulations are provided in Appendix A.

- Federal Endangered Species Act (ESA)
- Clean Water Act (CWA)
- Migratory Bird Treaty Act
- California Endangered Species Act (CESA)
- Section 1600 of the California Fish and Game Code
- Section 3503.5 of the California Fish and Game Code

Special-status species include plants and animals that are listed or proposed for listing as Threatened or Endangered under the FESA or CESA, species considered as candidates for such listing, animals identified by CDFG as California Species of Special Concern and by USFWS as Federal Species of Concern, and animals that are Fully Protected under the California Fish and Game Code.

Special-status species with potential to occur in the plan area were identified through searches of the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2002) and the California Natural Diversity Database (CNDDB 2002) (USGS 7.5-minute quadrangles: Ord Ferry, Hamilton City, Foster Island, and Nord), consultation with State Park resource ecologist Woody Elliot, and a review of prior biological studies conducted in the vicinity of the plan area. A discussion of special-status plants, terrestrial wildlife and fish is shown in the following sections.

Plants and Natural Communities

This section contains information on the significant and common botanical resources and natural communities in the project area.

Significant botanical resource values and/or issues of concern at the Park include the dynamic riparian ecosystem, sensitive plant communities, non-native invasive plant species, and special-status plant species. Sensitive botanical resources and issues of concern are discussed in the following sections, along with a description of sensitive and common natural

Exhibit 2-5: Floodplains

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Exhibit 2-5: Floodplains

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communities present in the plan area. Lands owned by other state and federal agencies located in the project area are not part of this study and are excluded from the following discussion. Management of resources on those lands are discussed in planning documents by the respective state or federal agencies that own them. Appendix B contains a floristic inventory for the Park, including plant families, scientific names and common names. Information provided in this section and the floristic inventory is based on the following resources:

- Vegetation Assessment (GIC 2003)
- CalFlora database (DPR 2003)
- Sacramento River Public Recreation Access Study (EDAW 2003)
- Resources Inventory of the Park, Chico Landing California, North Valley Area
- Species List for Big Chico Creek Riparian Area and Peterson property (GIC 1998a)
- Partial List of Plant Species at Big Chico Creek Riparian Area, (GIC 1998b)
- The Jepson Manual (Hickman 1993)
- Flora of Butte County (Oswald & Ahart 1994)
- Personal Communications with Department staff
- Vegetation Management Plan for the Peterson property (Sacramento River Partners 2000)

In addition to the resources listed above, a survey of the plan area was conducted by botanist, John Dittes of Dittes and Guardino Consulting during the spring and summer of 2003 and Misa Ward of EDAW on July 17, 2003. The survey was conducted by walking through the Park subunits. All habitat types were surveyed and a floristic inventory was developed. Unknown species were compared with plant specimens housed at the Chico State Herbarium. John Dittes also reviewed the previous species lists for accuracy (please refer to species lists described above). Appendix B contains the comprehensive floristic inventory for the Park compiled by Dittes and Guardino Consulting (2003) and enhanced with personal communications with Department staff (Elliott 2003, Dempsey 2003). A query of the Chico State University Herbarium was performed by John Dittes to identify additional plant and lichen species present in the plan area. Appendix C contains the information on the species recovered in the database search.

Dynamic Riparian Ecosystem

The biotic resources of the project area are shaped and supported by the physical and hydrological patterns of the river system. The geology of the project area is characterized by sedimentary features associated with the river. As is characteristic of the middle reaches of the Sacramento River corridor between Red Bluff and Colusa, major physiographic features of the plan area include floodplains, basins, terraces, active and remnant channels, and oxbow sloughs. These features, together with the historic and current hydrology and dynamic meander pattern of the Sacramento River, provide for a diverse array of riparian plant communities along the river channel, intermixed in a broad arable floodplain. Most of these habitats are currently fragmented remnants accounting for about 11% of a historically extensive, often 4-mile wide, riparian forest (SRCAF 2002). The majority of the historic

riparian forest habitat had been converted over the past 150 years to vital agricultural, urban, and rangeland uses and the river is now bounded by levees and agricultural development in numerous locations. However, for much of the project area, the river remains unconstrained with meanders forming freely and flooding occurring on a nearly annual basis in a broad floodplain.

The dynamic riparian corridor is characterized by a heterogeneous mix of vegetation types with varying composition and age structures. Early seral stage (i.e., pioneer) communities characterized by willows, young cottonwoods, and other small trees and shrubs typically form on recently deposited sand bars and along channel edges. Under natural conditions, these communities may get scoured away by fast moving water or may transition over time into a mature mixed riparian forest growing on low to middle floodplain terraces and valley oak woodland occurring on higher floodplain terraces.

Mature forest and woodlands often persist until removed by an active meander bend progressively moving downstream, or by an avulsion cut-off event in which a new channel is carved through existing woodland and an oxbow lake or slough is created out of a newly abandoned meander bend. In the vicinity of the Park, the Sacramento River is classified as a meandering river where "relatively stable, straight subreaches alternate with more sinuous, dynamic subreaches" (SRCAF 2002). The erosion and cut-off events result in the recommencement of seral development and community maturation. The natural dynamics of intermittent flooding, meander migration and sediment deposition help to maintain a healthy riparian ecosystem supporting numerous plant and wildlife species.

Because of land conversions to agricultural and urban uses, most of the mature valley oak woodland and savannah and other mature riparian forest community types further from the river's edge are now absent from most of the Sacramento River corridor. Most of the remaining forest is restricted to areas closest to the river. While much of the existing forest is in early to middle seral stages, the hydrology and soil conditions in the project area still exist to support mature riparian forest habitat, where feasible, based on land uses.

Sensitive Natural Communities

Sensitive natural communities are communities that are of special concern to resource agencies such as CDFG and the USFWS, government agencies such as counties or cities, or conservation organizations such as the California Native Plant Society. Sensitive natural communities are considered important because they provide habitat for numerous wildlife and plant species, including special-status species. Sensitive communities also include those considered rare or uncommon locally, regionally, or statewide because of natural conditions or conversions to other land uses, and those protected by state and federal laws and regulations, such as CEQA, Section 1600 et al. of the Fish and Game Code and Section 404 of the CWA. Sensitive natural communities that occur in the project area include open water, wetland, arroyo willow series, box elder, Fremont cottonwood series, and valley oak series. Descriptions of these communities are provided in the following section.

Community Descriptions and Characterizations of Park Subunits

Plant and natural communities of the Park were mapped using nomenclature primarily derived from the vegetation classification of California Manual of Vegetation of Sawyer and Keeler-Wolf (1995) (Exhibit 2-6). In some cases, plant communities (e.g., box elder, California walnut) or other natural communities (e.g., open water) that were mapped are not described in Sawyer and Keeler-Wolf classifications.

Lands located outside the State Park boundary, are primarily privately-owned agricultural land or publicly owned (CDFG and USFWS) land and for the most part, were not mapped. However, natural communities do occur in many locations beyond the State Park boundary. Most of their locations are along the edge of river and slough channels that flood too frequently to be farmed. Though not a part of this study, it is important to note that USFWS and CDFG properties located near the project area are also characterized primarily by natural communities, adding important habitat and wildlife movement corridor value to the area.

The natural plant communities are confined almost entirely to areas immediately adjacent to the river or where historic channels occurred. The following community descriptions are based on the work prepared by the Geographic Information Center (GIC) at California State University, Chico (2003), Sawyer and Keeler-Wolf (1995), and the Sacramento River Public Recreation Access Study (EDAW 2003). Those without the word "series" following the name are vegetation types or communities that are not described in Sawyer and Keeler-Wolf. Communities present in the project area include:

- Agricultural land
- Almond
- Arroyo willow series
- Blackberry scrub
- Box elder
- California annual grassland series
- California walnut
- Fremont cottonwood series
- Valley oak series
- Wetland
- Open water
- Sediment/Gravel Bar

Exhibit 2-6 depicts the mapped communities in the State Park units. Table 2-4 provides a summary of acreages of the mapped communities. The majority of privately owned non-Park lands within the plan area are used for agriculture. Natural community types exist outside the Parks as well, primarily along the edges of the river and slough channels. Most state Park units are characterized by natural communities with the exception of the largely developed Irvine Finch River Access area.

Table 2-4 Plant Communities		
Park Unit	**Community Type**	**Acreage**
Irvine Finch River Access	Agriculture/Developed	4.8
	Box Elder	0.2
	Open Water	0.1
	Valley Oak	0.1
	Arroyo Willow	< 0.1
	Fremont Cottonwood	< 0.1
	Total	**5.2**
Pine Creek Landing	Valley Oak	4.0
	Open Water	0.3
	Agriculture/Developed	0.2
	California Annual Grassland	0.2
	Arroyo Willow	0.1
	California Walnut	< 0.1
	Wetland	< 0.1
	Total	**4.8**
Indian Fishery	Fremont Cottonwood	46.1
	Valley Oak	26.2
	Open Water	8.5
	California Annual Grassland	7.9
	Gravel (river wash)	5.8
	Blackberry Scrub	2.4
	Arroyo Willow	1.4
	Not Mapped	1.3
	Wetland	0.8
	California Walnut	0.3
	Agriculture/Developed	0.2
	Total	**100.9**
Big Chico Creek Riparian Area	Fremont Cottonwood	32.0
	California Annual Grassland	20.9
	Box Elder	10.7
	Valley Oak	10.0
	Blackberry Scrub	8.7
	Gravel (river wash)	6.4
	Agriculture/Developed	4.3
	California Walnut	1.1
	Open Water	1.1
	Almond	1.0
	Arroyo Willow	0.5
	Agriculture/Developed	< 0.1
	Total	**96.7**
Source: GIC 2003, EDAW 2003		

Exhibit 2-6 Vegetation

11x17 Pg 1

Exhibit 2-6 Vegetation

11x17 Pg 2

The Irvine Finch River Access area is primarily characterized by a remnant walnut orchard and parking lot with small amounts of box elder, valley oak, open water, arroyo willow, and Freemont cottonwood communities.

This Pine Creek Landing subunit is primarily characterized by valley oak woodland, but also includes lesser amounts of open water, California annual grassland, arroyo willow, and wetland communities, as well as agriculture/developed areas.

The Indian Fishery subunit is dominated by Fremont cottonwood and valley oak woodland and also contains a substantial amount of open water and California annual grassland. Other community types consist of gravel bar, blackberry scrub, arroyo willow, wetland, California walnut, in addition to limited agricultural/developed areas.

The portion of the Big Chico Creek Riparian Area west of River Road is dominated by Fremont cottonwood, and also contains a substantial amount of valley oak woodland and gravel bar. Other community types include California walnut, arroyo willow, open water, and to a lesser extent, California annual grassland and agriculture/developed areas. The portion of this subunit east of River Road is dominated by California annual grassland, but is also characterized by a substantial quantity of box elder, blackberry scrub, Fremont cottonwood, valley oak woodland and agriculture/developed areas. Other community types east of River Road include almond and open water.

Following are descriptions of the sensitive and common plant and natural communities that characterize the project area.

Agricultural Land. Orchards and row crops are the primary land use on privately owned lands adjacent to the Sacramento River within the plan area boundary. Agricultural land is commonly located on terraces adjacent to the Sacramento River where rich sediments have deposited fertile soils now used for agricultural production. Most orchards are currently planted with almonds, walnuts, and prunes and are generally devoid of native vegetation.

Almond. This community is dominated by almonds that are remnants from abandoned orchards or that have colonized wild lands adjacent to orchards. The almond community is co-dominated by valley oak, with lesser amounts of Oregon ash and California black walnut. Associated species include blue elderberry, pecan, red gum, box elder, California wild grape, California wild rose, arroyo willow, Himalayan blackberry, California blackberry and virgin's bower.

Arroyo Willow Series. The arroyo willow community is often found in strips along the lower banks of the Sacramento River and other streams as well as the edges of backwater sloughs or oxbow lakes. This community type is typically characterized by a dense willow shrub or tree canopy. The series is characterized by arroyo willow as the dominant shrub or tree in the canopy, sometimes forming monotypic stands. Less dominant, but prominent associated species typically include red willow, shining willow, sandbar willow and box elder. Other species that may occur include young Fremont cottonwood, valley oak, box elder, California

wild rose, California black walnut, Himalayan and California blackberry, blue elderberry, and wild grape. The understory often includes native herbaceous species such as mugwort and willow-weed, as well as, non-native species such as sharp and curly dock interspersed with other grasses and herbs.

CDFG considers riparian woodland communities, including arroyo willow series, sensitive because of their value as wildlife habitat and the historic loss of these communities. This riparian community type is seasonally flooded or periodically saturated. Some riparian habitats qualify as wetlands, which are protected as Waters of the United States and subject to USACE jurisdiction under Section 404 of the CWA.

Blackberry Scrub. The blackberry scrub community in the plan area is characterized by Himalayan and/or California blackberry as the dominant species. Himalayan blackberry is a vigorous non-native invasive weed that often forms dense thickets. It often hinders recruitment of native trees and shrubs, but it also can provide habitat for wildlife. Subdominant tree species can include box elder, valley oak, California black walnut, almond, Fremont cottonwood, Goodding's willow, and arroyo willow.

Box Elder. The box elder community is characterized by box elder as the dominant species in the tree canopy along with less dominant species, including Fremont cottonwood and Oregon ash. The box elder community typically occurs in riparian floodplain areas subject to intermittent or seasonal flooding. Other species occurring in this community type include California black walnut, arroyo willow, and Himalayan blackberry.

CDFG considers riparian woodland communities, including box elder, sensitive because of their importance as wildlife habitat and the historic loss of these communities. Some areas designated as this community type may qualify as wetlands protected as Waters of the United States and subject to USACE jurisdiction under Section 404 of the CWA.

California Annual Grassland Series. California Annual Grassland Series is frequently found in upland areas adjacent to the river channel, including some terraces along river banks. Grassland often forms in previously disturbed areas. The composition of this series is greatly influenced by fall temperatures and precipitation, along with light intensity and variable microtopography (Sawyer and Keeler-Wolf 1995). This series is characterized primarily by non-native annual grasses and forbs including bromes, ryegrasses, oats, mustards, yellow-star thistle, clovers, lupines and filaree.

California Walnut. This plant community is characterized by the predominance of California walnut hybrids (*Juglans hindsii*, a.k.a. *Juglans californica* var. *hindsii*), along with less dominant species, including blue elderberry, box elder, and valley oak. The *Juglans hindsii/Sambucus mexicana* Forest Association is typical of the type found within the plan area (Sawyer and Keeler-Wolf 2003 draft MS, in Vaghi 2003). In the plan area, *Juglans hindsii* occurs as a naturalized bygrid of agricultural origin which includes parentage from *J. major* and perhaps *J. californica*, but not *J. regia* nor *J. nigra* (Kirk 2003). Native stands of California black walnut remain in only Napa and Contra Costa Counties and are considered

rare (CNPS 2003, CNDDB 2003). The hybrids may be invasive and appear to take over valley oak and other riparian forest communities (R. Unger, personal observation). More research is needed to clarify the taxonomy, ecology, and hybridization frequency of walnut trees present in the plan area. This community type is often found in riparian corridors and river floodplains as well as along stream margins and banks. It typically forms on river terraces and in upland valley bottoms with alluvial soils (Sawyer and Keeler-Wolf 1995). Other species occurring in this community include blue elderberry, arroyo willow, Fremont cottonwood, mugwort, California pipevine, California manroot, California wild grape, California blackberry, Himalayan blackberry, and Oregon ash.

Fremont Cottonwood Series. The most common natural community within the plan area is Fremont cottonwood series. While this series is locally abundant, it was historically much more extensive within the region. Most Fremont cottonwood forests within the region had been converted to agricultural land over the past 150 years because of the presence of fertile alluvial soils. Fremont cottonwood forests are found within the Sacramento River riparian corridor in areas that are intermittently or seasonally flooded, including floodplains, terraces, and banks. The community type is characterized by a multi-story canopy with Fremont cottonwood as the dominant upper story species interspersed with lesser quantities of box elder and Northern California black walnut. Mid-story trees include English walnut, Goodding's willow, arroyo willow, edible fig, and Oregon ash. California pipevine, California manroot, and lianas of California wild grape vines, such as California and Himalayan blackberry may be present in the shrub canopy.

This community type is considered sensitive riparian habitat by CDFG. In addition, the Fremont cottonwood series may be seasonally flooded or periodically saturated. As such, some areas designated as this community type may qualify as wetlands protected as Waters of the United States and subject to USACE jurisdiction under Section 404 of the CWA.

Valley Oak Series. Valley oak riparian vegetation is found within the riparian corridor along river banks and terraces, typically in areas that are intermittently or seasonally flooded, or in upland valley bottoms with gentle slopes. The valley oak riparian woodland is characterized by a multi-story canopy and a species composition similar to the Fremont cottonwood series. The primary distinction is dominance by valley oaks and typically lower quantities of tree species such as arroyo willow, walnut species, almond, box elder, and Oregon ash. A shrub layer including California and Himalayan blackberry, and blue elderberry is sometimes present. The canopy of the valley oak community is typically more open than the Fremont cottonwood series, enabling the development of a dense grass or graminoid (grass-like) understory. In addition to grasses and graminoids, some broadleaf species found in the understory include hoary creek nettle, curly dock, and pokeweed.

Some valley oak woodlands may qualify as wetlands protected as Waters of the United States and subject to USACE jurisdiction under Section 404 of the Clean Water Act (CWA). Valley oak woodland has generally suffered the highest proportion of loss among riparian community types because of its historic presence in high floodplain areas. Over 90% of valley oak woodland has been lost statewide because of the conversion of this community to

other land uses (Barbour et al. 1993). As a result, valley oak woodland is considered a sensitive community by the California Native Plant Society and CDFG, and many counties and municipalities have ordinances protecting valley oak trees. Butte County is working on Formal Voluntary County Guidelines for the protection of their 230,000 acres of oak woodland (IHRMP 2000).

Wetland. Wetland communities develop in permanently or seasonally flooded areas within the site, such as along river and slough channels and oxbow lakes. Hydrophytic (water-loving) vegetation that typically characterizes wetlands in the plan area include Santa Barbara sedge, tall cyperus, yellow nutsedge, spreading rush, shield-bracted monkeyflower, and seep monkeyflower.

Wetlands are protected as Waters of the United States and subject to USACE jurisdiction under Section 404 of the CWA. Wetland habitat has been dramatically affected by conversion of land for urban and agricultural uses and water that filled the wetlands has been diverted for other uses. Estimates of wetlands that historically existed in California range from 3 to 5 million acres. The current estimate of wetland acreage in California is approximately 450,000 acres; this represents an 85 to 90% reduction; the greatest percentage loss in the nation (Ceres 1995). Wetland habitat is highly productive, important for protecting water quality, and supports numerous wildlife species.

Open Water. Open water habitat within the plan area includes the Sacramento River, backwater sloughs and oxbow lakes, and tributary stream channels. The river system is composed of various features including gravel riffles, runs, and pools. Sediment deposition from eroding banks and downed large woody debris are important inputs to the river system. Open water is considered a Waters of the United States and subject to USACE jurisdiction under Section 404 of the CWA.

Sediment/Gravel Bar. There are several areas within the Sacramento River channel where point bars have developed. Point bars form on the inside of river bends where slower flows result in the deposition of gravel and sand. The coarser sediments are deposited near the base of the point bar while finer grains settle out as the water moves toward the top of the point bar. Sediment/gravel bars may serve as nurseries for the early seral stages of riparian plant community development depending on the sediment type and the timing of river flooding and drawdown during periods when riparian trees and shrubs dispense their seeds.

Sediment/gravel bars typically form below the ordinary high water mark, the approximate river stage during high flow periods that occur once every 2 years on average. They are generally considered to be part of Waters of the United States and subject to USACE jurisdiction under Section 404 of the CWA.

Non-native Invasive Plant Species

Non-native (exotic, alien, non-indigenous) species are those that have been introduced through human activities, either incidentally or deliberately. Many non-native plant species

are not invasive and do not have adverse effects on natural plant and animal communities. However, some non-native species have resulted in the transformation of native habitats to a non-native plant community with resultant reduction of native plants and degradation of wildlife habitat. Table 2-5 contains a list of invasive species known to occur within the project area.

Table 2-5
Invasive Weeds Known to Occur in the Project Area

Scientific Name	Common Name	CalEPPC/State Status [1]
Ailanthus altissima	Tree-of-heaven	A-2/P
Arundo donax	Giant reed	A-1/P
Catalpa speciosa	Northern catalpa	--/--
Celtis occidentalis	Hackberry	--/--
Centaurea solstitialis	Yellow-star thistle	A-1/C
Eucalyptus camaldulensis, E. sp.	Red Gum, Eucalyptus	A-1/-- (*E. globulus*)
Ficus carica	Edible fig	A-2/--
Juglans californica (orchard rootstock or other hybrids[2]	California walnut	--/--
Lepidium latifolium	Perennial pepperweed	A-1/B
Morus alba	Mulberry	--/--
Parthenocissus cinquefolia	Virginia creeper	--/--
Platanus x acerifolia	London plane tree	--/--
Prunus dulcis, P. sp.	Almond, prune (orchard rootstock)	--/--
Robinia pseudoacacia	Black locust	B/--
Rubus discolor	Himalayan blackberry	A-1/--
Tamarix parviflora	Tamarisk, salt cedar	A-1/P
Vinca major	Periwinkle	B/--

[1] CalEPPC Status:
A-1 = most invasive wildland pest plants, widespread
A-2 = most invasive wildland pest plants, regional
B = wildland pest plants of lesser invasiveness

State (CDFA) Status:
B = Eradication, containment, control or other holding action at the discretion of the commissioner.
C = State endorsed holding action and eradication only when found in a nursery, action to retard spread outside of nurseries at the discretion of the commissioner, reject only when found in a crop seed for planting, or at the discretion of the commissioner.
P = Proposed additions to the CDFA Noxious Weed List in the California Code of Regulations

[2] The ecology and taxonomy of this species as well as the extent of hybridization between native and non-native walnut species needs study. It may be considered an invasive plant after further research and evaluation.

Source: CalEPPC 1999

The state and federal government both have laws and regulations protecting commerce and environmental lands from damages caused by invasive weeds. The California Department of Food and Agriculture and federal government each maintain lists of noxious weeds for the purpose of eradication or control.

The California Exotic Pest Plant Council (CalEPPC) has developed a list of non-native plants that pose serious problems in native ecosystems and rangelands (CalEPPC 1999). These species are classified based on the level of threat and invasiveness. Plants on List A-1 (most invasive wildland pest plants; widespread) that were found within the project area include giant reed, yellow-star thistle, Himalayan blackberry, tamarisk, and perennial pepperweed. These species have been documented as aggressive invaders that displace natives and transforms or disrupt natural habitats. Plants on List A-2 (most invasive wildland pest plants; regional) found within the project area include tree-of-heaven and edible fig. Plants in the project area that are on List B (wildland pest plants of lesser invasiveness) include English ivy, black locust, periwinkle, black mustard, bull thistle, poison hemlock, and Klamathweed.

Special-Status Plant Species

Seven special-status plant species have potential to occur in the project area, based on presence of suitable habitat. Table 2-6 lists these species and provides information on their listing status, habitat, and blooming period. Exhibit 2-7 shows locations of special-status species occurrences in the plan area. A description of each special-status plant is provided below.

Table 2-6
Special-status Plants with Potential to Occur in the Project Area

Species	CNPS	CDFG	USFWS	Habitat and Blooming Period
Ferris's milk-vetch *Astragalus tener* var. *ferrisiae*	1B	--	--	Vernally mesic meadows and seeps, subalkaline flats within valley and foothill grasslands; blooms April-May
Fox sedge *Carex vulpinoidea*	2	--	--	Riparian woodlands, freshwater swamps and marshes, blooms May-June
Four-angled spikerush *Eleocharis quadrangulata*	2	--	--	Freshwater swamps and marshes, blooms May-September
Adobe-lily *Fritillaria pluriflora*	1B	--	--	Cismontane woodland, chaparral, valley and foothill grasslands; often adobe substrate; blooms February-April
Rose-mallow *Hibiscus lasiocarpus*	2	--	--	Freshwater swamps and marshes, blooms June-September
Sanford's sagittaria *Sagittaria sanfordii*	1B	--	--	Shallow freshwater marshes and swamps, blooms May-October
Columbian watermeal *Wolffia brasiliensis*	2	--	--	Shallow freshwater marshes and swamps, blooms April-December

California Native Plant Society (CNPS) Listing Categories:
1B = Plants rare, threatened, or endangered in California and elsewhere
2 = Plants rare, threatened, or endangered in California but more common elsewhere

Source: CNPS 2002, CNDDB 2003

Exhibit 2-7 Special-Status Species

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Exhibit 2-7 Special-Status Species

11x17 pg 2

Ferris's Milk-vetch. Ferris's milk-vetch is considered a CNPS List 1B species (plants rare, threatened, or endangered in California and elsewhere). This annual herbaceous member of the bean family (Fabaceae) produces purple and white flowers from April to May. Suitable habitat consists of vernally mesic meadows and seeps as well as subalkaline flats in valley grasslands.

Fox Sedge. Fox sedge is a perennial herb in the sedge family (Cyperaceae). It is a CNPS List 2 species (plants rare, threatened, or endangered in California but more common elsewhere). This species produces small, inconspicuous flowers from May to June. Suitable habitat consists of riparian woodland and freshwater marshes and swamps. Fox sedge has been reported in the plan area, east of the Sacramento River, just north of Golden State Island and between lower Foster Island and the southern end of Dicus Slough (CNDDB 2002).

Four-angled Spikerush. Four-angled spikerush is also a CNPS List 2 species and member of the sedge family. As its common name suggests, the stem of this perennial herb is strongly four-sided. It blooms from May to September and grows in freshwater marshes and swamps as well as along pond and lake margins.

Adobe-lily. Adobe-lily is a perennial herbaceous member of the lily family (Liliaceae) that produces nodding pink flowers from February to April. It is a CNPS List 1B species that grows on adobe soil in chaparral, cismontane woodland, and grassland habitats.

Rose-mallow. Rose-mallow is an emergent perennial herb in the mallow family (Malvaceae) that produces large white or pink flowers. This CNPS List 2 species blooms from June to September and grows in freshwater marshes and swamps. Rose-mallow has been reported to occur in an oxbow north of Golden State Island and east of the Sacramento River within the plan area (CNDDB 2002).

Sanford's Sagittaria. Sanford's sagittaria is a CNPS List 1B species in the water-plantain family (Alismataceae). This emergent perennial herb produces white flowers from May to October. Unlike other sagittaria species, it does not have arrow-shaped leaves. Suitable habitat typically consists of shallow, standing fresh water associated with marshes and swamps. Sanford's sagittaria can also occur within slow-moving water bodies such as ponds, lakes, sloughs, ditches, canals, streams, and rivers (Nakamura and Nelson 2001).

Columbian Watermeal. Columbian watermeal is a CNPS List 2 species in the duckweed family (Lemnaceae). It is a perennial aquatic herb that produces inconspicuous flowers from April to December. Columbian watermeal produces a transparent green, spheric plant body that is less than 1.5 mm. This species grows in colonies on the water surface within shallow freshwater marshes. Columbian watermeal has been reported within the Park in the sloughs near Chico Landing (CNDDB 2002).

Terrestrial Wildlife

This section describes terrestrial wildlife habitats and associated species present in the Park and elsewhere in the project area. This includes a brief discussion of species that are associated with the primary habitat types and a more detailed discussion of sensitive species with potential to occur in the project area.

General Wildlife Habitats

The primary terrestrial wildlife habitat types in the project area include riparian, agricultural, and developed habitats. Of these, riparian is the dominant habitat type in the Park, while agricultural habitat dominates the project area as a whole.

Riparian vegetation along the Sacramento River is a dominant feature of the Park. This habitat includes the following plant communities that are previously described: arroyo willow, blackberry scrub, Northern California black walnut, Fremont cottonwood, valley oak, and wetland. Riparian habitat is expected to support the highest wildlife diversity and serve as an important wildlife corridor. Surveys conducted in the Park and nearby areas (PRBO 2002, Manolis 1998) have documented a variety of breeding bird species, such as western wood pewee, common yellowthroat, black headed grosbeak, and spotted towhee. Areas dominated by valley oak riparian forest, such as Indian Fishery, support a large number of cavity-nesting birds and other species typically associated with oak woodland, including acorn woodpecker, ash-throated flycatcher, oak titmouse, and white-breasted nuthatch. The European starling has recently become common at the Park. Starling is a non-native species that is known to adversely affect native birds by taking over nesting sites. Riparian habitat in the project area is also expected to support common reptiles and amphibians, such as Pacific tree frog, bullfrog, and western aquatic garter snake, and common mammals, such as beaver, gray fox, and raccoon.

In contrast to riparian habitat, grassland, agricultural, and ruderal habitats are of relatively low value to most native wildlife species. However, they can nevertheless be used by large numbers of common species, such as yellow-billed magpie, house finch, and California ground squirrel. In addition, grasslands, fallow fields, and some crops (e.g., alfalfa) can support a variety of small mammals and provide high-quality foraging habitat for many species of raptors.

Special-Status Species

Table 2-7 lists the 24 special-status terrestrial wildlife species known or expected to occur in the plan area. Exhibit 2-7 shows locations map of special-status species occurrences in the plan area. Eight of these are state-listed and/or federally listed (i.e., Threatened or Endangered) species: valley elderberry longhorn beetle, giant garter snake, bald eagle, Swainson's hawk, greater sandhill crane, western yellow-billed cuckoo, willow flycatcher, and bank swallow. All special-status wildlife species with potential to occur in the Park are discussed below.

Table 2-7 Special-Status Terrestrial Wildlife with Potential to Occur in the Project Area			
Species	CDFG	USFWS	Habitat
Invertebrates			
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	--	T	Elderberry shrubs, usually in streamside habitats below 3,000 feet through the Central Valley
Reptiles and Amphibians			
Giant garter snake *Thamnophis gigas*	T	T	Freshwater marsh, low gradient streams, drainage canals and irrigation ditches
Western pond turtle *Clemmys marmorata*	CSC	FSC	Slow-moving streams or ponds with aquatic vegetation, and adjacent upland habitat
Birds			
American white pelican *Pelecanus erythrorhynchos*	CSC	--	Marshes and other aquatic habitats
Double-crested cormorant *Phalacrocorax auritus*	CSC	--	Isolated islets or tall lakeside trees near fish-bearing waters
White-faced ibis Plegadis chihi	CSC	FSC	Forage and roost in shallow water and flooded fields; nest in freshwater marshes
Osprey *Pandion haliaetus*	CSC	--	Fish-producing waters of bays, estuaries, reservoirs, and large streams or rivers
White-tailed kite *Elanus leucurus*	CSC FP	--	Forage in grasslands and agricultural fields; nest in isolated trees or small woodland patches
Bald eagle *Haliaeetus leucocephalus*	E FP	PD	Forages in large bodies of water or rivers with adjacent snags or other perches; nests in large, tall trees near permanent water source
Northern harrier *Circus cyaneus*	CSC	--	Grasslands and freshwater marsh
Cooper's hawk *Accipter cooperii*	CSC	--	Open woodlands and woodland margins
Sharp-shinned hawk *Accipiter striatus*	CSC	--	Dense coniferous and riparian forest
Swainson's hawk *Buteo swainsoni*	T	--	Forages in open meadows, grasslands, and agricultural fields; nests in tall trees (20-30 feet)

Table 2-7 Special-Status Terrestrial Wildlife with Potential to Occur in the Project Area			
Species	**CDFG**	**USFWS**	**Habitat**
Greater sandhill crane *Grus canadensis tabida*	T FP	--	Grasslands, irrigated pastures and crops, and fallow fields
Long-billed curlew *Numenius americanus*	CSC	--	Marshes, grasslands, irrigated, pastures, alfalfa, and fallow fields
Western-yellow billed cuckoo *Coccyzus americanus occidentalis*	E	--	Large patches of mature riparian forest
Western burrowing owl *Athene cunicularia hypugea*	CSC	FSC	Grasslands and agricultural areas
Willow flycatcher *Empidonax traillii*	E	--	Willow and alder patches associated with wet meadows
Bank swallow *Riparia riparia*	T	--	Riparian woodland; nests in vertical banks and cliffs with fine or sandy soils
Loggerhead shrike *Lanius ludovicianus*	CSC	FSC	Forages in grasslands, and agricultural fields; nests in scattered shrubs and trees
Yellow warbler *Dendroica petechia bewersterii*	CSC	--	Dense riparian vegetation, particularly willows and cottonwoods
Yellow-breasted chat *Icteria virens*	CSC	--	Dense riparian thickets of willow and other brushy tangles near watercourses
Tricolored blackbird *Agelaius tricolor*	CSC	--	Forages in grasslands and agricultural fields; nests in freshwater marsh with cattails, tules, or dense shrubs
Mammals			
Ringtail *Bassariscus astutus*	FP	--	Riparian and other forest and shrublands
USFWS Federal Listing Categories: T Federal Threatened PD Proposed for Delisting FSC Federal Species of Concern CDFG State Listing Categories: E California Endangered T California Threatened FP Fully Protected CSC California Species of Concern Source: CNDDB 2003			

Invertebrates. The valley elderberry longhorn beetle is federally listed as Threatened. This beetle requires blue elderberry shrubs for reproduction and survival. Elderberry shrubs are abundant in some areas of the Park and are expected to occur elsewhere in the project area. Valley elderberry longhorn beetle is not known to occur in the project area, but because suitable habitat is present, there is potential for this species to occur there.

Reptiles and Amphibians. Giant garter snake is federally and state-listed as a Threatened species. Giant garter snakes inhabit a variety of aquatic habitats, such as agricultural canals, marshes, sloughs, and ponds, but are typically absent from larger rivers and from wetlands with sand, gravel, or rock substrates (USFWS 1999). They also require adjacent upland habitat for basking and burrows for wintering that provide sufficient cover and are at high enough elevations to function as refuges from flood waters during the snakes' inactive season (October–May). Historically, the northern extent of the giant garter snake range is thought to have been Gridley, which is approximately 30 miles southeast of the Park, but there is some evidence the range extended to the vicinity of Chico in the 1970s (USFWS 1999). Currently, the northernmost known populations occur in the rice production zones of Butte and Glenn counties (USFWS 1999). Although the Park is located north of these rice production areas and reported occurrences from the Chico area are from several decades ago, giant garter snakes may occur at the Park. A 4-½ foot giant garter snake was believed to have been observed at planting site 1 of the Giant Garter Snake Habitat Restoration and Replacement Project at the Pine Creek Unit of the Park on April 20, 2002 during the Earth Day event (McGaugh, pers. comm., 2003).

Western pond turtle is a federal Species of Concern and a California Species of Special Concern. Pond turtles generally occur in streams, ponds, freshwater marshes, and lakes. They require still or slow-moving water with instream emergent woody debris, rocks, or other similar features for basking sites. Nests are typically located on unshaded upland slopes in dry substrates with clay or silt soils. Western pond turtles could occur in sloughs and oxbow lakes adjacent to the Park and elsewhere in the project area. Many undocumented occurrences of turtles have been observed to nest along the Indian Fishery nature trail (McGaugh, pers. comm., 2003).

Birds. Bald eagle is state listed as an Endangered species. It is also federally listed as a Threatened species. In California, bald eagles nest along the shores of large rivers and lakes and forage in such waterbodies. They do not nest in the Central Valley but wintering and non-breeding individuals are known to occur along the Sacramento River and could utilize the project area.

Swainson's hawk is state listed as a Threatened species. Swainson's hawks typically nest in scattered riparian or woodland trees adjacent to grasslands and/or agricultural fields that provide suitable foraging habitat. Agricultural fields in the plan area provide suitable foraging habitat, and Swainson's hawks are known to nest on the Big Chico Creek subunit (CNDDB 2002; Elliott, pers. comm., 2002). Riparian habitat and large trees at other Park units and elsewhere in project area also provide suitable nest sites.

Greater sandhill crane is federally listed as Threatened. Sandhill cranes depend on cereal grains as winter foraging habitat (e.g., rice and corn), and typically roost in irrigated pastures (CDFG 2000). Primary wintering areas include the Butte Sink to the south. Though not within a major wintering area, agricultural fields in the project area could provide foraging habitat.

Western yellow-billed cuckoo is state listed as Endangered. These cuckoos require large blocks (greater than 40 hectares) of riparian forest vegetation for nesting (Laymon et al. 1997). Historically, yellow-billed cuckoos were common and widespread in river bottom riparian habitat throughout California, but numbers have declined dramatically as a result of converting habitat for agriculture and other human land uses, cutting forest for fuel, and habitat alteration from flood control projects (Small 1994). Cuckoos have recently been documented nesting at Phelan Island, several miles downstream of the Park (Small et al. 2000), and they were detected in the Park in 1998 (Manolis 1998) and 2002 (Gilchrist 2002). Undocumented occurrences of cuckoos have also been noted at Allinger Ranch and along Pine Creek (McGaugh, pers. comm., 2003). Western yellow-billed cuckoo is not known to nest in the Park, but riparian vegetation on and adjacent to the Park could provide suitable nesting habitat.

Willow flycatcher is state listed as an Endangered species. This species has been eliminated from much of its former range in California, and breeding populations are now primarily restricted to montane meadows in the Sierra Nevada. Willow flycatchers nest in shrubby riparian vegetation, typically in areas with at least some surface water (Bombay et al. 2000). Willow flycatchers are expected to occur in riparian habitats in the project area during migration, but are not known to nest anywhere in the Central Valley.

Bank swallow is state listed as a Threatened species. Bank swallows nest colonially in vertical banks and cliffs with fine-textured sandy soils. An undocumented occurrence of a nesting colony has been noted in the river bank opposite the Big Chico Creek subunit (Elliott, pers. comm., 2002) and the bank at the upper end of the gravel bar at the Big Chico Creek Riparian Area (McGaugh, pers. comm., 2003). Additional colonies have become established in other suitable river locations in the project area (McGaugh, pers., comm. 2003).

Several non-listed special-status raptors could occur in the project area, including osprey, white-tailed kite, northern harrier, Cooper's hawk, sharp-shinned hawk, and burrowing owl. All of these are state and/or federal species of concern and are protected under the California Fish and Game Code. In general these raptors nest in trees in or near riparian habitat, with the exception of northern harrier and burrowing owl, which nest in grasslands and agricultural fields. Osprey are known to nest in the project area (Elliott, pers. comm., 2002). The remaining species could also nest in the project area, though burrowing owls are not known to occur nearby and may only be present on occasion.

Double-crested cormorant, American white pelican, white-faced ibis, and long-billed curlew could occur in the project area. All of these waterbirds are California Species of Special Concern, and white-faced ibis is also a federal Species of Concern. Double-crested cormorant is the only one of these species with the potential to nest in the project area, though no known nesting colonies are present. A colony is unlikely to become established on any of the Park units, but trees and snags in less disturbed locations along the river could provide suitable nest sites. Undocumented occurrences of American white pelicans have been noted in the project area for several months at the end of winter (McGaugh, pers.

comm., 2003). The remaining waterbirds are only expected to forage and roost in the plan area, because it is not within their current breeding range.

Loggerhead shrike, yellow warbler, yellow-breasted chat, and tricolored blackbird could also use the project area. All of these are California Species of Special Concern, and loggerhead shrike and tricolored blackbird are also federal Species of Concern. Loggerhead shrikes occur in open areas with scattered shrubs and trees for nesting. Yellow warblers typically nest in willow thickets, and yellow-breasted chats typically nest in riparian habitats with a dense shrub layer. Tricolored blackbirds nest colonially in dense patches of marsh and shrubby vegetation, such as cattails and blackberry. All of these species could occur in the project area, and all of them except for tricolored blackbird could also nest in the area. Yellow warblers are relatively uncommon breeders in the Central Valley, but a breeding territory was recently documented in the Park (Manolis 1998). Tricolored blackbird is not expected to nest there, because the nearest known nesting colony is approximately 30 miles southeast (Humple 2002), and only marginally suitable nesting habitat is present in the project area.

Mammals. Ringtail is a Fully Protected Species under the California Fish and Game Code. Ringtails occur in mixed riparian and other forest and shrubby habitats, in close association with permanent water and rocky areas. They nest in rock crevices, hollow trees, logs, snags, abandoned burrows, or woodrat nests, with young typically born in May and June (CDFG 1983). Riparian vegetation in the project area provides suitable habitat for ringtail. Undocumented occurrences of ringtail has been noted emerging from nest trees in the oak woodland near the Park office and service yard at Indian Fishery (McGaugh, pers. comm., 2003).

Aquatic Life

This section describes significant aquatic resources of the Park units and larger plan area. The dominant aquatic feature of the project area is the Sacramento River, though Big Chico Creek, sloughs, oxbow lakes, and marshes also provide important aquatic habitat.

General Aquatic Life

The aquatic habitats of the Sacramento River and Big Chico Creek are vital fish spawning, rearing, and/or migratory pathway for a variety of common and special-status fish species. The heterogeneity of habitats, including gravel riffles, runs, and pools, and sediment deposition from eroding banks are critical features. Shaded riverine aquatic vegetation and in-stream tree and shrub debris provide important fish habitat. A variety of aquatic invertebrates and common native fish, such as suckers, hardheads, and squawfish occur in aquatic habitats in the project area. Introduced fish, such as smallmouth bass and green sunfish are also present (Big Chico Creek Watershed Project 2000).

Special-Status Species

A total of 5 special-status fish have potential to occur in the project area (Table 2-8). Three of these are state-listed and/or federally listed as Threatened or Endangered: Central Valley

winter-run and spring-run chinook salmon, and Central Valley steelhead. In addition, fall/late-fall-run chinook salmon is a federal Candidate for listing as Threatened or Endangered. Sacramento splittail is a California Species of Special concern. It was federally listed as a Threatened species, but USFWS recently published a "notice of removal" determination to remove Sacramento splittail from the list of threatened and endangered species.

Table 2-8
Special-Status Fish with Potential to Occur in the Project Area

Species	CDFG	USFWS	Habitat
Chinook salmon - Central Valley winter run Oncorhynchus tshawytscha	E	E	Rivers and streams, including the Sacramento River and Big Chico Creek.
Chinook salmon - Central Valley spring run *Oncorhynchus tshawytscha*	T	T	Rivers and streams, including the Sacramento River and Big Chico Creek.
Chinook salmon - Central Valley fall/late fall run *Oncorhynchus tshawytscha*	CSC	C	Rivers and streams, including the Sacramento River and Big Chico Creek.
Central Valley steelhead *Oncorhynchus mykiss*	---	T	Rivers and streams, including the Sacramento River and Big Chico Creek.
Sacramento splittail *Pogonichthys macrolepidotus*	CSC	---	San Francisco Bay Delta and associated rivers and streams, including the Sacramento River and Big Chico Creek.

Source: CNDDB 2003

Chinook salmon and Central Valley steelhead are anadramous fish that spend their adult lives in the ocean and return to freshwater to spawn. The three runs of chinook salmon correspond to when the adults enter freshwater to begin their spawning migration. Chinook salmon and steelhead spawn in streams where females deposit eggs in depressions in gravel spawning beds. All three chinook salmon runs and Central Valley steelhead are known to migrate through the project area to spawning habitat upstream. Aquatic habitats in the project area can also provide important rearing habitat for juveniles (Big Chico Creek Watershed Project 2000).

Critical habitat for winter-run chinook salmon, designated in 1993, includes the Sacramento River and its tributaries (58 FR 33212-33219). In 2000, Critical Habitat was also designated for spring-run chinook salmon and Central Valley steelhead (65 FR 7764-7787). However, the U.S. District Court of Columbia approved a consent decree withdrawing this designation in 2002. The decree was in response to litigation challenging the process by which the National Oceanic and Atmospheric Administration (NOAA) Fisheries, previously known as

National Marine Fisheries Service, established critical habitat. This Critical Habitat designation had included all river reaches accessible to the species in the Sacramento River and its tributaries. On September 29, 2003, NOAA Fisheries published the Final Rule amending the Code of Federal Regulations to withdraw the critical habitat designations that had been vacated by the court order.

Sacramento splittail were historically widely distributed throughout much of the Central Valley, but dams and diversions have prevented them from many upstream reaches, and current population is concentrated in the Delta region. However, during wet years, they migrate further upstream, and several adults were observed in Mud Creek and Kusal Slough in 1996 and 1997 (Maslin et al. 1997). Sacramento splittail require flooded vegetation for spawning and rearing and are typically found in areas subject to regular flooding. Riparian vegetation in the project area that is prone to flooding provides potential splittail spawning and rearing habitat.

Cultural Resources

Bidwell-Sacramento River State Park and its vicinity have been occupied and used by diverse peoples for thousands of years. The varied natural setting and accessibility to other areas of the valley, the Sierra Nevada foothills, and the coastal regions have attracted a wide range of native and immigrant cultural groups. Evidence for prehistoric and historic patterns of land use, however, are not frequently encountered within the Park and few systematic cultural resource investigations have been conducted within Park boundaries. Topography, vegetation, water sources, and the ease of waterway and overland transportation to a much wider geographic region make it likely that the area was heavily utilized throughout prehistoric and early historic times. Given such a landscape, it is almost certain that undocumented archaeological sites, features, and artifacts are present within and in the immediate vicinity of the Park. As such, encountering such resources during ongoing and future development and utilization of the Park needs to be addressed if these resources are to be preserved for future generations.

Patterns of historic and prehistoric land-use and activities within the Park and the surrounding area have been dictated to a great extent by the nature of the area's geomorphology and the biotic resources that are found in this unique and dynamic setting. The Sacramento River and its associated tributary creeks, while constituting a great attraction for settlement and resulting in the deposition of many cultural remains, has also affected those very same sites through heavy erosion and the meandering of river and stream courses over centuries. Consequently, it is not possible to discuss the nature of cultural resources in the area without first examining the very nature of the river system itself.

Three Sacramento Valley geomorphic regions (i.e., floodplains and natural levees, flood basins, and low alluvial plains and fans) are located within and in the area of the park (Bryan 1923; Hinds 1952:145-157; Poland and Evenson 1966:239). Prior to the heavy placer gold mining operations of the 19th and 20th centuries and large-scale reclamation projects, several of the perennial and intermittent streams (e.g., Butte and Big Chico creeks) were

prevented from flowing into the Sacramento River by natural levees that bordered the river. These water courses drained into the valley floor, eventually dispersing in tule marshlands bordering the main river or in the flood basins (Thompson 1961:299; Warner and Hendrix 1985:5.8-5.9 in Bayham and Johnson 1990:20). It was the rich and diverse floral and faunal species fostered by these marshland environments that attracted both Native American and early historic populations.

Historic aerial photographs coupled with sediment analysis of the Sacramento River floodplain provide evidence of a dynamic system in a state of constant change. The area west of Pine Creek, and the west side of the Sacramento River opposite Mud and Big Chico creeks has seen numerous changes in the river channel over the last 120 years (Larsen et al. 2002:14-16) (please refer to Exhibits 2-8A to 2-8C). Some of these channel shifts resulted in prominent landforms that are visible today within the park and the surrounding area. Pine Creek Bend (Dunning Slough) in particular, can be seen changing and steadily migrating downstream throughout the late 1800s and well into the 20th century. Between 1870 and 1920, the Jenny Lind Bend, located between Pine and Big Chico creeks, also migrated downstream and during the late 1800s the ever-shifting river channel formed the area known as the Indian Fishery. Coupled with heavy historic mining and reclamation impacts to the river channel and the surrounding floodplain areas, the constant channel migrations of the Sacramento River and nearby creeks have likely obliterated many historic and prehistoric sites.

Cultural Setting

In order to place the prehistoric and historic resources of Bidwell-Sacramento River State Park into a broader context, they need to be discussed within a larger cultural framework. The presence of a variety of natural resources, topography, and proximity to important transportation routes made the area an ideal location for prehistoric and historic settlement. Consequently, although few sites, features or artifacts have been formally recorded within the Park, many such resources are likely present within and in the vicinity of the Park.

Prehistoric Archaeological Context

Archaeological investigations within the Park and in the general area have been limited and as a result, the prehistory of the region is somewhat poorly understood. The first scientific studies relevant to the Park and the general region occurred in 1907 when the University of California, Berkeley conducted reconnaissance projects in the Tehama and Red Bluff areas (Nelson 1907). Little else in the way of academic research was conducted in the region until the 1950s when various large-scale water projects began construction. The River Basin Survey resulted in a considerable body of research prior to the construction of a number of large water projects. One of the most important portions of this study included extensive inventories and excavations of prehistoric sites for the Oroville Dam (Treganza 1954). Treganza also conducted salvage excavations at prehistoric sites prior to the construction of the Redbank Reservoir in nearby Tehama County (Treganza 1954). Investigations by Chartkoff and Chartkoff (1983); at the Patrick Site (4-But-1), east of the park, built upon the

Exhibit 2-8A Historic Change in the Sacramento River Channel Pine Creek

Exhibit 2-8B Historic Change in the Sacramento River Channel Pine Creek Bend

Exhibit 2-8C Historic Change in the Sacramento River Channel Big Chico Creek

prehistoric cultural sequence developed for the Oroville vicinity first proposed by Olsen and Riddell (1963) (based in part of Treganza's 1953 work) which was further updated and expanded by Ritter (1970) and Kowta (1988).

Apart from the more broad-based findings of the work of Treganza, Charkoff and Chartkoff, Riddell and Olsen, Ritter and Kowta, more locally focused archaeological investigations have occurred in the immediate vicinity of Bidwell-Sacramento River State Park. These include the excavations conducted by Bayham and Johnson (1990) at the CA-Gle-105; the remains of a small summer camp occupied during the Early/Middle Horizon (ca. 3000 years before present [BP]), and again following a hiatus around 2000–2500 years ago. Deal (1987), reported on research on the site of CA-But-288, east of the Sacramento River and west of Pine Creek that revealed evidence for shifting subsistence strategies over time.

Along with numerous cultural resource management studies that have been performed in the general area, the results of these investigations constitute the bulk of what is known regarding early Native American cultural sequences in the region. However, while relatively little may be known about specific variations in early Native American subsistence, technological, and ritual practices, broad patterns of material culture have been documented over large geographic regions in California, including the area around Bidwell-Sacramento River State Park.

The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (12,000-8000 BP). Social units are thought to have been small and highly mobile. Known sites have been identified within the contexts of ancient pluvial lake shores and coast lines evidenced by such characteristic hunting implements as fluted projectile points and flaked stone crescent forms. Prehistoric adaptations over the ensuing centuries have been identified in the archaeological record by numerous researchers working in the area since the early 1900s, as summarized by Fredrickson (1974) Moratto (1984) and White (2003).

Beardsley (1948) and Lillard, Heizer and Fenenga (1939) and others conducted numerous studies that form the core of our early understanding of upper Central Valley archaeology. Little has been found archaeologically which dates to the Paleo-Indian or the subsequent Lower Archaic time periods (White 2003:11-12). The lack of sites from these earlier periods may be due to high sedimentation rates, which have left the earliest sites deeply buried and inaccessible. However, archaeologists have recovered a great deal of data from sites occupied by the Middle Archaic period (5000-3000 BP). During this time, the broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Subsistence economies were more diversified, possibly including the introduction of acorn processing technology. Human populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established, primarily along major waterways. The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (3000-1500 BP). Archaeological evidence suggests exchange systems became more complex and formalized

and evidence of regular, sustained trade between groups was seen for the first time (White 2003:Fig. 4).

Several technological and social changes characterized the Emergent Period (1500-150 BP) when the bow and arrow were introduced, ultimately replacing the dart and atl-atl. Territorial boundaries between groups became well established and were recorded in early historic and ethnographic accounts. It became increasingly common that distinctions in an individual's social status could be linked to acquired wealth. Exchange of goods between groups became more regularized with more goods, including raw materials, entering into the exchange networks. In the latter portion of this period (500-200 BP), exchange relations became highly regularized and sophisticated. The clamshell disk bead became a monetary unit for exchange, and increasing quantities of goods moved greater distances just prior to large-scale European settlement of California (White 2003:13-14).

Ethnographic Context

Ethnographically, the Sacramento River area in the vicinity of Bidwell-Sacramento River State Park was inhabited primarily by the Maidu (also referred to as the Konkow or the Mechoopda in the vicinity of the Park) who controlled extensive territory in the region, particularly on the east side of the Sacramento River (Dreyer 1984:41, 43, White 2003:21). The most extensive documentation of the Maidu was compiled by Dixon (1905), with other works by Hill (1978), Kroeber (1925, 1932), Riddell (1978), and Voegelin (1942).

The name Konkow, derived from the anglicized version of the native term koyo-mkawi, meaning "meadow land," refers to peoples whose territory included sections of the Sacramento Valley floor and portions of the Sierra foothills east of the present-day cities of Chico and Oroville (White 2003:21, Fig. 11). Formal delineations of the territory may have included prominent physiographic features and landforms although any certainty as to the early historic-period boundaries have been lost through the decimation of the tribe through disease and the removal of the people from their traditional lands during the 19th century. In general, such boundaries may not have been as hard and fast as reported in ethnographic accounts as extensive trail systems existed within the valley and foothill regions that connected the Konkow with the Maidu and other tribes throughout northern and central California.

With a few notable exceptions, the lifeways of the Konkow differed little from their neighbors in the valley and in the Sierra foothills to the east. Probably the main difference, other than linguistic variation occurred in the spiritual realm as the Konkow adhered to the ritual and belief systems associated with the Kuksu cult involving the impersonation of deity figures (White 2003:21). Many other groups in the area did not practice these rituals although the Nisenan and other non-Maiduan central California peoples did (Dixon 1905:322).

Konkow settlement conformed to a "village community" pattern which served as the only formal political structure of the tribe (Kroeber 1925:398). Village communities, which consisted of several closely spaced small settlements and a larger village containing a semi-subterranean earth-covered ceremonial lodge, were autonomous and self-sufficient units

(White 2003:21. Individual communities probably numbered around 200 inhabitants and "owned" or controlled specific territories in which hunting, gathering, and fishing areas were considered common property. The most politically influential man of each community lived in the central village. The head-man acted as an advisor and spokesman for his group although he possessed little in the way of concrete power. This individual was not selected by members of the village community nor was the position hereditary. Rather, the head-man was chosen by the village shaman with the aid of various messenger spirits who could also remove him as they saw fit (Dixon 1905:223-224).

Konkow economic and subsistence patterns were largely based on a seasonal cycle that involved residence in winter village sites in the valley and summer journeys into the mountains for hunting. In the spring, various types of roots, stems, leaves, seeds, and fruits were gathered in large quantities to be dried for winter consumption (Dixon 1905:187). As with many Native American groups in California, the acorn, gathered from a variety of oak species, formed the staple food of the Konkow diet.

In general, Konkow and Maidu life remained unchanged for generations until a disease epidemic, possibly malaria, in 1833 decimated tribes throughout central California. The Konkow population and cultural systems probably never fully recovered from effects of the epidemic by the Gold Rush period starting in 1849. These two factors combined to thoroughly disrupt their social, spiritual, economic, and subsistence patterns that the Konkow and Maidu were quickly reduced to a marginal existence in the region. Most illustrative of the impact these events had on the Konkow and the Nisenan neighbors are population estimates: in 1846, approximately 8,000 people from these groups were recorded. By 1910, that population had been reduced to less than 1,000 (Riddell 1978:386).

Historic Context

A detailed overview of history pertinent to the Bidwell-Sacramento River State Park area can be found largely in Hood and McGuire (1981). The historic context presented below, unless specified, summarizes this work and includes additional information provided by Rick McGaugh (DPR).

The earliest documented European entry into the region around the Park occurred in 1808. That year, Gabriel Moraga led an expedition that eventually traveled up the Feather River and then proceeded north along the banks of the Sacramento River, possibly to the current location of Butte City (Beck and Haase 1974). The purpose of Moraga's travels was largely to search for suitable locations for new missions and to further establish Spanish rule in the face of increasing foreign pressure, from the Russians in particular. Thirteen years would pass before another formal exploratory expedition into the region was launched. In 1821, Mexican governor Pablo Vicente de Sola sent Captain Luis Arguello with 55 soldiers to drive out reported American and Russian intruders from the areas north and east of San Francisco. Although Arguello's route is somewhat speculative, it appears he and his party may have eventually followed the Sacramento River north towards the general region of the Park.

While Hudson Bay trappers probably visited the Park area during the early decades of the nineteenth century (Mansfield 1918:36), the next major exploratory or emigrant group to venture into the area of the Park was the Charles Wilkes expedition, led by Lieutenant George Emmons. This party led a group of emigrants into California from the Columbia River, passing south along the west bank of the Sacramento River in October of 1841 (Bancroft 1886:Vol. XXI:243-45). Lansford W. Hastings, (best known for his scouting of the "Hastings Cut-off" in Utah that eventually doomed the Donner Party) and Joseph B. Chiles, led an emigrant party into California, passing by the Park in 1843. This was the same year that John Bidwell, who would have a dramatic impact on the area, first viewed the area surrounding Chico Creek.

One of the most important series of events in shaping the economic and cultural landscape in the area of the Park during the nineteenth century was the formation of Mexican land grant ranchos. In 1844 three such grants were issued and led to the establishment of several prominent ranchos. Rancho de Farwell, granted to Edward A. Farwell, was located to the south of the Park; Rancho Arroyo Chico, which included some lands now occupied by the Park, was awarded to William Dickey; and Rancho Capay to the west of the Park was granted to Josefa Sotao. John Bidwell, who had supervised some gold mining operations for William Dickey, purchased Rancho Arroyo Chico in 1849 and by 1852 he had 200 to 300 acres under cultivation.

While wheat was the primary crop during the early agricultural period, the crop was slowly replaced with orchards between 1883 and 1900. The prominence of agriculture in the region and the profitability of the large-scale operations was soon reflected in transportation improvements and innovations in the area that continued to be established well into the 20th century. One notable example of the mutually supporting industries can be seen in David Reavis, who acquired some 12,000 acres of the Farwell Grant and soon had over 7,000 acres sown in wheat in the 1870s. In part to aid in the transportation of goods to and from his property, he established Reavis Ferry, which crossed the Sacramento River just north of Chico Landing. Later river crossings included the Chico Free Bridge which was first erected in 1882. Flooding destroyed the bridge at least once in 1889, but it was quickly rebuilt and subsequent replacements occurred in 1894, 1901, and 1913.

While various ferries and river crossings facilitated local commerce and transportation, bringing the vast agricultural output of the region to market relied chiefly on river-borne, and eventually railroad transit. By the late 19th century, river navigation contributed to the viability of the vast rancho holdings, and it was during this time that Chico Landing situated near the confluence of Big Chico Creek and the Sacramento River became a substantial link in the shipment of agricultural products from the Bidwell and Richard J Walsh ranches in particular. As competition to serve these and other large ranch and farm enterprises increased, the principal steamboat owners formed the California Steam Navigation Company in 1854, which basically controlled navigation on the river north of Sacramento.

With completion of the California and Oregon Railroad to Chico in July of 1870, a faster and more efficient means of bringing produce and cattle to market came with it. Although

railroads were being built in the Central Valley of California during the 1850s and 1860s, rail lines were not built into the vicinity of the Park until the early 1870s. The California and Oregon Railroad (a subsidiary of the Central Pacific) finally extended its lines from Marysville to Chico in the summer of 1870 (White 2003:50-51). As the area became more connected by rail to Sacramento, commercial river traffic soon decreased. One of the more notable lines in the area was the Northern Electric Rail, which connected Chico directly with Sacramento. This line ceased to exist as a separate company in 1921 when it was absorbed by the Southern Pacific Railroad, which still operates in the area today as the Union Pacific Railroad.

Regulatory Context

The California Environmental Quality Act (CEQA) offers guidelines regarding impacts on historic and prehistoric cultural resources. CEQA states that if implementation of a project would result in significant impacts on important cultural resources, then alternative plans or mitigation measures must be considered. However, only significant cultural resources need to be addressed. State CEQA Guidelines define a significant historical resource as "a resource listed or eligible for listing on the California Register of Historical Resources" (CRHR) (Public Resources Code §5024.1). A historical resource may be eligible for inclusion on the CRHR if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or
- is associated with the lives of persons important in our past; or
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

In addition, the State CEQA Guidelines §15064.5 require consideration of unique archaeological sites. If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archeological resource as outlined in the Public Resource Code (§21083.2), it may be treated as a significant historical resource. Treatment options under §21083.2 of CEQA include a project that preserves such resources in place in an undisturbed state. Other acceptable methods of mitigation under §21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Public Resources Code §15064.5(e) of the State CEQA Guidelines requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. State CEQA Guidelines §15064.5(d) directs the lead agency to consult with the

appropriate Native Americans as identified by the Native American Heritage Commission and directs the lead agency (or applicant) to develop an agreement with the Native Americans for the treatment and disposition of the remains.

For historic structures, State CEQA Guidelines §15064.5(b)(3) indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), shall mitigate impacts to a level of less than significant.

Significant Resource Values

Numerous sources were contacted and consulted in order to gather information regarding the existing conditions and cultural resources that may be located within the Park. These included State Parks files and library resources located at the Chico District Office, Resources Department in Sacramento, and the West Sacramento Library. A records search was conducted at the Northeast Information Center at CSU Chico in February of 2003. Historic maps consisted of GLO plat maps, including Sacramento Valley 1844, Rancho Capay 1858, Rancho Arroyo Chico 1859, and historic Butte County maps dated 1886, 1894, 1901, and 1913. Rick McGaugh, with Bidwell-Sacramento State Park, also shared information regarding resources within or which are suspected to be within the Park.

Input to the General Plan was solicited from the Native American Heritage Commission, and the Mechoopda Indian Tribe of Chico. A review of the Sacred Land files by the Native American Heritage Commission did not reveal the presence of sensitive resources within Bidwell-Sacramento River Park. In a response to the General Plan survey by the Mechoopda Indian Tribe of Chico, their representative expressed several concerns regarding the management direction of the park. They would like to see fewer restrictions on cultural activities that include, but are not limited to, increased access to plant resources and cultural sites, particularly basketry materials, and the preservation of archaeological sites.

A small number of cultural resource inventories have been conducted within the park but have met with only limited success in identifying archaeological resources associated with the prehistoric and early historic eras. Archival research, however, indicates a rich historic relationship between early agriculture, and development within the region and sites, features, and artifacts associated with these periods and activities likely exist within the Park and the immediate vicinity.

Inventories conducted thus far have primarily been limited to those associated with transportation, reclamation, and recreation projects. While a large portion of the plan area has not been inventoried, studies have been conducted within approximately 50% of the Park, as currently defined. These investigations are summarized in Table 2-9, and are illustrated in Exhibit 2-9. The entire Irvine Finch River Access was inventoried by the Department of

Transportation as part of an assessment for a proposed bridge replacement on SR 32. Small portions of the Indian Fishery, Pine Creek Landing, and Big Chico Creek Areas were inventoried for various projects (Jones and Stokes 1996, Hood and McGuire 1981, Johnson 1975).

Table 2-9
Previous Cultural Resource Investigations Conducted Within and Near Bidwell-Sacramento River State Park

Report	Author / Date	NEIC No.
Cultural Resources Survey for the US Sprint Fiber Optic Cable Project, Oroville, California to Eugene, Oregon	Minor and Underwood (1987)	827
Cultural Resources Inventory Report for the M&T Ranch/Parrott Pumping Plant and Fish Screen Project, Butte County, California	Jones and Stokes (1996)	B-L-633
No Title	Manning (1983)	B-L-574
Archaeological Evaluation of a Proposed Bridge Replacement and Approach Realignment on SR 32, Glenn and Butte counties, California	Department of Transportation (1978)	B-168
Archaeological Reconnaissance of 26 Erosion Sites along the Sacramento River, Chico Landing to Red Bluff, Butte, Glenn, and Tehama counties, California	Johnson (1975)	B-150
Bidwell River Park Project (Chico Landing)	Hood and McGuire (1981)	--
Archaeological Reconnaissance of the Bidwell River Park	Hetherington (1980)	--
Cultural Resource Study for the Bidwell-Sacramento River Restoration Project, Butte County, California	Atchley (2000)	

Source: EDAW 2003

While more than 50% of the Park as currently defined has been inventoried for cultural resources, very little is known about the archaeology of the Park and the surrounding area. These investigations have failed to identify resources within the current Park boundaries, but have located six prehistoric sites (CA-But-12, CA-But-189, CA-But-191, CA-But-300, CA-But-402, CA-But-717) and an historic water transmission facility (CA-But-1352) within one-mile of the Park.

Exhibit 2-9 Archaeological Survey Coverage

11x17 pg 1

Exhibit 2-9

11x17 pg 2

Historic data indicates that the course of the river has changed dramatically since the middle and latter decades of the 19th century, most likely resulting in complete loss of integrity of the historic resources mentioned in previous documents (e.g. Bidwell Ferry, Chico Landing, Reavis Ferry, Chico Free Bridge). Archives suggest that the Bidwell Ferry was located just south of the confluence of the Sacramento River and Pine Creek. Because this confluence has been migrating south, it seems reasonable that any archaeological remains of this crossing, if present, would be situated north of the current confluence. Likewise, through time the course of the river has moved slightly west from the Chico Landing and Big Chico Creek Areas, suggesting that any remains of Chico Landing, Reavis Ferry, and Chico Free Bridge may be found slightly east of the current river channel.

Over the last 140 years, historic agriculture has resulted in the leveling and re-contouring of large portions of the Park and the region east and west of the river. Of the documented prehistoric archaeological sites near the Park, CA-But-189 appeared to have been severely affected by leveling in 1973 (Manning 1983). The site of CA-But-1353, a sparse scatter of flaked stone, and a late prehistoric/early historic era Konkow/Maidu occupation site (CA-But-717), may remain relatively intact with only minor disturbance. A record of recent visits assessing the condition of CA-But-12, CA-But-191, CA-But-300 and CA-But-402 was not on file at the Northeast Information Center. The single historic site recorded within the vicinity of the Park consists of the remains of a water pumping and intake structure, pump house, and small residence located on Big Chico Creek. This site is still extant and appears largely undisturbed from the time of its original documentation.

Additional resources, not formerly documented within the current Park boundaries include the location of the Giannelli Bridge; a rotating draw bridge, situated at the Sacramento River-SR 32 crossing. Remains of a Sea Scout station related to the World War II home defense effort is situated at the Pine Creek Landing. Another site that may be located near the current Park includes the remains of the Tyler Dance Hall, dating to the early 1900s (McGaugh, pers. comm., 2002; McGaugh et al. 1997).

Aesthetic Resources

The aesthetic character of the Park is based on a set of physical resources that define the landscape, viewing opportunities the Park provides to visitors, and the existing noise environment.

Visual Resources and Scenic Characteristics

The Park is a fragmented sample of riverine landscape, which is a diminishing natural and visual resource in California. Only isolated or fragmented remnants of this resource remain today. At the Park, viewers are reminded of a beautiful and important part of the state's natural heritage. The visual resources that define the scenic character of the Park are described below.

- Oak-Woodland at Indian Fishery. The oak woodland at the Indian Fishery area is a rare example of a climax river community, representing the final stages of succession of the river's floodplain. Most of this habitat in California has been replaced with agriculture.
- Oxbow Lake at Indian Fishery. The isolated oxbow lake at the Indian Fishery area was originally part of the main river channel. The surrounding plant communities continue to encroach upon the lake and could eventually take over. This lake supports a wide variety of plant and wildlife and is an educational example of river dynamics and plant community succession. Herons, ducks, hawks, owls, otter, beaver, muskrat, and the western pond turtle can all be viewed here by the casual visitor. This area also provides an excellent setting for photographers and artists.
- Riparian Forest at Indian Fishery. The lush, dense vegetative cover along the river in the Indian Fishery subunit is typical natural growth along banks of undisturbed watercourses. This vegetation provides visual buffer from neighboring agricultural, industrial, and urban activities, maintaining an uninterrupted visual experience of the natural scenery.
- Big Chico Creek Confluence. The confluence of Big Chico Creek and the Sacramento River provides an aesthetically pleasing riparian setting. In addition, the Big Chico Creek area has heavy riparian forest vegetation, similar to Indian Fishery subunit, and a large open gravel bar, which illustrates the successive stages of riparian forest formation.

Viewsheds

Views of the river and the visual resources along the river may be viewed by boaters on the river and by visitors on river banks. Because of the thick vegetation along the river and the relative flatness of the subunits, views from within the subunits are generally limited to the river and the riparian vegetation along it. Expansive views of the river are limited by its meandering nature.

The area between the Big Chico Creek Riparian Area and the Chico Landing area of Indian Fishery is generally known as the "washout" area. This is the portion of River Road that was washed out in a flood event and remains gravel today. Views from this area provide a unique panorama of the Sacramento River looking upstream. Herons, egrets, kingfishers, osprey, pelicans, cormorants, and other birds generally associated with watercourses can be seen from this location.

Designated Scenic Areas and Routes

None of the roadways providing direct access to the Park are designated state scenic highways. Only one highway segment in Butte County, SR 70 to the east, is an eligible state scenic highway, but it is not officially designated at this point (Caltrans 2003). Similarly, no roadways in the project area are classified as a National Scenic Byway (DOT 2003).

The Sacramento River is not designated as wild and scenic river under the federal and state Wild and Scenic Rivers acts (Public Law 90-542, as amended, 16 U.S.C. 1271-1287 and California Public Resources Code, Section 5093.50 – 5093.70, respectively).

NOISE

Noise is generally defined as sound that is loud, unpleasant, unexpected, or disagreeable. Federal, state, and local governments have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise. The federal government regulates noise levels in the work place, near aircraft, and for certain products. The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land use compatibility criteria. Local communities generally regulate land use/noise level compatibility by establishing allowable noise levels on private property and levels associated with the use of certain types of sources.

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. The three most commonly used descriptors are L_{eq}, L_{dn}, and CNEL. The energy equivalent noise level, L_{eq}, is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise. The day-night average noise level, L_{dn}, is the 24-hour average of the noise intensity, with a 10 A-weighted decibels (dBA) "penalty" added for nighttime noise (10 p.m. to 7 a.m.) to account for the greater sensitivity to noise during this period. CNEL, the community equivalent noise level, is similar to L_{dn} but includes an additional 5-dBA penalty for evening noise (7 p.m. to 10 p.m.). Regarding increases in noise levels, knowledge of the following relationships will be helpful in understanding this report (EPA 1971):

- Except in carefully controlled laboratory experiments, a change of 1 decibel (dB) cannot be perceived by humans.
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
- A 10-dB change is subjectively heard as approximately a doubling in loudness and would almost certainly cause an adverse change in community response.

Noise can be generated by a number of sources, including mobile sources, such as boats, automobiles, and trucks, and stationary sources, such as construction sites, and parking lots. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3.0 to 4.5 dB per doubling of distance; whereas, stationary source noise typically attenuates at a rate of approximately 6 dB per doubling of distance. The rate generally depends on the

atmospheric conditions, types of ground surface, as well as the number or type of objects located between the noise source and the receiver.

The Park is located in a rural setting and is known for its serene and generally quiet nature. Typical noises heard at the Park include vehicular traffic along River Road and State Route (SR) 32 and in parking areas serving the Park, which contribute to the ambient noise environment. In addition, there are intermittent noises associated with recreation activities, namely engine noise from motorcraft, and from nearby agricultural operations.

VISITOR USE AND OPPORTUNITIES

Visitor use and opportunities refer to those resource values at the Park pertaining to recreation and interpretation/education. As a State Park, these values are important considerations in future Park planning.

Recreational Resources

The river is the primary recreational resource in the Park. The riparian vegetation and trail system also provides for nature-oriented viewing. Developed facilities at the Park, such as day-use areas and boat launches, provide for additional land-based recreational activities (e.g., picnicking) and facilitate water-based activities (e.g., boating, fishing). Currently, only day-use facilities are available in the subunits on the east side of the river, with limited, en-route overnight camping opportunities at Irvine Finch on the west side. With limited overnight facilities, recreation use at the Park is generally oriented towards day–use activities. A description of existing recreational activities and facilities at the Park is provided below.

Recreational Activities

Based on its proximity to the Sacramento River, recreation activities at the Park are generally water-oriented, although significant land-based activities, such as nature walks, sunbathing, bicycling, picnicking, hiking, camping, and wildlife viewing, are available on the lands adjacent to the river. The most common recreation activity at the Park is fishing, which visitors enjoy year-round. In fact, based on anecdotal data, fishing attracts approximately 60% of all Park visitors. Fish species in the river generally targeted by fisherman include king or chinook salmon, rainbow/steelhead trout, striped bass, shad, largemouth bass, smallmouth bass, white catfish, channel catfish, sturgeon, carp, and Sacramento pikeminnow, depending on the season. In the oxbow lake, bluegill, crappie, largemouth bass, and catfish are popular species for fishing. Fishing activity is heaviest during the salmon season, from July through December. The second most popular activity is recreational paddling and floating on the river, including the use of kayaks, canoes, rafts, and inner tubes. The tubing run between the Irvine Finch River Access area and the Big Chico Creek gravel bar attracts thousands of visitors during peak holiday periods (i.e., Fourth of July and Labor Day). Ski-boating is also popular activity and supports related activities such as water-skiing and wakeboarding. During the summer season, swimming is another popular activity at the Park. Other recreational activities include picnicking, nature viewing, biking, hiking, camping, and

sunbathing. Hunting is not allowed in the Park, although it is a permitted use on nearby lands managed by the CDFG.

Recreation Facilities

As described above, the facilities at the Park are geared toward day-use activities, although there are limited overnight camping facilities available. Developed recreational facilities at the Park are shown in Table 2-10.

In summary, two subunits in the Park have boat launching facilities (i.e., Irvine Finch and Pine Creek Landing) and three subunits contain picnic facilities (i.e., Irvine Finch, Pine Creek Landing, and Indian Fishery). There is a self-guided nature trail (approximately ¾-mile loop) with a printed trail guide handout at Indian Fishery. The Irvine Finch River Access area provides an en-route style camping that accommodates recreational vehicle (RV) use at the existing parking area. There are currently no other developed camping sites at the Park.

Patterns and Levels of Recreational Use

Attendance Levels

Table 2-11 demonstrates historic attendance levels at the Park. The Park received a total of 141,826 visitors during the 2000-2001 fiscal year. Nearly all of the visitors were day users, and most of them were non-paying visitors. The attendance data has shown a steadily growing trend in the number of visitors to the Park, with exceptions during the period 1997-1998. Low attendance during this period was likely caused by extreme flood conditions that affected Park accessibility and quality of recreation activities.

Recreation Use Patterns

The California State Parks Visitor Survey system, which includes nearly 35,000 surveys since 1996, is the primary tool used to collect information on recreational use levels and patterns for units in the State Park system. However, the Park is not included in the Visitor Survey system process, because the Park has no central location for disseminating surveys. As a result, the details regarding the visitors and the recreational use levels and patterns at the Park are based on observations by Park staff.

Up to 60% of visitors come to the Park to fish for salmon, shad, and other popular game fish during the fishing seasons. Non-motorized boaters who use inner tubes, rafts, canoes, and kayaks, make up the second largest group; most boaters come during the holiday weekends, although boaters may be found during all of the warmer months. Other activities include biking, hiking, picnicking, and nature viewing.

The Park is most heavily used during the salmon and shad fishing seasons between April and December. The single best attended days occur during the Fourth of July and Labor Day weekends, when up to 20,000 people may gather in the Park for inner tubing and associated activities.

Table 2-10
Existing Recreational Facilities

Subunit	Boat Ramps/ Launches	Picnic Areas	Trails	River Access	Camping	Fishing
Irvine Finch River Access	Yes (Concrete boat ramp served by approximately 250 parking spaces)	Yes (4 picnic tables, including 2 ramada-covered sites and 1 ADA accessible site)	No	Yes	Yes (6 en-route camp sites with BBQ grills)	Yes (boat fishing only)
Pine Creek Landing	Yes (Concrete boat ramp served by approximately 20 boat trailer parking spaces)	Yes (6 picnic tables at two separate locations, 3 are planned to be ramada-covered sites and 1 ADA accessible site)	Yes (Short trail along Pine Creek)	Yes	No	Yes (boat and bank fishing)
Indian Fishery	No (abandoned boat launch at Chico Landing)	Yes (8 concrete picnic tables)	Yes (Self-guided loop trail [3/4-mile] served by numbered posts and trail guide)	No (access is available to the ox-bow lake)	No	Yes (bank fishing only)
Big Chico Creek Riparian Area	No	No	Yes (From parking area to gravel bar)	Yes	No	Yes (bank fishing only)

Source: McGaugh et al.1997

Table 2-11 Attendance Levels						
Visitor Type	1996	1997	1998	1999	2000	2001
Paid Day Use	16,197	10,081	0	12,189	17,529	20,739
Free Day Use	105,453	9,942	1,384	73,777	115,231	119,081
Overnight	0	0	766	0	0	5
Total	123,646	22,020	4,148	87,965	134,760	141,826
Note: Based on fiscal years (i.e., 1995-1996 fiscal year shown as 1996) Source: Sullivan 2003						

Concessions

Concession opportunities are often associated with recreation developments at State Park units. Because existing recreation opportunities are limited in the Park and are focused on day-use activities, there are no concession services at the Park, although short-term concessions have been used at the Park in the past to rent water-oriented floating gear. As the Park develops, there may be opportunities to use concession services in the future.

Interpretative and Educational Resources

There are substantial opportunities for interpretation and education at Bidwell-Sacramento River State Park. In an effort to plan for these opportunities, an *Interpretive Prospectus* (1997) for the significant natural, cultural, and recreational resources has been developed for the Park; a description of the main features (i.e., topics and themes) of the *Interpretive Prospectus* is presented in Chapter 3 (Park Plan) and is summarized in Table 2-12 below.

Implementation of the prospectus has involved only minor improvements to enhance or develop interpretative displays, tours or other such facilities or programs.

Existing Interpretive and Educational Facilities

The development of proposals included in the Interpretive Prospectus has been minimal to date. Existing interpretive/educational facilities consist of a notice/ interpretive panel for park rules at Irvine Finch, an interpretive display at Pine Creek Landing featuring the Bidwell Ferry site, interpretive fishing panels, and a printed trail guide available at the trailhead near the Indian Fishery day-use area.

Programs and Special Events

Currently, the Park serves as field lab for local schools. Two to three field trips per week are conducted by a Park aid. Natural science classes from California State University, Chico also visit the Park on a regular basis (McGaugh, pers. comm., 2003).

Table 2-12 Interpretive Themes and Recommended Facilities [1]			
Subunit	**Primary Theme**	**Secondary Theme**	**Recommended Facilities and Programs**
Irvine Finch River Access	Access to Recreation	▸ Safety in Recreation ▸ History of the River banks	▸ Interpretive Panels ▸ Special Events
Pine Creek Landing	Riparian Tributaries	▸ Habitat Flows into Habitat	▸ Interpretive Trail ▸ Interpretive Panels ▸ Brochures ▸ Canoe Interpretive Trail ▸ Interpretive Programs
Indian Fishery	Ox-bow Lakes are Dynamic	▸ Oak Woodlands ▸ The Indian Fishery Weir ▸ Steamboats and Dances	▸ Interpretive Trail ▸ Interpretive Panels ▸ Special Events ▸ Interpretive Programs
Chico Landing [2]	The River is the Laboratory	None	▸ Interpretive Trail ▸ Interpretive Panels ▸ Brochures ▸ Primitive Camp/ Teaching Laboratory
Big Chico Creek Riparian Area	Changing Face of the River	▸ The River Requires Stewardship ▸ Recreation and the Gravel Bar ▸ Safety in Recreation	▸ Interpretive Trail ▸ Interpretive Panels ▸ Interpretive Programs

[1] From Interpretive Prospectus (1997).
[2] Although not a separate subunit, interpretive considerations were developed for the Chico Landing area at Indian Fishery

Source: DPR 1997

2.1.5 Administration and Operations

It is also important to understand the administration and operations of the Park in developing future management strategies as part of the General Plan. Important considerations include, but are not limited to existing approaches to facility development, infrastructure, and Park and emergency service support.

Facilities and Infrastructure

Non-recreation facilities at the Park consist of various buildings/structures, signage, and utility appurtenances. Each of these categories is described in more detail below. Table 2-13 summarizes the existing non-recreation facilities at the Park.

Table 2-13 Non-Recreation/Interpretive Facilities				
Subunit	Administration	Restrooms	Information Signage	Other
Irvine Finch	No	Yes (One comfort station building with 4 flush restrooms)	Yes (Entrance station, entrance sign, park rules, interpretive fishing signs)	Yes (Concrete storage building, onsite septic system)
Pine Creek Landing	No	Yes (Portable restrooms and vault toilet being planned)	Yes (interpretive fishing signs)	No
Indian Fishery	Yes (Park office complex-modular structures)	Yes (Portable restrooms)	Yes (Entrance sign, Park rules, interpretive fishing signs)	Yes (Onsite septic system)
Big Chico Creek Riparian Area	No	Yes (Portable restroom)	Yes (Park rules, interpretive fishing signs)	Yes (entrance gate)
Source: EDAW 2003				

Buildings

Existing buildings at the Park are limited to administrative facilities at Indian Fishery and visitor-support facilities located at the Irvine Finch River Access area. There is no visitor center or employee housing at the Park.

Administrative Buildings

The Park is served by one administrative building complex located between the Indian Fishery day-use area and Chico Landing area. The administrative complex includes the Park office and a service yard for storing maintenance equipment and materials. The Park office consists of a small modular building and some small outbuildings. This area has historically been subjected to repeat flooding, and consequently the Park office has been elevated on cinder block supports in an attempt to avoid further damage.

Entrance Stations

There is one visitor entrance station at the Park, serving the Irvine Finch River Access area only. The entrance station monitors visitation to the Irvine Finch facility and serves as a fee-collection station, but it does not provide any interpretative or other visitor services. Because

it is located on the west side of the Sacramento River, it does not control or monitor access to the other subunits on the east side of the river.

Restrooms

There is a restroom building with four flush toilets located at the Irvine Finch facility. There are also flush restroom facilities at the administrative center at Indian Fishery. The rest of the subunits (i.e., Pine Creek Landing, Indian Fishery, and Big Chico Creek Riparian Area) are all served by portable restrooms (note: there are no restrooms or portable toilets located at the on the east side of the Big Chico Creek area). A vault restroom is currently planned at Pine Creek Landing.

Utilities and Services

Sewage and Water Treatment

The wastewater generated at the existing administrative center is treated by an onsite septic tank. Because the administrative center is located within the floodplain, this septic tank is designed to prevent accidental release during flood events. Similarly, wastewater generated at Irvine Finch is treated by a separate septic system, which was installed in 1988. This system has sufficient capacity so that the septic tanks have never needed to be pumped out. Wastewater generated at the portable toilets elsewhere in the Park is collected in holding tanks and disposed of at offsite locations. There are no public sewer connections or sewer lines at the Park.

Water Supply

The Park operates two water wells with pumps in order to provide water to the administrative center and to the facilities at Irvine Finch. The water provided at Irvine Finch meets standards for potable water, whereas the water provided at the administrative center is not required to meet such standards. There are two small bladder tanks at Irvine Finch and one at the administrative center, approximately 40 gallons each, that are used for water storage. There are no large water storage tanks in the Park.

High Voltage Power Lines

Electricity service is provided to the Park by Pacific Gas and Electric Company (PG&E). There are no known high-voltage power lines in the Park. The nearest power lines are located along River Road and on an adjacent Caltrans property. Underground telephone and electricity lines supply electricity to the Irvine Finch subunit and the administrative center at Indian Fishery. A pre-existing power line is also located on the Big Chico Creek Riparian Area, east of River Road.

Other Utilities

Propane is provided to the administrative center by contract vendors and is stored in an onsite propane tank. Telephone service is provided by SBC. An underground telephone line connects the administrative center to River Road.

PARK SUPPORT AND EMERGENCY SERVICES

There are no emergency service facilities at the Park. Emergency services for the Park are provided by local agencies as described below.

Fire Protection

The Park has experienced only two fire incidents since 1980. A fire incident in 1980 at Indian Fishery burned one-quarter acre of land prior to being extinguished by the Park Ranger. Another fire incident occurred at the parking lot at Pine Creek Landing; approximately 300 square feet of land were burned.

The Butte County Fire Department contracts with the California Department of Forestry and Fire Protection (CDF) to administer fire prevention and suppression in Butte County. The program includes full-time firefighters as well as a capably-trained contingent of volunteers who respond to every type of emergency. The CDF Butte County Unit, Station #43 is located in west Chico at 2544 SR 32 and would likely be the first to respond to a call for fire prevention or protection at the four subunits in Butte County.

The Hamilton City Volunteer Fire District provides fire protection and emergency medical services to the Irvine Finch subunit, which is located in Glenn County. The Hamilton City Volunteer Fire District can respond to fire emergencies at the Park within minutes.

Law Enforcement

Law enforcement services are provided concurrently by the Department and local law enforcement agencies, namely the Butte County Sheriff Department for all subunits located in Butte County and the Glenn County Sheriff Department for the Irvine Finch subunit in Glenn County. Park security is the primary responsibility of the Park Ranger serving the Park.

Medical Aid

Medical aid at the Park is provided first by the Park Ranger, who is required to be the emergency medical responder and is equipped with oxygen tanks, splints, and other basic medical devices. If necessary, paramedics may also be called upon to provide emergency medical services; paramedics can generally arrive at the Park within 8 to 10 minutes. There are no medical facilities in or adjacent to the Park. Patients requiring additional medical attention are transported by ambulances to the 24-hour emergency room at the Enloe Memorial Hospital in the City of Chico. Alternatively, patients may be transported by Enloe Flightcare helicopters.

MULTI-AGENCY COORDINATION

The Department relies on multi-agency coordination in overall operations and resource management efforts at the Park. This coordination is formalized in a Memorandum of Understanding (MOU) between the Department, U.S. Fish and Wildlife Service, and the California Department of Fish and Game established in 2001 (see Appendix E). It applies to lands within the Sacramento River National Wildlife Refuge (USFWS), Sacramento River Wildlife Area (CDFG) and State Parks, and includes future property acquisitions.

The purpose of the MOU is to is to formally document an agreement between these public land management agencies to manage, monitor, restore and enhance lands managed for fish, wildlife and plants along the Sacramento River in Tehama, Butte, Glenn, and Colusa counties. A secondary purpose is to prevent duplicative land management and property acquisition efforts.

2.2 PLANNING INFLUENCES

2.2.1 SYSTEM-WIDE PLANNING

System-wide planning deals with long-range, management level planning beyond the scope and scale of a single unit or District. System-wide planning will typically address issues and trends, needs and deficiencies, roles and responsibilities, or actions and opportunities for the entire State Park System. The Declaration of Purpose, Vision Statement, management goals and guidelines for each unit must be within the context of the Department Mission Statement and the state-wide directives described below.

CALIFORNIA STATE PARKS MISSION STATEMENT

The Mission of California State Parks is to:

> "Provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation."

STATEWIDE TRAILS PLAN

The California Recreational Trails Plan addresses the mission of the Department as it relates to the provision of high-quality recreation opportunities. It provides guidelines for future actions of the Statewide Trails Office Coordinator. The mission and vision pertaining to trails of the Department is as follows:

> Establish and maintain a system of trails and greenways that serves California's diverse population while respecting and protecting the integrity of its equally diverse natural and cultural resources. The system should be accessible to all Californians for improving their physical and mental well-being by presenting opportunities for

recreation, transportation and education, each of which provides enhanced environmental and societal benefits.

The trails plan serves as a guideline for establishing and maintaining Parks in California and integrates the State Parks trail programs with the local and private organizations that operate and maintain the trails. Moreover, it will serve as a planning and maintenance guide for pathways and bicycle trails in the Park.

Natural Communities Conservation Program

The Natural Communities Conservation Program (NCCP) developed by CDFG in 1991, is a unique California effort. NCCP provides regional planning strategies for the protection of plants, animals, and their habitats, while allowing suitable economic development. The primary objective of NCCP is to conserve natural communities at the ecosystem scale while accommodating compatible land use. There are no designed NCCP areas in the Park; however, this General Plan adheres to the principles established in the NCCP regarding the protection of biodiversity.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA), the federal law that prohibits discrimination on the basis of disability, is applicable to all actions by the states, including the preparation of state park general plans. In compliance with the ADA, the Department published the Access to Parks Guidelines, which were first issued in 1994 and last revised in 2001. The Access to Parks Guidelines details the procedure to make state parks universally accessible while maintaining the quality of park resources. Also included in the guidelines are recommendations and regulations for complying with the standards for accessibility. The Department has also published the *All Visitors Welcome: Accessibility in State Park Interpretive Programs and Facilities* (2003), which provides guidance on developing accessible interpretive programs and facilities.

California Heritage Task Force

Established in 1981 by the California State Legislature, the California Heritage Task Force (CHTF) was established to develop a set of policies and programs for the state's cultural heritage resources. In 1984, the CHTF Report was published as a guide to cultural resource management legislation writing.

Public Resources Code

California Public Resources Code Section 5019.50-5019.80, Classification of Units of the State Park System, provides guidelines for the designation of State Park units and guiding principles for State Park improvements. The Public Resources Code classifies different types of State Park units and provides guidelines for the upkeep and improvements of Park units. This code will be used as a reference to plan appropriate improvements within the Park.

2.2.2 Regional Planning Influences

Regional planning within the Department may encompass several units, an entire District or parts of two or more Districts. By focusing on the relationship among units, regional plans facilitate coordination, provide for greater consistency, create economic efficiencies, and allow for greater effectiveness of management of the State Park System. Regional planning creates greater effectiveness in general planning by considering priorities between and among units, such as coordination of interpretive media for several units that are linked thematically or geographically.

Other federal, state, and local agencies, as well as private and non-profit entities, are involved in regional planning efforts that are pertinent to the Park. The upper Sacramento River is subject to complex public ownership patterns, and consequently, diverse planning and management systems. Exhibit 2-10 shows public and non-profit land ownership in the project area. Public landowners in the vicinity of the Park include CDFG, USFWS, and the Reclamation Board. Other nearby properties are held by TNC and River Partners, which often transfer properties into public ownership.

Local and Regional Conservation Planning

Sacramento River Conservation Area

In 1986, the California State Legislature passed Senate Bill 1086, which calls for the development of a management plan for the Sacramento River and its tributaries to protect, restore, and enhance both fisheries and riparian habitat. The result of this effort was the Upper Sacramento River Fisheries and Riparian Habitat Management Plan published by the State of California Resources Agency in 1989. This management plan addresses a 222-mile stretch of the Sacramento River from Keswick Dam (north) to Verona (south), which is referred to as the Sacramento River Conservation Area (SRCA). The goal of the SRCA is to "*preserve remaining riparian habitat and reestablish a continuous riparian ecosystem along the Sacramento River between Redding and Chico and reestablish riparian vegetation along the river from Chico to Verona*." The Sacramento River Conservation Area Forum (SRCAF) is a conglomeration of local, state, federal, and private organizations aimed at implementing the actions necessary to achieve the goal of the SRCA. The guiding principles for the SRCA include: ecosystem management, flood management, voluntary participation, local concerns, bank protection, and information and education. The Park is located within the SRCA; therefore, planning for the Park's future needs to consider the management strategies developed for the SRCA.

Sacramento Wildlife Area Management Plan

In August 2002, CDFG initiated the development of a Comprehensive Management Plan for the Sacramento River Wildlife Area, portions of which are located adjacent to the Park, namely the Indian Fishery and the Pine Creek Landing subunits. The management plan, which will update CDFG's management strategy for the Wildlife Area, involves detailed inventory and analysis of the 13 units, extensive public outreach, and coordination with other

Exhibit 2-10 Public Lands

11x17 pg 1

Exhibit 2-10 Public Lands

11x17 pg 2

management agencies active in the plan area, including the Department. Upon finalization of the plan, it is expected that there would be no substantial changes in land use at the Wildlife Area and no new facilities are planned. This area would continue to be focused on conservation, allowing appropriate recreational opportunities, including hunting, fishing, hiking, wildlife observation, environmental education, and nature interpretation. The Sacramento River Wildlife Area is currently open to the public and recreation and public use is a major consideration in the planning effort.

Comprehensive Conservation Plan

The USFWS is in the process of developing a Comprehensive Conservation Plan (CCP) for the Sacramento River National Wildlife Refuge (SRNWR), a portion of which is located in proximity to the Park, between Irvine Finch and Pine Creek Landing. Public meetings were conducted during 2001 to gather information and to discuss ideas for the CCP. The CCP is expected to be completed in the Spring 2004 and will be available for public comment. It will guide management of the SRNWR for the next 15 years. Recreation uses being considered would need to be consistent with the SRNWR's mission to preserve, restore, and enhance riparian habitat for threatened and endangered species, and other wildlife and vegetation. Compatible recreation opportunities that will be considered in the SRNWR include hunting, fishing, hiking, wildlife observation, environmental education, and nature interpretation. Hunting may be restricted at the Pine Creek Unit of the SRNWR, based on potential land use incompatibilities; this issue will be open for public comment. Upon completion of the CCP, portions of the SRNWR may become accessible to the public, while other areas may need to remain restricted in terms of public access.

The Nature Conservancy

Recently, TNC, in conjunction with the USFWS, the California Wildlife Conservation Board and the California Department of Fish and Game, conducted a study to assess existing and potential public recreation uses, access, needs, and opportunities along a 100-mile stretch of the Sacramento River between Red Bluff and Colusa. The goals of the *Sacramento River Public Recreation Access Study* (2003) were: (1) to identify and characterize existing public access opportunities and needs associated with public recreation facilities and infrastructure throughout the study area, and (2) to identify and make recommendations for future public recreation access opportunities and management programs in the study area.

The results of this study and analysis of previous studies indicate substantial public interest in natural areas. Potentially attractive recreation uses along the Sacramento River include trail hiking, walking, hunting and fishing, camping, wildlife viewing, nature study, picnicking, boating, beach activities, attending outdoor cultural events, and visiting museums and historic sites. Regional trends indicate a continued interest in the traditional recreation activities of boating, fishing, and hunting. Additionally, other uses such as bird watching, wildlife viewing, and other nature observation activities are expected to increase 65% over the next 40 years. Some of the key suggestions and needs identified during the course of this study focused on the need to:

- improve the condition of boat ramps and other access points;
- provide more outreach, including handouts, kiosks, and visitor centers;
- provide maps and signage to assist in finding river access and services and to reduce trespassing;
- increase the number of facilities and amenities such as trails, picnicking and camping facilities, especially in the southern portion of the study area;
- provide recreation opportunities for the diversity of ethnic groups (primarily Caucasian and Hispanic) and interests in the study area;
- minimize conflicts between different recreation uses (e.g., boating vs. bird watching, hunting vs. hiking or fishing);
- increase coordination among land managers to improve the value of the recreation opportunities within the study area by planning together and sharing resources and expertise;
- improve coordination among law enforcement and resource agencies with regard to public safety services, including coordination for large annual recreation events;
- plan for the expected substantial population growth in the study area and region over the next decades; and
- coordinate public recreation access planning among the resource agencies, non-profit land trusts, private entities, local landowners, recreation users and other stakeholders in the study area to optimize results and minimize conflicts.

A number of recommendations came out of this study, including the proposed establishment of a "Pine Creek Preserve," which would consist of over 3,800 acres of conservation land held by federal and state agencies and non-profit land trusts in the Pine Creek/Hamilton City area. As such, it would involve management considerations at Bidwell-Sacramento River State Park. The Pine Creek Preserve could include a nature/visitor center and a river research center. The area is now a nearly contiguous dynamic river system complex of exceptional riparian forest, scrub, grassland and riverine wetland habitats, along with lands undergoing restoration. The area offers the opportunity to spotlight the compatibility of conservation and recreation uses in a highly visible and easily accessible location.

Local General Plans and Bicycle Plans

The Park is located in unincorporated portions of Butte and Glenn counties. While the Park is state-owned and thus not subject to the authority of the local jurisdictions, local jurisdictions have land use planning authority over some adjacent and nearby properties. As such, the proposed General Plan and the county general plans have indirect planning influence over

one another. The counties' bicycle plans are also pertinent to roadways that provide bicycle access to the Park.

Butte County General Plan

The Butte County General Plan was adopted over a period of several years, most elements being adopted in the 1970s. Elements in the General Plan that are most applicable to the Park include Land Use, Conservation, Open Space, Recreation, and Agriculture. The General Plan Land Use Element contains goals and policies for recreation facilities, open space, scenic areas, biological habitat, natural areas, archaeological resources, and flood hazards. The Conservation Element includes a discussion of flood control, soils and soil erosion, wildlife and fisheries. The Open Space Element addresses agricultural lands, timber land, water resource areas, wildlife habitat, and open space for outdoor recreation. State and Federal Recreational areas are discussed in the Recreation Element, and there is also an Agricultural Element, which would apply to surrounding and adjacent properties to the Park.

Butte County Bikeway Master Plan

The Butte County Area Governments, in coordination with the Butte County Public Works Department, prepared a Bikeway Master Plan for Butte County, which was adopted in September 1998. This document focuses on countywide bikeway connections, and it incorporates the proposed bike plans for each of the cities within the county. In the vicinity of the Park, the Bikeway Master Plan identified the need for Class II bike lanes on Chico River Road from the City of Chico to River Road (high funding priority), on River Road from Ord Ferry Road to SR 32 (high funding priority), and on SR 32 to the county line (medium funding priority). Class II bike lanes provide for a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted. Caltrans standards generally require a 4-foot (1.2-meter) bike lane with a 6-inch (150-mm) white stripe separating the roadway from the bike lane.

While these roadways are currently used by bicyclists, none of these bike lanes have been developed and no funding has been identified for these proposed bike lanes. Because the Bikeway Master Plan is more than 3 years old, a new plan must be adopted to qualify for funding. Currently, no update has been proposed by the Butte County Public Works Department, which is responsible for the update (Peplow, pers. comm., 2003).

Glenn County General Plan

The Glenn County General Plan was adopted in 1993. Unlike the traditional general plan, the Glenn County General Plan is divided into three major subject headings rather than elements. The General Plan contains land use classifications and goals and policies for each of the major subject headings: Natural Resources, Public Safety, and Community Development. The subject subheadings in the General Plan that are most applicable to the Park include Water Resources, Biological Resources, Cultural Resources, Flood Hazards,

Water Quality, Land Use/Growth, Transportation/Circulation, and Public Services and Facilities.

GLENN COUNTY BICYCLE PLAN

The Glenn County Bicycle Plan was adopted in 1997 to provide a safe, effective, and efficient use of a countywide bicycle system. In the vicinity of the Park, a Class III bike route has been proposed for SR 32 from the county line to SR 45 (low funding priority), a Class III bike route on County Road 9 from SR 32 towards the City of Orland (low funding priority), and a Class II bike lane on SR 45 from SR 32 to the Colusa county line (high funding priority). Class II bike routes have no delineation showing bicycle right-of-way. While Caltrans has not assigned minimum widths for Class III bike routes, 3 feet of additional pavement is desirable. Class III bike routes are generally identified by signs designating a roadway as part of a bikeway system. None of these bike lanes and routes have been developed or have been funded for future development.

OTHER PLANNING PROJECTS

Hamilton City Flood Damage Reduction and Ecosystem Restoration Project

The USACE and The Reclamation Board are in the process of developing and evaluating potential alternative plans to reduce flood damages and restore the ecosystem along the Sacramento River near Hamilton City. The project study area is bounded by the Sacramento River to the east and the Glenn Colusa Canal to the west and extends about 2 miles north and 6 miles south of Hamilton City; this area includes portions of the Park, namely the Irvine Finch subunit. The following description is based on the fact sheet prepared for the project (USACE 2003).An existing private levee ("J" levee) provides some flood protection to Hamilton City and surrounding area. However, it is not constructed to current engineering standards and is largely made of silty sand soil, and thus, is extremely susceptible to erosion and additional flood control measures are necessary to prevent flooding when river levels rise. Currently, the Sacramento River is actively eroding into the toe of the levee at the northern end of the study area. In addition, native habitat and the natural river function in the study area have been altered by construction of the "J" levee, including the conversion of the floodplain to agriculture and rural development. Further, construction of the "J" levee and hardening of the river bank and levee in several locations through the years (typically with rock) have constrained the ability of the river to engage in its natural processes.

An array of alternative plans to reduce flood damages and restore the ecosystem is currently being developed. Potential measures that comprise the alternatives, include, but are not limited to, flood proofing and/or relocating structures, constructing a new levee along an alignment setback from the river, and restoration of native vegetation and habitats. To date, a final preferred alternative has not been selected.

2.2.3 Demographics

Target Populations

The target population for the Park consists of the residents of the Butte and Glenn counties, which includes residents of the City of Chico, the largest population center in the immediate vicinity of the Park. However, the Park has the potential to draw visitors from other nearby counties, including, but not limited to Colusa County and Tehama County. These four counties represent the focus of the demographic profile shown here.

Existing Demographic Characteristics

The existing demographic characteristics of the region are shown in Table 2-14. In total, the current (2002) population in the four-county area is approximately 310,000 people. The median age of the plan area residents ranges 31.5–37.8years. The majority of the plan area is white, which includes the Hispanic/Latino population, the largest ethnic group in this area. Of the four counties, Butte County has the lowest Hispanic/Latino population. The median household income is in the low- to mid-$30,000s, which translates into a poverty rate of roughly 16 to 20%.

Table 2-14
Demographic Profile

County	Population (2002)	Median Age (2000)	% White (2000)	% Hispanic / Latino (2000)	Median HH Income (1999)	% Below Poverty Level (1999)
Butte	207,000 (0.8%)	35.8	84.5	10.5	31,924	19.8
Colusa	19,450 (1.6%)	31.5	64.3	46.5	35,062	16.1
Glenn	26,800 (0.0%)	33.7	71.8	29.6	32,107	18.1
Tehama	56,900 (1.4%)	37.8	84.8	15.8	31,206	17.3
Total	**310,150 (0.9%)**	--	--	--	--	--

Source: EDAW 2003

Table 2-15 shows projected population levels in the four-county regional area. The four local counties together are projected to experience average annual population growth of roughly 3.9% in the short-term (between 2000 and 2005). Population growth is expected to slow, in relative terms, between 2005 and 2020.

Table 2-15 Population Projections [1,2]					
County	2002	2005	2010	2015	2020
Butte	207,000 (0.8%)	235,000 (4.3%)	259,800 (2.0%)	281,200 (1.6%)	308,900 (1.9%)
Colusa	19,450 (1.6%)	24,200 (7.5%)[3]	29,200 (3.8%)[3]	33,900 (3.0%)[3]	39,200 (2.9%)[3]
Glenn	26,800 (0.0%)	31,800 (5.8%)	36,700 (2.9%)	41,300 (2.4%)	46,500 (2.4%)
Tehama	56,900 (1.4%)	56,700 (-0.1%)	71,500 (4.7%)	78,200 (1.8%)	85,100 (1.7%)
Total	**310,150**	**347,700 (3.9%)**	**397,200 (2.7%)**	**434,600 (1.8%)**	**479,700 (2.0%)**

[1] DOF, Interim County Population Projections.
[2] Figures in parenthesis show average annual compound growth rate from the previous period.
Source: EDAW 2003, DOF 2001

VISITOR PROFILE

Demographic characteristics of the visitors to the Park may be organized based on the recreational activities pursued at the Park, such as fishing, paddling, floating, picnicking, biking, and nature viewing. Based on anecdotal data provided by the Park Ranger, fishing attracts approximately 60% of all visitors, including both local and regional residents; most of the anglers are thought to be individuals or small groups of white males aged 25–45 who fish from boats. A few Asian families, of up to 20 persons, have been observed to fish from the riverbanks. Aside from the anglers, most of the visitors who kayak, canoe, or float on inner tubes and rafts are college-aged visitors who come to the Park primarily during the holiday weekends, with a growing percentage of slightly older individuals and parents with young children. The latter group is thought to have started visiting the Park when they were college-age inner-tubers. Latinos, who make up a small percentage of total Park visitors, primarily come to picnic at the Park (McGaugh, pers. comm., 2003).

Visitor origin also differs based on recreation activity. Because the Park has limited camping facilities, nearly all of the attendance is attributable to day-use visitors who live within a few hours' drive from the Park. Most of the visitors are local residents originating from Butte County, with up to 90% of all visitors coming from the City of Chico, the largest population center within the county. Visitors are also drawn from Glenn, Tehama, and Colusa counties. While more regional-based visitors pursue water-based recreational activities in the Park, namely sport-fishing, local residents comprise the bulk of the people pursuing land-based recreational activities, such as picnicking, biking, and hiking.

Visitors from outside Butte and Glenn counties are thought to come to the Park for specific recreational activities and during specific time periods. During the fishing seasons (i.e.,

salmon season between July and December; steelhead season between October and November; and shad season between April and early July), the Park attracts many anglers from other parts of northern California, particularly the Bay Area, the largest metropolitan area in northern California. Visitors from the Bay Area travel approximately 2.5 hours to reach the Park. Fewer anglers are thought to come from the Sacramento area because similar salmon fishing opportunities on the Sacramento, American, and Consumnes rivers are available to Sacramento area residents. In addition to the local residents and anglers, thousands of inner tube and rafting enthusiasts from all over the state congregate in the Park during the Fourth of July and Labor Day holiday weekends (McGaugh, pers. comm., 2003).

2.3 Potential Property Additions Considered in the General Plan

There are ongoing property acquisition negotiations by the Department that pertain to the Park. Based on the dynamic nature of these efforts, the Department felt that it was appropriate to include several potential property acquisitions in the General Plan process. They include the Beard Property, Sunset Ranch, and Singh Orchard. These properties have not been inventoried and evaluated to the same degree as the existing Park subunits; however, sufficient information has been collected to adequately evaluate their inclusion in the proposed General Plan. These property additions would increase the size of the Park by roughly 30% to nearly 275 acres.

2.3.1 Beard Property

The Beard Property is currently owned by the River Partners, who purchased this property with State Wildlife Conservation Board funds for habitat restoration, river access, and possible recreation uses, including an overnight campground and day-use area. The property is being considered by River Partners as a gift to the Department as an addition to Bidwell-Sacramento River State Park.

Beard Property – View of Walnut Orchard from Irvine Finch River Access Area

This property is approximately 20 acres in size and located directly south of the Irvine Finch River Access area. It is currently being used for agricultural purposes, namely walnut orchards. There are no developed facilities on the property, but it is served by irrigation water. Based on its proximity, if this property is added to the Park, it would be integrated with the Irvine Finch facility to provide expanded recreational opportunities to park visitors.

2.3.2 SUNSET RANCH

Sunset Ranch – View of Sacramento River

Sunset Ranch – Existing Residence and Barn

Sunset Ranch is currently owned by TNC, which is considering donating the property to the Department or other land management agency or selling it to private interest. The Department is considering whether to accept the donation and add the property to the Park as a new subunit. This property was split from larger parcel, the remainder of which has been transferred to the USFWS.

The portion of the Sunset Ranch property that is being considered for addition to the Park is roughly 13.6 acres, and is located directly across the Sacramento River from the Irvine Finch subunit, south of SR 32. Although situated directly on the river, river access is limited, but high-quality views are available. The property is served by a paved access road with gate, which also provides access to private landowners located further south on the river. There are several structures on the property, including a residence, several barns, and other miscellaneous buildings. Utilities, including a water well and utility lines, already serve the property. For the most part, vegetation on the property is sparse and disturbed, particularly on the east side of the access road; there is riparian vegetation located along the riverbank on the west side of the property. If added to the Park, this property would likely become its own subunit.

2.3.3 SINGH ORCHARD

Singh Orchard is currently owned by TNC and 'is planned for purchase by the Department with Proposition 40 bond funds for the explicit purpose of adding it to the Park. The property is currently in the State's appraisal process.

Singh Orchard – Walnut Production

Singh Orchard is located directly north of the Big Chico Creek Riparian Area on the east side of River Road and is roughly 34 acres in size. Similar to the Beard Property, Singh Orchard is currently being used for orchard production and walnut trees represent the main vegetation type on the property. There are no developed facilities on the property, except for irrigation water facilities. If this property is added to the Park, it would represent an expansion of the Big Chico Creek Riparian Area, and would have a focus of conservation and habitat restoration similar to the ongoing efforts at the Park to the south.

2.4 ISSUES ANALYSIS

This section summarizes key issues to be addressed in this General Plan and EIR. These issues were identified during the planning process, which include public and agency scoping comments and the administration of visitor surveys. The following issues are described in detail below:

- Definition of Unit Purpose and Vision
- Re-Naming of the Park
- Resource Protection and Management
- Recreational Opportunity / Visitor Service Enhancement
- Interpretation
- Facility Development
- Operational Improvements
- Property Acquisition / Park Expansion

2.4.1 DEFINITION OF UNIT PURPOSE AND VISION

The Park's *Declaration of Purpose* and *Vision Statement* is an important component of the Park planning process. The purpose statement must be defined to balance the natural, cultural, and recreational resources at the Park, and the vision for the Park should reflect how

the Park is intended to look and be perceived by Park visitors. The Park is currently operating under a Declaration of Purpose that was developed for the Park when it was classified into the State Park system over a decade ago. A revised Declaration of Purpose is proposed in this General Plan to more clearly describe the current purpose of the Park, considering the significant resource values and recreational opportunities that characterize the Park. A Vision Statement has never been developed for the Park. The development of appropriate purpose and vision for the Park will allow the Department to effectively evaluate planning ideas and make decisions during the development and future implementation of the General Plan.

2.4.2 Re-Naming of the Park

The current name, Bidwell-Sacramento River State Park, is difficult and often gets confused with Bidwell Mansion State Historic Park and Bidwell Park, both of which are located nearby in the community of Chico. Park staff regularly receives phone calls and inquiries from the public seeking these other facilities. The planning process considered the prospect for changing the name of the Park; however, the decision was made to evaluate the Park name change separate from the General Plan process.

2.4.3 Resource Protection and Management

Bidwell-Sacramento River State Park supports a variety of environmental resources. These include biological resources, such as sensitive vegetative communities and habitat for special-status species, as well as watershed features, including the Sacramento River and tributaries and the oxbow lake at Indian Fishery. The Park also contains important cultural resource areas, and provides aesthetically pleasing vistas of aquatic and riparian habitat. These resources must be protected, restored, and enhanced.

Riparian vegetation along the Sacramento River is the dominant natural feature of the Park. It supports maximum ecosystem diversity and serves as an important wildlife corridor. The sensitive riparian native plant communities were identified as one of the most important resources within the Park that should be restored and protected in its various successive stages.

Other plant communities, including grassland, agriculture, and ruderal habitats are of relatively low value to most native wildlife species; however, they support common species and provide high-quality foraging habitat for many species of raptors. Preservation of these other plant communities is an important consideration in the planning process.

The Park contains a number of mature oak trees, which were identified as an important natural and visual resource. Threats to mature oak trees include tree removal for new development and diseases.

The control of invasive or noxious weeds can threaten the Park ecosystem. Techniques to control invasive weed species within the Park, including the use of herbicides, has been considered in Park planning.

Impacts to special-status species and other sensitive resources resulting from recreational activities proposed at the Park has been considered in the planning process. In addition, the need for continued enforcement of resource protection laws and educating Park visitors regarding the protection and management of special-status species have been identified as important issues.

Several other factors that influence ecosystem health were identified during the public scoping process. These include the restoration of the Big Chico Creek Watershed and monitoring of non-native animals in conjunction with an assessment of impacts on native wildlife and plant communities. Consideration of these factors in the planning process will enhance the viability of special status species and sensitive habitats.

In terms of cultural resources, preservation and protection of archaeological sites within the Park are important considerations in the planning process. Specific measures, such as site identification, documentation and formal assessment for historic significance, have been considered. In addition, the concept of providing access for cultural activities, such as gathering of plant materials for basket-making, was identified during the scoping process. The extent and types of cultural activities has been evaluated and future efforts should be based on consultation with Native American organizations.

2.4.4 Recreational Opportunity / Visitor Service Enhancement

Bidwell-Sacramento River State Park, located just 5 miles from downtown Chico, provides opportunities for a range of recreational activities. However, improvements are needed to existing facilities and the opportunity for new recreation facilities needs consideration to enhance the quality of the overall recreational experience at the Park.

Currently, the Park has no camping facilities aside from parking spaces for recreational vehicles and trailers (i.e., en-route camping). Due to the lack of facilities, there is a substantial demand for overnight camping opportunities in the project area and the region.

Access to the Sacramento River and its tributaries is an important feature for Park visitors. In terms of boat launch opportunities, several issues need to be considered. The existing facility at Irvine Finch was identified for improvements. There is an expressed need for non-motorized boat launching opportunities (e.g., canoes, kayaks) at the Park, including access to Big Chico Creek. Tubing access, including associated public safety and parking issues, needs to be considered in the planning process. Further, improved river and shoreline access would facilitate fishing opportunities at the Park.

General sight-seeing and wildlife viewing opportunities, including birding, were identified as important recreational activities at the Park. Developing areas or promoting conditions that would be conducive to these activities has been considered in the planning process.

Expansion of day-use areas, including picnic tables and group use areas, is another important recreation-related issue. The demand for day-use areas stems from existing and future demographic characteristics of the Park's visitor base.

The Park does not currently provide concession services. The potential to provide equipment rentals and other recreation support services was identified in the scoping process. Such opportunities have been considered in the context of proposed recreational developments at the Park.

Trails are another important recreation feature at the Park, and their expansion and improvement could enhance the Park's recreational value. Multiple trail uses have been considered, including bicycling, hiking, and horseback riding. Providing a range of trail types and alignments, including connections between subunits and between the Park and the community of Chico was raised during the scoping process. The planning process needs to allow flexibility in the exact alignment of the trail system, which should be based on coordination with appropriate agencies, organizations, and private landowners.

In providing access to recreation opportunities at the Park, it is essential to plan for access to all Park visitors, regardless of physical ability or limitations. Proposed facility developments need to integrate Americans with Disabilities Act (ADA)-accessible features into the project siting and design.

In order to promote recreation opportunities, it is important to accommodate access to and from the Park. The adequacy of existing roadways and the necessity of new roads or parking areas has been considered in promoting use of the Park. It has also been suggested that public transportation be provided to the Park. In addition, the Department and Butte County have expressed interest in the realignment of River Road in order to accommodate additional parking and access to the river.

2.4.5 Interpretation and Education

An interpretive prospectus for Bidwell-Sacramento River State Park was developed in 1997, and should will be updated, as necessary, to reflect the current interpretive vision for the Park. The area's history is fascinating, being on a main river thoroughfare, frequented by both Native Americans and early settlers, and also being closely linked to the agricultural development of the greater Chico area. The Park does not currently have a visitor center, and opportunities for developing one is an important planning concept, which will be coordinated with other public landowners in the project area. Such a visitor center may be developed in conjunction with USFWS and CDFG, and thereby could represent a joint-use facility. Other interpretive facilities will need to be integrated with the Park's existing and proposed trail system. In addition, the Park is regularly used by university and grade school classes for nature study. Opportunities to expand the educational program at the Park has been evaluated in this General Plan.

2.4.6 Facility Development

Recreation and administrative facilities at Bidwell-Sacramento River State Park are minimal. The project area is prone to severe flooding, requiring relocation of certain facilities. The General Plan has evaluated existing facilities in terms of their adequacy and location and if

improvements or additional facilities and placement are needed. Also, general areas for siting facilities determined appropriate for the Park have been identified.

The feasibility of designing facilities to accommodate changes in the river channel is an important consideration in the General Plan. The feasibility of development within the floodplain has also be considered.

The use of kiosks and signs to identify Park boundaries (to reduce trespassing into private property), locations of recreational opportunities (e.g., fishing access), and to disseminate interpretive themes and messages are important to the visitor experience and in operation of the Park.

The adequacy, type, and location of ancillary facilities, including restrooms, has been evaluated.

The design of future developments at the Park could benefit from the use of uniform design standards and guidelines. Potential guidelines may include clustering of facilities to minimize disturbance to natural riparian habitat.

2.4.7 Operational Improvements

Operational improvements may be recommended to increase public safety, improve visitor services, and enhance resource management. Currently, tubers by the thousands travel downstream from Irvine Finch River Access area on Memorial Day, the Fourth of July, and Labor Day, and public safety can be compromised during these events. In addition, adequate staffing in all areas at the Park, including visitor services, maintenance, and natural resources needs to be considered. Moreover, operational improvements can benefit visitor services and resource stewardship of the Park. Improved coordination with other stakeholders, including public agencies, is another important operational consideration.

One issue includes the need to reduce littering and another is the maintenance of existing facilities. New developments need to be reviewed in the context of available staffing and funding for the proposed development.

Improved marketing of the Park and information dissemination were additional issues raised during the scoping process. Recommendations include the development of Park maps and brochures, and/or website. The development of an advertising program has been considered in the planning process.

All operations should be consistent with the General Plan and should consider local and regional plans. Relevant local and regional plans include Upper Sacramento River Fisheries and Riparian Habitat Management Plan, Butte County General Plan, Bikeway Master Plan for Butte County, Glenn County General Plan, and the Glenn County Bicycle Plan.

Park operations need to be coordinated with other local and regional planning efforts, such as those for the Comprehensive Management Plan for the Sacramento River Wildlife Area

and the Comprehensive Conservation Plan (CCP) for the Sacramento River National Wildlife Refuge. Mutual assistance agreements or memoranda of understanding need to be considered. The use of regular meetings between agencies, consolidation of efforts, and the formation of volunteer committees to assist in coordination has been considered.

2.4.8 Property Acquisition / Park Expansion

Expanding and creating linkages between the Park's subunits to provide for natural riverine, riparian, and oak woodland/savannah functions deserve consideration. The concept of adding land outside the flood zone also has been considered to provide more permanent facilities.

The four subunits that comprise the Park are discontiguous and disjointed. The General Plan considers the need for physical connection between the subunits and propose potential future property/easement acquisition strategies.

The existing carrying capacity of the Park has been evaluated in the context of population forecasts and demographic changes. This type of evaluation would help determine the adequacy of existing Park size and the number and variety of facilities.

Tables

Exhibits