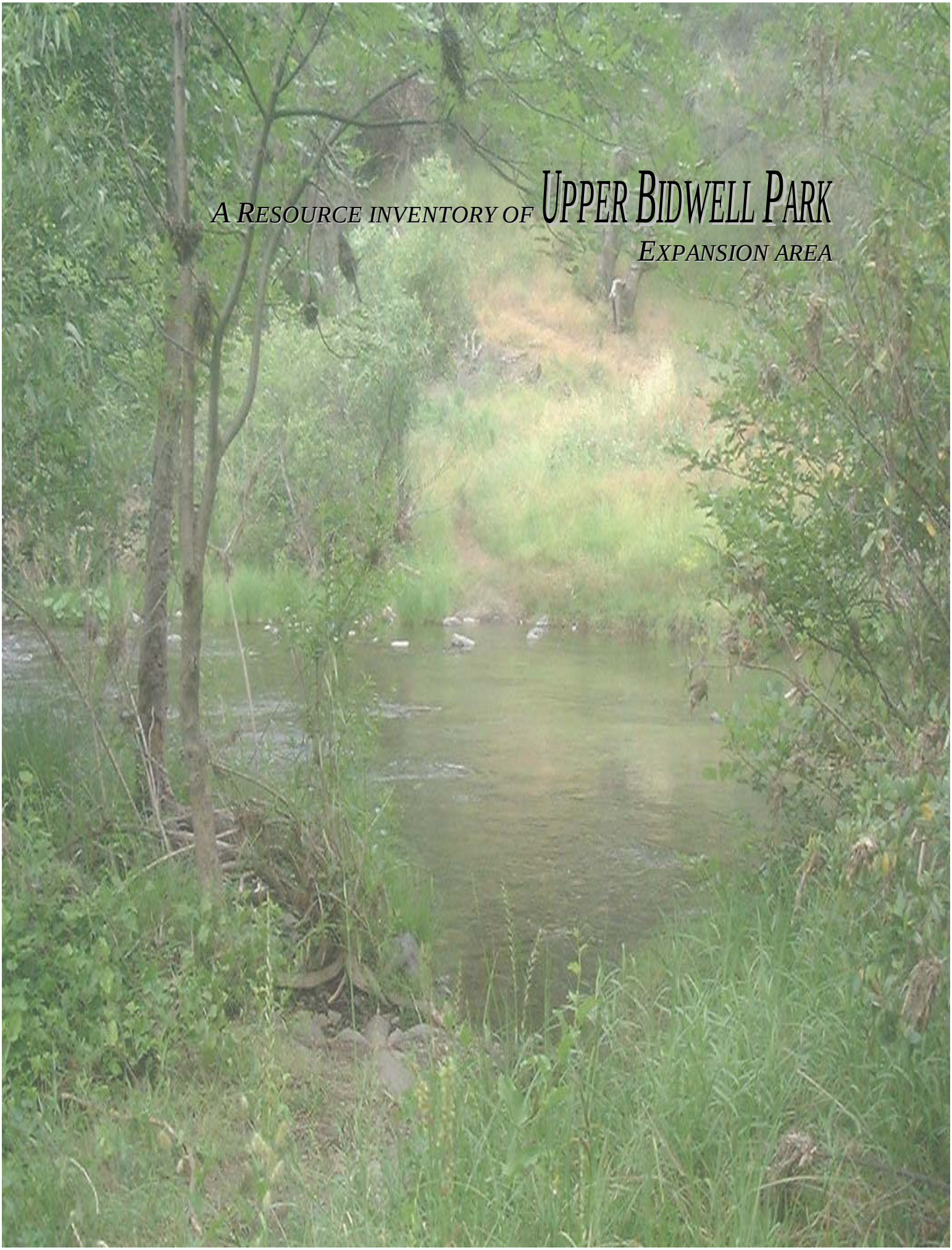

A Resource inventory of Upper Bidwell Park

Expansion area

Prepared for:

City of Chico, Parks Department
411 Main Street
Chico, California 95927
Contact: Mr. Dennis Beardsley
Park Director

Prepared by:

California State University Research Foundation
Chico, California 95929
Contact: Terri Lee Eagan
Project Manager

August 2000

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Introduction

SECTION 1 INTRODUCTION

1.1 Assessment Purpose

This report represents the results of a study that involved the review, inventory, and mapping of resources located in an area situated between Big Chico Creek and Highway 32 in the City of Chico, California. Acquired by the City in 1995, the uninhabited area consisting of 1,417 acres is now included as part of Bidwell Park.

This study's extensive review of existing literature was augmented with on the ground reconnaissance-level surveys. The information and analysis will serve as the resource baseline for any environmental documentation that may be required for the study area during future levels of land use planning.

A valuable component of this study involved the development of a geographic information system (GIS) database for each of the resources investigated. Geographic information systems allow users to efficiently access data from a variety of sources, at a variety of scales, and in a number of formats. There are many benefits of developing and utilizing a GIS such as increasing staff efficiency, updating data in a relatively easy and timely manner, and creating maps *on the fly* for in-house use. One of the major benefits and primary strengths of using a GIS is the ability to perform complex multidisciplinary analyses.

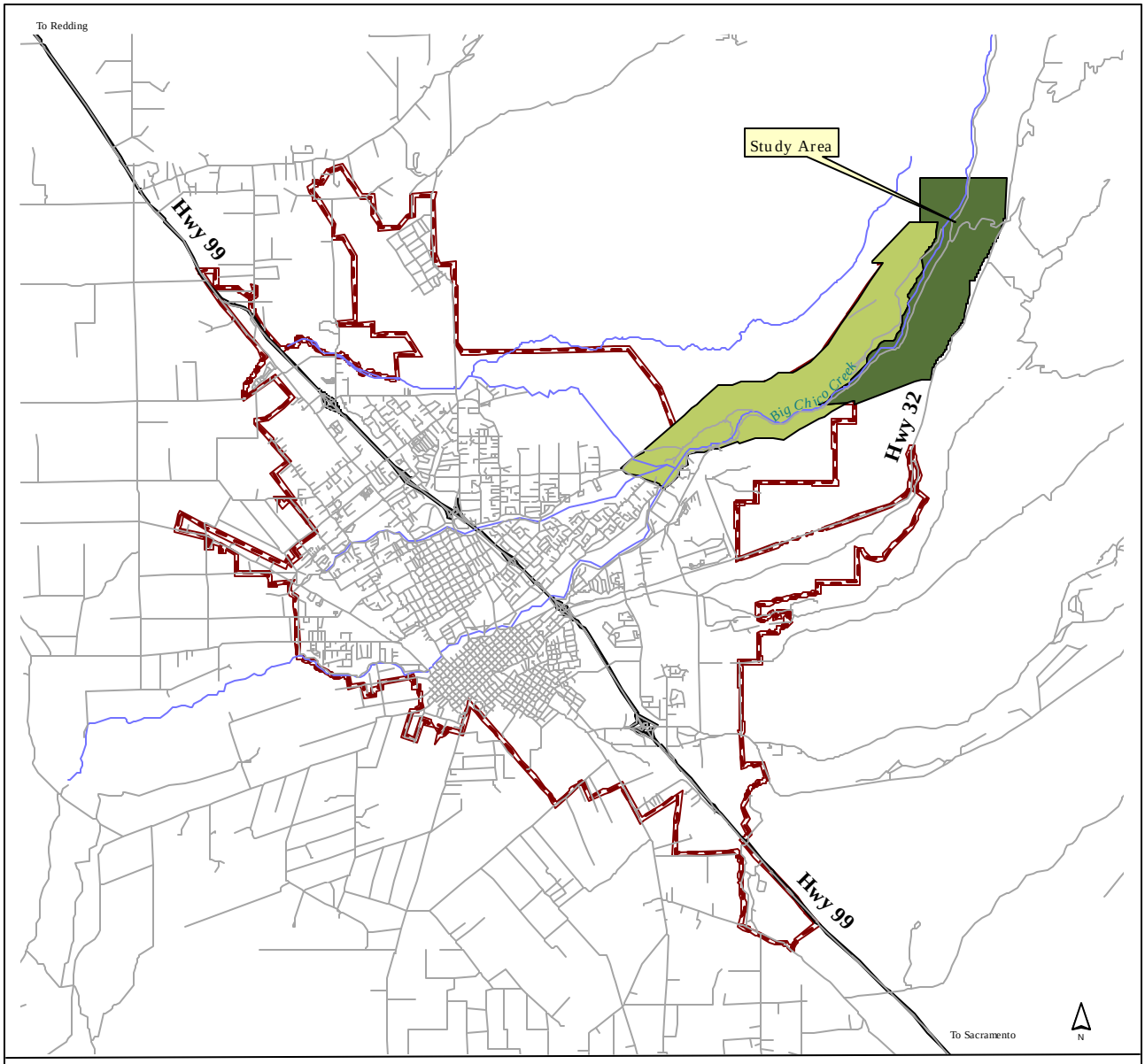
A GIS was utilized to capture the raw data collected in the field or delineated on aerial photographs into a digital format. The data thus collected and stored in a GIS is now readily available to City staff and will enhance future planning efforts.

1.2 Environmental Setting

The Study area is located at the base of the Cascade/Sierra Nevada foothills in Northern California approximately 100 miles north of Sacramento. Big Chico Creek forms the northwestern boundary of the Study area bisecting the two sections of what now comprise Upper Bidwell Park in the City of Chico (Figure 1). Big Chico Creek originates on Colby Mountain (6,000 feet elevation) and flows approximately 45 miles to its confluence with the Sacramento River (120 feet elevation).

Topography within the Study area consists primarily of east and northeast facing slopes and has elevations ranging from 300 feet at the southwestern edge to nearly 1,600 feet at the upper slopes in the northeast section of the Park. Gradients range from nearly level areas along the creek and upper ridgeline to vertical rock outcrops and butte edges. Soil depth varies from the relatively deep alluvium found along portions of the upper Big Chico Creek flood terrace to shallow soil and bare rock of the mudflow and basalt formations. Substrates are volcanic and are derived from the Tuscan volcanic mudflow and Lovejoy basalt formations.

The Study area is located on the U.S. Geological Survey (USGS) 7.5 minute Paradise West quadrangle (T22N R2E, Sections 9, 10, 11, and 35). According to County Tax



Key to Features

- Bidwell Park New Acquistion
- Upper Bidwell Park - North side
- Roadways
- Streams/Creeks
- City of Chico Boundary

Scale
1:135,000

1 0 1 2 Miles

Data Source: '95 TIGER/Line Files road, urban sphere, and boundary data.
UTM Nad27, Zone 10, Feet
Prepared: August 2000

Vicinity Map

Figure 1

Assessor records, the Study area consists of the following parcel numbers: 5-050-013, 63-290-011, 63-290-016, 63-290-017, and 63-290-060.

1.3 Methods

1.3.1 Field Reconnaissance

Lisa Stallings, Terri Lee Eagan, John Dittes and Jody Gallaway surveyed the Study area in the spring of 2000 on foot or with a quad. Trails alignments were captured through the use of a Trimbal GPS unit operated by Matt Guinn. Both reconnaissance and systematic level surveys of all portions of the site were completed using aerial photographs and topographic maps for orientation. In some areas of particularly steep terrain, binoculars were used to assist in identification of resources. The survey method used for each resource is described in detail below.

1.3.2 Plant Communities

John Dittes mapped the major plant communities directly onto unrectified digital color aerial photographs that were supplied by the City of Chico (flown in 1999). Plant communities were delineated based on the composition of dominant species, as indicated by color and texture signatures apparent on the aerial photographs. Areas possessing distinct signatures were visited for field verification and for characterization of dominant species composition. Plant community nomenclature generally follows Holland (1986), with modifications made to account for local variation. Nomenclature for common plant names follows Oswald (1994).

Features mapped during a reconnaissance of wetlands and drainages by Dr. Lisa Stallings (Spring 2000) were also transferred to the aerial photographs. Subsequently, the features were captured in ArcView GIS using heads-up digitizing.

Mapping Constraints: The species composition and distribution of plant communities within a given landscape result from environmentally complex associations. Patterns are determined by an interaction of a variety of factors, including: elevation, aspect, shade, slope, soil depth and hydrology, as well as the history of fire and other disturbances.

Plant community boundaries may be abrupt and well defined, but very often are not. Diffuse, or intergrading boundaries are often associated with community transitions occurring along gradual gradients of elevation, slope, soil depth and hydrology. For example, at places within the Study area, blue oak woodland transitions into mixed oak woodland and then live oak woodland along an apparent elevation gradient. Differences in signature are apparent between the lower, mid and upper slopes. However, the precise point on the ground where the respective transitions occur is not obvious. Consequently, some community boundary lines may appear arbitrary in some cases. In addition, the mapping scale precludes the delineation of small areas of differing community types.

Accuracy and precision of community delineation is further limited by the relatively low resolution of digital photographs. In addition, due to the time of day the aerial photos were taken, areas below steep, north-facing bluffs and slopes are obscured by deep shadow.

1.3.3 Wetlands

Dr. Lisa Stallings conducted a reconnaissance survey of wetlands and drainages (May 2000). The boundaries of areas that appeared to support either waters of the United States or jurisdictional wetlands (wetland plant communities, saturated soils, wetland hydrology) were delineated on unrectified digital color aerial photographs that were supplied by the City of Chico (flown in 1999). Wetland plant communities were delineated based on the composition of dominant species, as indicated by color and texture signatures apparent on the aerial photographs. The USGS Quad was used to predict which areas had topographic features that would support wetlands (incised drainages, ponds, meadows). Areas possessing distinct signatures were visited for field verification of the presence of wetlands.

1.3.4 Wildlife Inventory

A reconnaissance level wildlife survey was conducted by consulting wildlife biologist Jody Gallaway on 14 June 2000. The wildlife evaluation was conducted by assessing the current condition of important wildlife habitats, preparing a wildlife resource inventory (excluding fish), interviewing land managers and California Department of Fish and Game (CDFG) personnel, and conducting a thorough literature survey. Information gathered from wildlife surveys conducted on nearby properties was also used. Wildlife species with high values in terms of sensitivity, status, or role in the ecosystem are described in detail.

1.3.5 Geographical Information System (GIS)

Terri Lee Eagan, working alongside each of the specialists, determined the appropriate method to input the information gathered for each resource into a GIS. For example, vegetation, soil classifications, and the location of the wildlife corridor were initially hand-drawn by each specialist onto aerial photographs or topographic maps and entered into a GIS through the use of heads-up digitizing. That is to say, the features were entered into the computer using an image shown on the computer screen as a background (as opposed to entering the data using a digitizing tablet).

A different method was chosen for acquiring the trail alignments within the Study area. Each trail was walked with a Trimble GPS unit recording the georeferenced coordinates along each route. The GPS data collected in the field was subsequently processed by the Geographical Information Center (GIC) at CSU, Chico and transferred into GIS.

All other data layers came from existing sources available through the GIC. The other layers include roadways, boundary files (parcels, city limits), and hydrology.

Results

SECTION 2 RESULTS

2.1 Soils

The soils in the Chico area were original mapped in 1929 by the U.S. Department of Agriculture, Chemistry and Soils (Watson, et al., 1929). The U.S. Department of Agriculture Natural Resources Conservation Service is currently conducting a modern soil survey. While the soil series have been delineated and mapped, the detailed description of the different types of soils (which includes characteristics such as horizons, texture, color, shrink/swell potential, etc.) have not been completed at the time of this report. Once the descriptions are finalized, the Butte County Soil Survey will be published. In the interim, the preliminary mapping and soil series are included in this report (Figure 2).

2.2 Plant Communities

Major upland plant communities include annual grassland, blue oak woodland and savannah, mixed oak woodland, live oak woodland, gray pine/oak woodland, north slope foothill woodland and gray pine chaparral. Sensitive plant communities include seep wetlands, and the riparian corridors associated with Big Chico Creek and its seasonal tributary drainages (see Figure 3).

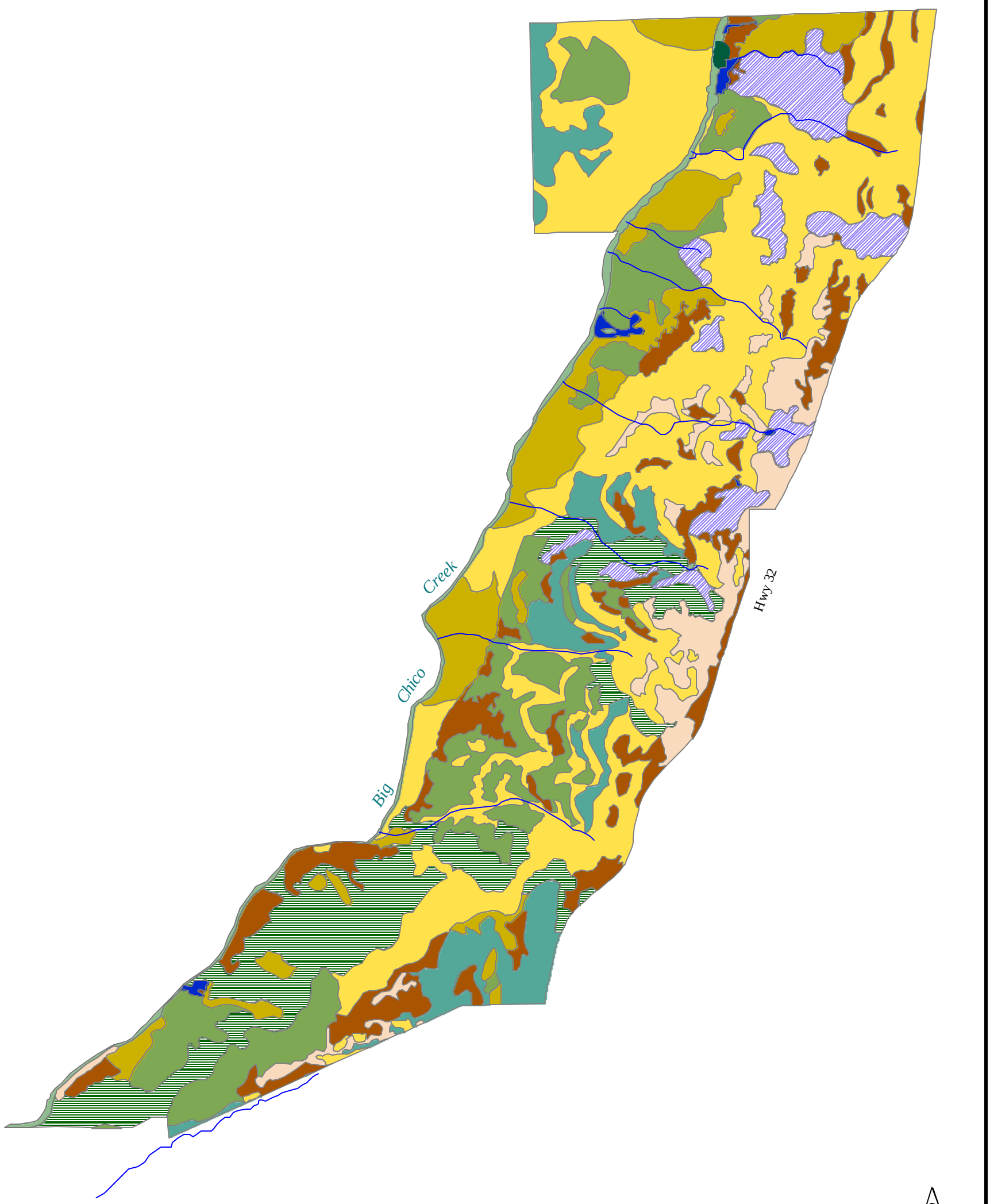
2.2.1 Annual Grassland

Annual grassland is a common plant community in the Study area. This plant community occupies sites with areas of thinner, drier soil as well as the understory and openings in blue oak woodland, blue oak savannah, and mixed oak woodland plant communities.

Commonly encountered grass species include soft chess, foxtail chess, ripgut brome, wild oat, Italian rye, medusa head grass, annual fescues, dogtail grass, and wild barley. Common herbaceous forb species include a variety of clovers, tarweeds, filarees, frying pan poppy, fiddleneck, common popcorn-flower, California filago, cleavers, dove's-foot geranium, California plantain, western buttercup, fringepod, Johnny tuck, and yellow star thistle.

In areas possessing thin rocky soil, plant cover is sparse and is dominated by a higher proportion of native species. Common species in these areas include several annual fescues, California plantain, California filago, pigmy-weed, dwarf stonecrop, California knotweed, bicolored lupine, pink plectritis, common toadrush, California sandwort, q-tips and paper onion. Areas with better-developed soils support several species of native perennials including bluedick, Ithuriel's spear, Hartwegg's odontostomum, western buttercup, bladder lomatium and several species of brodiaea.

A uniformly light yellow-colored, smooth-textured aerial signature characterizes annual grassland. Mostly non-native annual grasses growing with a variety of typically native herbaceous forb species dominate this community.



Key to Features

Plant Communities

- Annual Grassland
- Blue Oak Savannah
- Blue Oak Woodland
- Gray Pine Chaparral
- Gray Pine/Oak Woodland
- Live Oak Woodland
- Mixed Oak Woodland
- North Slope Foothill Woodland
- Riparian Corridor
- Riparian Woodland
- Seep Wetlands

Drainages

1:18,000

0.2 0 0.2 0.4 0.6 0.8 1 Miles

Data Source: Digitized from aerial photos
Habitat Classification: Modified Holland
UTM Nad27 Zone 10 Meters
Prepared: August 2000

Plant Communities

Figure 3

2.2.2 Blue Oak Savannah

Blue oak savannah is a common plant community in the Study area that occupies areas possessing thinner soils and sites with south-facing aspects. Blue oak savannah is characterized by relatively diffuse stands and scattered individual blue oak trees with an understory and openings dominated by annual grassland (discussed above). Scattered gray pines and patches of buckbrush and manzanita may also be associated with this community.

Blue oak savannah commonly intergrades with mixed oak woodland and with gray pine/oak woodland. Blue oak savannah is characterized by the diffusely textured, blue-gray colored signature of blue oaks that are sparsely scattered over the dominant background signature of annual grassland.

2.2.3 Blue Oak Woodland

Blue oak woodland is differentiated from blue oak savannah by its more closely spaced blue oak trees and its denser canopy. Blue oak woodland tends to replace blue oak savannah in areas that appear to possess deeper soil and consequently may be more mesic (neither extremely wet nor extremely dry).

Similar to blue oak savannah, annual grassland dominates the understory and openings and gray pine is present. Openings and margins support scattered shrubs including buckbrush, redberry, toyon, mountain mahogany, yerba santa, redbud and manzanita. In addition to these species, California buckeye and poison oak are also common. Herbaceous forbs commonly encountered in blue oak woodland included, miner's lettuce, nemophila, pipevine, California manroot, many-flowered ookow, bur chervil, wavy-leaved soaproot, blue larkspur, narrow-leaved climbing bedstraw, common snowberry, poison sanicle and Pacific sanicle.

Blue oak woodland commonly intergrades with blue oak savannah, mixed oak woodland, gray pine/oak woodland and live oak woodland. The closely spaced trees characterize the blue oak woodland signature and the relatively uniform canopy of diffusely textured blue-gray colored oaks.

2.2.4 Gray Pine/Oak Woodland

Gray pine/oak woodland is a common plant community in the Study area. This community occupies the lower to mid slopes on east and northeast aspects. It is differentiated from the other woodland types by the dominance of gray pine as an overstory species. Subdominant tree species include blue oak, interior live oak and California bay laurel. The composition of understory shrubs and herbs is similar to that found in Blue oak woodland, Blue oak savannah and mixed oak woodland.

Gray pine/oak woodland commonly intergrades with blue oak woodland, blue oak savannah, mixed oak woodland, live oak woodland, and north slope foothill woodland. The gray pine/oak woodland is characterized by the predominance of the large, light gray-colored canopies of gray pine emerging from a background signature of blue and interior live oaks.

2.2.5 Mixed Oak Woodland

Mixed oak woodland is an inclusive, transitional category that does not correspond with any provided by Holland (1986). This plant community is characterized by a varied mixture of blue oak and interior live oak, with scattered gray pine, California bay laurel, and occasional California buckeye. The understory shrub and herb species composition of mixed oak woodland is similar to that of the other woodland types discussed above.

Mixed oak woodland commonly intergrades with blue oak woodland, live oak woodland, and north slope foothill woodland. The mixed oak woodland signature is characterized by the relatively dense canopy and the presence of both blue oak (gray, diffuse) and live oak (olive-green, smooth) signatures.

2.2.6 Live Oak Woodland

Live oak woodland is a common plant community that occupies much of the northern portion and upper slopes of the Study area. Live oak woodland is dominated almost exclusively by interior live oak, although California bay laurel is a common component in places. Other scattered trees include canyon live oak, blue oak, black oak and gray pine. The understory is generally poorly developed due to the deep shade of the dense canopy. Pipevine, poison oak, common snowberry and Pacific sanicle may also be present.

Live oak woodland commonly intergrades with mixed oak woodland, gray-pine oak woodland, and north slope foothill woodland. Live oak woodland is characterized by the relatively smooth-textured, homogonous, olive-green-colored signature.

2.2.7 North Slope Foothill Woodland

North slope foothill woodland is a common plant community that occupies the relatively shaded north-facing upper slopes of the Study area. This plant community corresponds roughly to the Black Oak woodland and Mixed North Slope Cismontane Woodland of Holland (1986). A dense canopy of black oak and California bay laurel, with scattered bigleaf maple, interior live oak and occasional gray pine, dominates north slope foothill woodland. Similar to the live oak woodland, this plant community has a poorly developed understory.

North slope foothill woodland commonly intergrades with live oak woodland. The north slope foothill woodland signature is characterized by a rough, irregular texture and a light to gold-green color.

2.2.8 Gray Pine Chaparral

Gray pine chaparral occupies small areas of exposed habitat located primarily on the upper ridgeline. This plant community is characterized by a diffuse, sparsely scattered overstory of gray pine with a dense to scattered understory of evergreen shrub species. Common shrubs include buckbrush, yerba santa, redberry, coffeeberry, toyon, scrub oak, chaparral honeysuckle, gaping keckiella, mountain mahogany and manzanita. Openings support annual grassland.

Gray pine/chaparral intergrades with annual grassland and with live oak woodland. The gray pine chaparral signature is characterized by the light gray of the scattered gray pine trees and the smooth brownish green texture of the shrub vegetation. Annual grassland signature is also present in the openings.

2.2.9 Riparian Corridor

Riparian corridors are sensitive communities associated with Big Chico Creek, its immediate margin and the scattered seasonal tributaries. Due to the small areas and resulting lack of distinct aerial signature, riparian communities were not mapped separate from the surrounding upland plant communities along the numerous small seasonal tributaries.

The riparian corridor along Big Chico Creek varies from areas possessing unvegetated gravel, cobble and rock to areas supporting dense woody and herbaceous riparian vegetation. Commonly encountered tree species include several species of willow, white alder, Fremont's cottonwood, bigleaf maple, Oregon ash, sycamore and valley oak. Common shrubs and subshrubs include young willows, California coffeeberry, spicebush, mulefat, California buttonbush, blue elderberry, Himalayan blackberry and California grape. Commonly encountered herbaceous species include umbrella plant, torrent sedge, Santa Barbara sedge, scouring rush, common monkey-flower, tall cyperus, deergrass, Johnsongrass, cocklebur, curly dock, white water cress, common tule, cattail and others.

The riparian corridor intergrades with several seasonal wetlands that occur along the lower edge of the slope, and in places, with the surrounding upland woodland communities. The signature of the riparian corridor of Big Chico Creek is characterized by the distinct shadow created by the topographical break of the floodplain and in some places by the light green to yellowish signatures of the riparian tree species.

2.2.10 Seep Wetlands

Seep wetlands were found at several sites within the Study area. These sensitive biological communities are associated with seasonal drainages and with daylighting groundwater. These areas are typically dominated by hydrophytic herbaceous species, although dense stands of riparian tree and shrub species may be present. Commonly encountered herbaceous species include several species of perennial sedges and rushes, tall umbrella sedge, beardgrass, deergrass, spikerush, toadrush, curly dock, hedge nettle, white-tipped clover, white watercress and others.

2.3 Sensitive Resources

2.3.1 Plants

No state or federally listed endangered or threatened plant species are known to occur within the Study area. However, the US Fish and Wildlife Service has designated nearly a half dozen species that occur, or potentially occur, within the Study area as 'Federal Species of Concern'. In addition to the federally designated species, five other species

located within the Study area have been assigned special status through the California Native Plant Society (Table 1).

Table 1
Special Status Plants
Known or Expected to Occur within the Study area

Common and Scientific Names	***Federal***	***State***	***CNPS***
Butte County Checkerbloom *Sidalcea robusta*	Federal Species of Concern	None	List 1B
Bidwell's knotweed *Polygonum bidwelliae*	None	None	List 4
Shield-bracted monkeyflower *Mimulus glaucescens*	None	None	List 4
Butte County Fritillary *Fritillaria eastwoodiae*	Federal Species of Concern	None	List 1B
Butte County calycadenia *Calycadenia oppositifolia*	None	None	List 1B
California Hibiscus *Hibiscus lasiocarpus*	None	None	List 2
Red Bluff Dwarf Rush *Juncus leiospermus var leiospermus*	None	None	List 1B
Ahart's paronychia *Paronychia ahartii*	Federal Species of Concern	None	List 1B
Depauperate milk-vetch *Astragalus pauperculus*	Federal Species of Concern	None	List 4
Adobe-lily *Fritillaria pluriflora*	Federal Species of Concern	None	List 1B
Woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	None	None	List 4

Source: CA Dept of Fish and Game Natural Diversity Database, Special Plants List, updated April 2000.
Notes: Federal Species of Concern = species that are in danger of extinction throughout all or a significant portion of its range.
List 1B = plants that are rare, threatened, or endangered in California and elsewhere.
List 2 = plants that are rare and endangered in California, but more common elsewhere.
List 4 = plants of limited distribution – a watch list.

Although a species not specifically listed as endangered or threatened does not benefit from protection under the Endangered Species Act, potential impacts upon a special status species are required to be considered in environmental analyses.

Butte County Checkerbloom

The Butte County Checkerbloom (*Sidalcea robusta*) is a Federal Species of concern and a CNPS List 1B species. It is a member of the mallow family (Malvaceae). The relatively leafless stems may reach heights of up to three feet. The fairly large, pink flowers that bloom from April-June produce fruit by early to mid-summer. Butte County Checkerbloom is known from approximately 20 occurrences, all of which are located in the volcanic Sierra-Cascade Foothills in Butte County, CA.

Butte County checkerbloom was located in numerous locations throughout the Study area both as isolated individuals and in aggregations of up to several hundred or more individual plant clusters.

Bidwell's knotweed

The Bidwell's knotweed (*Polygonum bidwelliae*) is a CNPS List 4 species. This member of the Polygonaceae family is uncommon and typically found in association with bare gravelly ridges and outcrops of the Tuscan formation mudflow. The normal blooming period extends from April through June.

Shield-bracted monkeyflower

Shield-bracted monkeyflower (*Mimulus glaucescens*) is a CNPS List 4 species. This monkeyflower is locally common on seeps, along drainages and streams as well as other wet places in lower coniferous forests and foothills. The blooming period begins in early February and draws to a close in August.

Butte County fritillary

Butte County fritillary (*Fritillaria eastwoodiae*) is a Federal Species of concern and a CNPS List 1B. A member of the lily family, Butte County fritillary is sometimes found on slopes containing brush and in road cuts sometimes in association with serpentine soils. The normal blooming period extends from mid March through April.

A common species (*Fritillaria affinis*) is known from the vicinity of the Police Pistol Range (located southwest of the Study area) and is known to be relatively common throughout the park where it grows on shaded, brushy slopes. *Fritillaria eastwoodiae* is not currently known from the park. Mature fritillary fruits were located at several places along the trail; however, flowers are required to separate the two species. Although it is most probable that the plants found are of the common species, additional early spring surveys would be required for positive identification.

Butte County calycadenia

Butte County calycadenia (*Calycadenia oppositifolia*) is a CNPS List 1B species recently upgraded from List 4. This Butte County endemic, known to occur within the Study area, belongs to the Asteraceae family. It can be found in association with grassy slopes and disturbed areas such as road cuts.

Other Sensitive Plants

Other sensitive plants known to occur within Upper Bidwell Park include: *Astragalus pauperculus, Hibiscus lasiocarpus, Juglans hindsii, Navarrettia heterandra, Rhynchospora californica, Monardella dougasii ssp. venosa,* P*aronycha ahartii,* and *Frittillarea pluriflora*.

2.3.2 Amphibians, Reptiles, and Insects

Two federally listed threatened species, three candidates, and two species of concern are either known or expected to occur within the Study area. Table 2 summarizes several species known to occur or expected to occur in association with appropriate habitat in the Study area.

The habitat preferred by the foothill yellow-legged and northern red-legged frogs and the Valley elderberry longhorn beetle are located within the Study area. The western pond turtle, currently a Species of Special Concern, is found in Big Chico Creek and the pond adjacent to Ten Mile house (Galloway, pers. observation).

Table 2
Special Status Amphibians, Reptiles, and Insects
Known or Expected to Occur within the Study area

Common and Scientific Name	***Occurrence***	***Special Status***	
	Known (k) **Expected** (e)	**Federal**	**State**
Foothill yellow-legged frog *Rana boylii*	k		Species of Concern
California red-legged frog *Rana aurora draytonii*	e	Threatened	Species of Concern
Western skink *Eumeces skiltonianus*	e	Candidate	
California Whiptail *Cnemidophorus tigris*	e	Candidate	
California whipsnake *Masticophis lateralis*	e	Candidate	
Western Pond Turtle *Clemmys marmorata*	k	Species of Special Concern	Species of Concern
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	e	Threatened	

Source: California Wildlife Habitat Relationship System (Version 7.0).

Western Pond Turtle

Despite its extensive range, the western pond turtle, (*Clemmys marmorata*) is currently a Federal Species of Special Concern (FSC) and a California Species of Concern. The Western Pond Turtle ranges from the state of Washington, south along the Pacific slopes and interior valleys into northwestern Baja California.

It lives where water persists throughout the year, in ponds, along foothill streams, or in broad washes near the coast where water is concentrated from backcountry streams. The ponds favored by turtles are characterized by various emergent and floating vegetation such as cattails and mats of algae. These islands of vegetation are usually large enough to ensure a fair supply of food and protection for the pond turtle.

Turtles may travel into upland area as far as 500 meters from the water source for both nesting and overwintering activities. This suggests that planning activities should take

into account the terrestrial habitat as important as the aquatic habitat for the pond turtle population viability (Reese, et al, 1997).

California red-legged frog

The California red-legged frog (*Rana aurora draytonii*) is the largest native frog in California and inhabits still or slow moving water in intermittent and permanent streams, ponds, and marshes (Hayes and Jennings 1988). It is listed as a federally Threatened species. In addition, it is listed as a species of special concern by California Department of Fish and Game who has also proposed it for a listing as Endangered.

The California red-legged frog has disappeared from more than 90 percent of its historical range. Historically, it's range extended from Shasta County south to northern Baja California, occurring mainly in the foothill regions but was extirpated from the floor of the Central Valley by 1960. It is extremely rare in the Cascade/Sierra foothills and the only large populations (>350 adults) exist within the Coast Ranges near San Francisco (Jennings, et al. 1993).

The primary threats to California red-legged frogs include habitat loss, water diversion projects, introduced non-native predator fishes and bullfrogs, and livestock grazing. Jennings reports that the introduction of non-native predators is probably responsible for the decline of California red-legged frogs from most of their historical range (Jennings, et al. 1993).

Foothill yellow-legged frog

The foothill yellow-legged frog (*Rana bolii*) is found mainly in permanent streams and occasionally found in backwater habitats, isolated pools, and slow moving rivers. Historically occurring in almost all Pacific drainages west of the Sierra/Cascade crest in Oregon it has disappeared from more than 50% of its range (Jennings, 1996). It is currently listed by the California Department of Fish and Game as a Species of Special Concern.

Foothill yellow-legged frog are susceptible to many threats including habitat loss, water diversions, unnatural flow regimes, introduced non-native fishes and bullfrogs, and activities which increase sediment such as road construction, logging, and intensive cattle grazing. In a 1996 report to congress regarding the Sierra Nevada Ecosystem Project, the Big Chico Creek Watershed was categorized with especially high values for foothill yellow-legged frog conservation (Jennings 1996).

Although directed surveys for the Foothill yellow-legged frog were not undertaken as a part of this project they have been observed in Big Chico Creek just east of the Study area. Of concern to the populations known to exist just east of the Study area, is the bullfrog population residing in the Ten Mile House pond.

The Valley Elderberry Longhorn Beetle (VELB)

The VELB is a medium-sized (about 2 cm long) beetle associated with elderberry trees (Sambucus spp.) during its entire life cycle. Adults emerge from pupation inside the wood of the Elderberry trees in the spring when their flowers begin to open. The emerging adults make distinctive small oval openings when they exit. The exit holes are often the only clue that beetles occur in an area. Adult VELBs eat the elderberry foliage until about June when they mate, then the females lay eggs in crevices in the bark. After hatching the larvae tunnel into the tree where they spend 1-2 years eating the interior wood, their sole food source.

Other Sensitive Amphibians, Reptiles, and Insects

In addition to those listed above, other species with a current listing status that are known or expected to occur within the Study area include: western skink (*Eumeces skiltonianus*), California whiptail (*Cnemidophorus tigris*), and California whipsnake (*Masticophis lateralis*).

2.3.3 Birds

Several birds with special status listings are known from Upper Bidwell Park, the Study area, and the surrounding area (see Tables 3 and 4). Table 3 lists various songbirds and the Western yellow-billed cuckoo, a State endangered species that occur or are expected to occur within the Study area.

Table 3
Special Status Birds (Non Raptor)
Known or Expected to Occur within the Study area

Common and ***Scientific Name***	***Occurrence***	***Special Status***	
	Known (k) **Expected** (e)	**Federal**	**State**
Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)	e		Endangered
Purple martin *Progne subis*	e		Species of Concern
Yellow warbler *Dendroica petechia*	e		Species of Concern
Yellow breasted chat *Icteria virens*	k	Species of Concern	

Source: California Wildlife Habitat Relationship System (Version 7.0).
Taxonomic names from Peterson. R.T. 1990

Western Yellow-billed Cuckoo

The Yellow-billed Cuckoo (*Coccyzus americanus*) is an uncommon summer resident migrating from South American wintering areas in June, departing in late August or early September. The numbers of cuckoos in California has declined drastically in recent

decades with the destruction of riparian forests, the birds preferred habitat. As a result, the cuckoo is listed as Endangered by the State.

Purple Martin

The Purple Martin (*Progne subis*) is an uncommon to rare summer resident. It arrives from South America in late March and nests from April through August with peak nesting activity occurring in June.

Eliminated from much of its previous range, the Purple Martin is now a California Species of Special Concern as a result of the drastic loss of riparian habitat, removal of snags, and competition for nest sites from European starlings and house sparrows (both introduced species).

Yellow Warbler

The Yellow Warbler (*Dendroica petechia*) is an uncommon summer resident. It breeds in riparian woodlands from the coast to 8,000' elevation. This small bird migrates at night and usually arrives in California in April. Breeding occurs in riparian woodlands from mid-April into early August and the birds are typically gone by October.

The Yellow Warbler is a California Species of Concern primarily as a result of habitat loss and brood parasitism by brown-headed cowbirds.

Yellow-breasted chat

Another California Species of Special Concern, the Yellow-breasted chat (*Icteria virens*) is also an uncommon summer resident. Arriving in April from Mexico and Guatemala, to breed in riparian habitat from early May into early August. Again, the loss of riparian habitat over the last few decades and the regular parasitism by Brown-headed cowbirds is in part the reason for the extirpation.

Raptors

The Study area represents a regionally important raptor foraging and nesting habitat due in part to the diversity of habitats and the relatively modest human disturbance. Several raptor species were observed or are known to occur within the Study area. These include the American Peregrine falcon (*Falco peregrinus anatum*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), Sharp-shinned hawk (*Accipiter striatus*), Coopers hawk (*Accipiter cooperii*), red-shouldered hawks (*Buteo lineatus*), and American kestrel (*Falco sparverius*). See Table 4 for a summary of the special status raptors known or expected to occur within the Study area.

A golden eagle, currently listed as a Species of Special Concern by CDFG, recently nested on the supporting structures for power lines on a ranch located within a mile from the Study area. The nest was damaged during a severe winter storm and has not been reconstructed by the birds. The Study area is an important foraging area for immature golden eagles commonly used during winter.

Table 4
Special Status Raptors
Known or Expected to Occur within the Study area

Common and Scientific Name	***Occurrence***	***Special Status***	
	Known (k) **Expected** (e)	**Federal**	**State**
Turkey vulture *Cathartes aura*	k	Protected	Protected
Bald eagle *Haliaeetus leucocephalus*	k	PD	Endangered
Golden eagle *Aquila chrysaetos*	k	Protected	Species of Concern
Red-tailed hawk *Buteo jamaicensis*	k	Protected	Protected
Coopers hawk *Accipiter cooperii*	k	Protected	Species of Concern
Sharp-shinned hawk *Accipiter striatus*	k	Protected	Species of Concern
American kestrel *Falco sparverius*	k	Protected	
American peregrine falcon *Falco peregrinus anatum*	k	Delisted	Endangered
Prairie falcon *Falco mexicanus*	e	Protected	
Great horned owl *Bubo virginianus*	k	Protected	
Northern Saw-whet owl *Aegolius acadicus*	k	Protected	

Source: California Wildlife Habitat Relationship System (Version 7.0).
PD = federally proposed for delisting
Delisted = delisted due to recovery
Protected = Under the Federal Migratory Bird Treaty Act or Animals fully protected in California (Cal. Fish and Game Code, Section 3511)

Another raptor that uses the Study area not only as a foraging ground but also as breeding grounds, is the Sharp-shinned hawk. Sharp-shinned hawks are currently listed by CDFG as a Species of Special Concern. Other hawks that also currently nest within the Study area include: Cooper's hawks, red-shouldered hawks, red-tailed hawks, and American kestrels. Appropriate breeding habitat also exists for the American peregrine.

A spotted owl (*Strix occidentalis*) was observed near the Study area approximately three years ago, but was not identified to subspecies level (pers. comm., Jim Snowden). Other owls that are known from the Study area include the Great horned owl (*Bubo virginianus*), the Northern Saw-whet owl (*Aegolius acadicus*), and the Western Screech Owl (*Otus kennicotti*). Several turkey vultures (*Cathartes aura*) were also observed foraging throughout the Study area

2.3.4 Mammals

The diverse habitats located within the Study area provide both cover and foraging opportunities that supports a diverse mammal community as well. Larger mammals known or expected are the coyote, bobcat, mountain lion, and black-tailed deer. The eastern portion of the Study area is known to provide important cover, foraging, and movement habitat for mountain lions and deer. Special status mammals known or anticipated to occur within the Study area are summarized in Table 5.

Table 5
Special Status Mammals
Known or Expected to Occur within the Study area

Common and Scientific Name	***Occurrence***	***Special Status***	
	Known (k) **Expected** (e)	**Federal**	**State**
Vagrant Shrew *Sorex vagrans*	k	Candidate	
Western small-footed Myotis *Myotis ciliolabrum*	e	Species of Concern	
Little Brown Myotis *Myotis lucifugus*	e	Candidate	Species of Concern
Black-tailed Hare *Lepus californicus*	k		Species of Concern
Dusky-footed Woodrat *Neotoma fucipes*	k	Candidate	Species of Concern
Red Fox *Vulpes vulpes necator*	e		Threatened
Ringtail *Bassariscus astutus*	k		Protected
Western Spotted Skunk *Spilogale gracilis*	e	Candidate	
Mountain Lion *Felis concolor*	k		Protected
Badger *Taxidea taxus*	e		Species of Concern
Pallid Bat *Antrozous pallidus*	e		Species of Concern
Townsend's Big-eared Bat *Plecotus townsendii*	e	Candidate	Species of Concern

Source: California Wildlife Habitat Relationship System (Version 7.0).
FPD = federally proposed for delisting
Protected = Animals fully protected in California (Cal. Fish and Game Code, Section 3511 [birds], 4700 [mammals].
Taxonomic names from Ingles, L. G. (1965).

Badger

The badger (*Taxidea taxus*) an uncommon, permanent resident found within the Study area, is a California Species of Special Concern. The carnivorous mammal eats rats, mice, chipmunks and ground squirrels along with insects, eggs, and carrion.

Suitable habitat for badgers is usually characterized by herbaceous shrubs with dry, friable soils. Although badgers are fairly adaptable to human disturbance, predator control practices such as indiscriminate trapping and persistent poisons have caused extensive losses (State of California, 1990).

Pallid Bat

The Pallid Bat (*Antrozous pallidus*) is common at low elevations in California. It occupies a wide variety of habitats including grasslands, scrublands, woodlands, and forests. Day roosts include caves, crevices, mines, occasionally in hollow trees, and structures.

Most pallid bats are social and roost in groups typically containing 20 individuals, but clusters can range up to more than 160 individuals. Group size and availability is extremely important for this species (individuals outside of groups experience higher rates of weight loss). It's sensitivity to roosting disturbance leaves it vulnerable to predators and metabolic economy.

Townsend's Big-eared Bat

Townsend's Big-eared Bat (*Plecotus townsendii*), once considered common throughout California, is now uncommon. Townsend's is extremely sensitive to disturbance of roosting sites that include caves, mines, tunnels, or other human-made structures. Apparently, all known nursery colonies in limestone caves in California have been abandoned. A single visit has resulted in abandonment of roosting sites. This bat is currently a California Species of Special Concern.

Other Sensitive Mammals

Other sensitive or protected mammals known or expected to occur within the Study area include: mountain lion (*Felis concolor), ringtail cat (Bassariscus astutus*), vagrant shrew (*Sorex vagrans*), black-tailed hare (*Lepus californicus*), dusky-footed woodrat (*Neotoma fuscipes*), western small-footed myotis (*Myotis ciliolabrum*), little brown myotis (*Myotis lucifugus*), red fox (*Vulpes vlupes necator*), and western spotted skunk (*Spilogale gracilis*).

2.3.5 Wildlife Movement Corridors

Wildlife corridors are defined as linkages that connect areas of suitable wildlife habitat that are otherwise separated by terrain, changes in vegetation, or disturbance. Corridors perform a number of important ecological functions. They prevent habitat fragmentation that would result in the loss of species that require large contiguous expanses of unbroken habitat and animals that have extensive home ranges such as mountain lions and deer.

They promote gene flow and allow habitats to recover after disturbances (such as wildfire). They also prevent the loss of large animals by linking areas of suitable habitats for foraging and breeding. Corridors may also help to ensure native species to survive which frequently cannot compete with more aggressive alien species in fragmented habitats (Harris and Gallagher, 1989).

To function adequately, a habitat corridor is dependent upon several factors. Natural corridors usually consist of a mix of topography and vegetation. Drainages and ridges are examples of varied topography typically utilized by wildlife for movement from one area to another. Riparian habitats, vegetation associated with watercourses, are also frequently used. For animal movement to occur unimpeded by human disturbance, isolation of the corridor is essential.

Eastern Tehama Deer Herd

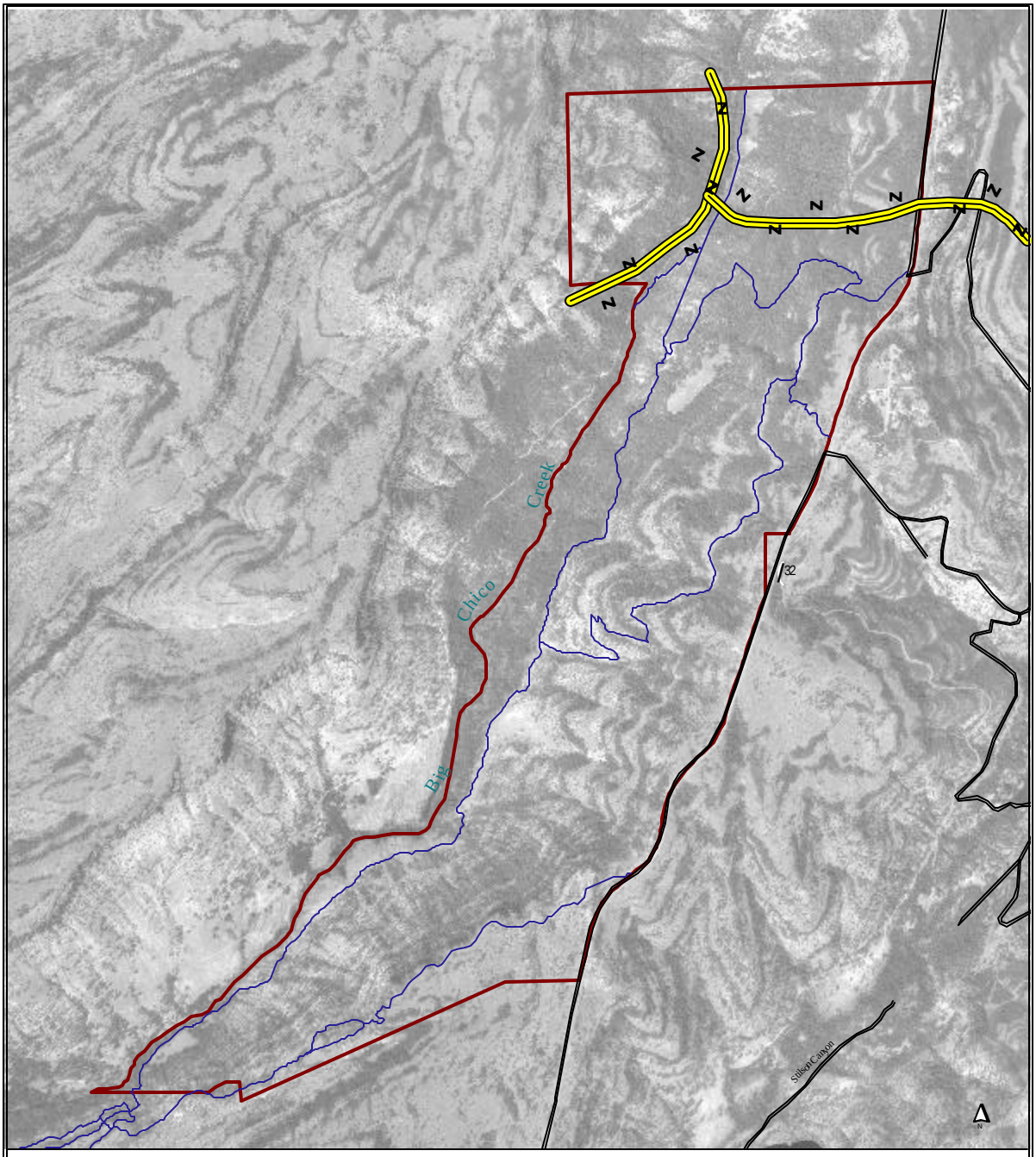
The Eastern Tehama Deer Herd uses the Study area for foraging and as a wildlife corridor. This remarkable herd is the largest migratory group and inhabits the most extensive range in California (Longhurst et al. 1952, Ramsey 1981). Their annual migration, which covers over 100 miles, is the longest distance of any herd in the state. The quality of deer habitat is influenced by the availability of cover and its proximity to food. Chaparral and riparian areas provide hiding, escape, and thermal cover, which is of critical importance to deer especially in dry hot periods. Blue oak woodlands provide primary wintering sites. Riparian habitats also serve as fawning areas and dense vegetation provides hiding cover for vulnerable fawns.

During the months of November through March, the herd uses the Study area as a critically important wintering ground. Additionally, the herd travels through a corridor at the north end of the Study area (Figure 4) to access the Little Chico Creek Watershed.

The black-tail deer population in the Study area has declined steadily since mid-1960 and dramatic declines have been recorded since 1991 (Loft et al., 1998). In 1951, Longhurst et al. (1952) estimated the Tehama deer herd population to be 69,000, currently CDFG estimates the population to be 35,000-45,000. The decline in deer population reflects conditions of their habitat.

Factors, which have contributed to the reduction of quality deer habitat, include urban encroachment, fire suppression policies, intense cattle grazing, feral dogs, and logging practices such as biomass thinning and herbicide spraying. Former CDFG biologist Jim Snowden believes that feral dogs may contribute to lower deer numbers locally than any other cause. Local overhunting may also be negatively affecting the migrating population and how they use their wintering habitats. Conservation and management of large tracts of land will help to insure the protection one of the most important wildlife resources in the area.

The wildlife corridor located in the Study area, along with other corridors in the region, is essential to successful migrations and must be preserved if wildlife species such as the Eastern Tehama Deer Herd are to survive.



Data Source: Wildlife Resource Management
UTM Nad27, Zone 10, Feet
Prepared: August 2000

Key to Features

- Trails
- Roadways
- Study Area
- Wildlife Corridor

Scale
1:30,000

0.3 0 0.3 0.6 Miles

Wildlife Corridors

Figure 4

2.4 Existing Trails

Approximately 17 miles of trails have been established over a period of many years in the Study area. In general, there are two major trails that run east west along contours at elevations ranging from 200 to 1,200 feet. Several loops and connecting trails have been established that run north south and change elevation across the break in slope. An unknown number of low use or bootleg trails have been established or are in the process of being established by current users. Trail conditions range from excellent in well developed soils over relatively flat, smooth terrain to extremely poor, highly eroded or thin soils, in flat steep and rocky terrain (Figure 5).

Currently, most park users access the new acquisition from southern end at the Police Pistol Range Trail off Centennial Avenue. Ten Mile House Road and Pine Trail provide access from Highway 32. An additional illegal access point exists from Canyon Oaks Development. It is also common for park users to cross Big Chico Creek at Bear Hole and the end of Upper Park Road during low water flows to access the new acquisition area

The following trails constitute popular loops and areas of greatest use.

Pistol Range Trail

Although not located within the Study area, the pistol range trail off Centennial Avenue affords the most current visitor access to the new acquisition area. The trail is highly eroded, steep and rocky. It skirts the Bidwell Golf Course and passes underneath the 500KV power lines.

Lower Trail

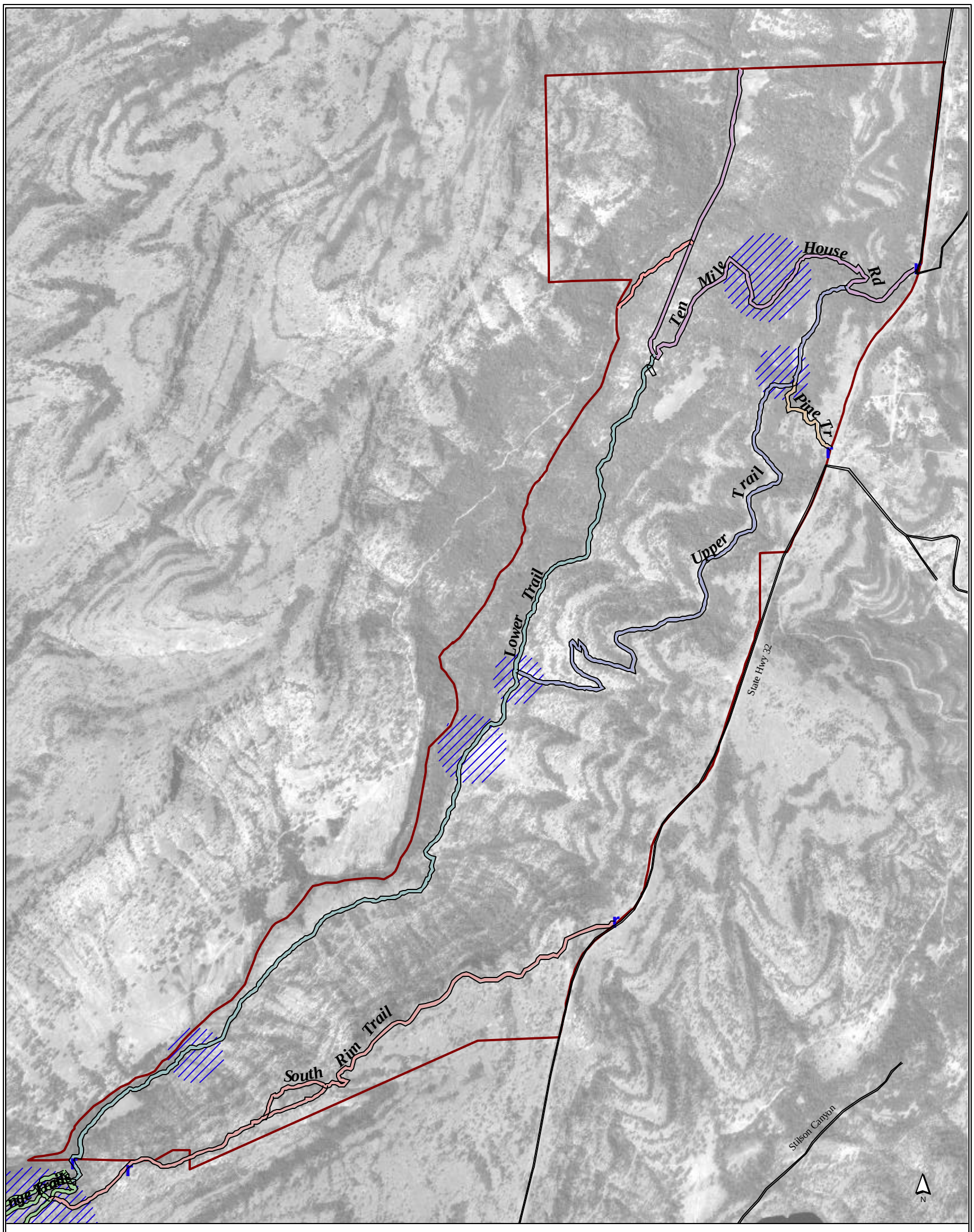
Lower Trail is the most well known and well established trail which runs the length of the park along Big Chico Creek from the pistol range to Ten Mile House Road. Lower Trail is generally a smooth, wide trail 1-3 feet in width through most of its length. Several sections of the trail are rocky and eroded. Erosion is noted near the area of Bear Hole and Devils Kitchen. The trail climbs gradually through open meadows and stands of oak and pine forest affording views of the canyon walls and access to the creek.

South Rim Trails

On the ridge overlooking the park in the southwest corner, bordering on, and in some places encroaching on the Canyon Oaks property, are approximately six miles of trails.

Upper Trail

Upper Trail meets with Ten Mile House Road approximately 0.5 miles from the Highway 32 park entrance. It is a smooth, well developed trail 1-3 feet wide that follows the contour line at about 1200 feet elevation and affords outstanding views of the canyon. Where the trail crosses areas of thin shallow soils, several sections of the trail are showing signs of erosion. The rather steep descent into the canyon eventually meets up with Lower Trail near Devils kitchen. Much of this segment of the trail is in fairly good condition, but signs of erosion and degradation are evident in the sections with steep slopes and thin soils. Erosion is particularly evident in the meadow where Upper Trail joins Lower Trail.



Data Source: Erosiion areas digitized from aerial photos; trails captured using GPS unit
UTM Nad27, Zone 10, Feet

Key to Features

- Lower Trail
- Pine Trail
- Pistol Range Trail
- South Rim Trail
- Ten Mile House Road
- Ten Mile House Creek Crossing
- Upper Trail
- Areas of Erosion
- r Access Points

Scale
1:18,000

1000 0 1000 2000 3000 4000 5000 Feet

Existing Trails and Erosion Areas

Figure 5

Pine Trail

Pine Trail is a well-developed trail approximately 1-2 feet wide connecting Highway 32 to Upper Trail. The majority of the trail is in fairly good condition. However, signs of erosion and degradation evident in sections with steep slopes and thin soils, is particularly evident in the meadow where Pine Trail joins Upper Trail.

Ten Mile House Road

Ten Mile House Road (also referred to as Green Gate) provides the only vehicular access to the new acquisition area. The road is used extensively by hikers, bicyclists, and equestrians for access to both Upper and Lower Trails. It is a rutted unimproved road that runs from the creek roughly north south up the steep slope to State Highway 32. This road is very rugged and in poor condition. High erosion, poor drainage and off camber turns make it a challenge to vehicle passage.

2.5 Erosion Hot Spots

To a large degree, the soil type and slope determines the amount of erosion and vegetative damage that will take place. Level, well-drained soils, permeable, stone-free soils prove to be more stable. Wet, steep, excessively dry, thin, and sandy soils are less resistant to damage. Soil along these trails is easily washed away, causing erosion gullies to form, especially along steep trail segments.

Erosion is most commonly associated with trails located on slopes with thin soils forming over volcanic mudflow formations. The shallow soil tends to become saturated during the rainy season and ruts caused by bicycles and foot traffic channel water flow which leads to increased erosion. Once erosion has occurred, the rocky conditions along the trails causes users to seek smoother less eroded routes; thus the trails are gradually being widened.

The following trail segments are showing signs of accelerated erosion:

Pine Tree Trail - This trail is very steep and there are several places where erosion is becoming a problem. Erosion is particularly apparent where the trail meets up with Upper Trail.

Segment connecting Upper Trail to Lower Trail- This trail segment is very steep and there are several places where erosion is becoming a problem particularly where the trail meets Upper Trail.

2.6 Existing Land Use

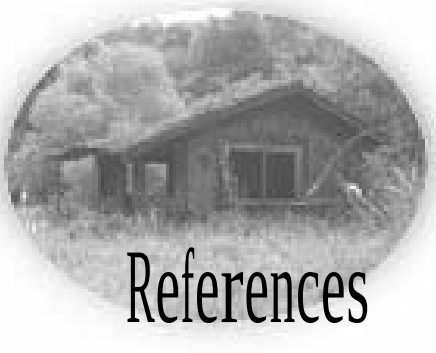
Through a resolution of the City Council, the City of Chico initiated proceedings amending the City's Sphere of Influence and annexed the property containing the Study area for the purposes of preservation as permanent open space and parkland (Resolution No. 61 95-96, November 21, 1995). The site consists of undeveloped land designated by the City's General Plan as "Park' and zoned OS-1 Primary Open Space. Subsequent to the addition of the Study area, Bidwell Park is currently the third largest municipal park in the United States at roughly 3,740 acres.

The Study area is bordered by land under the jurisdiction of Butte County on all it's borders except the northern boundary, which is owned by the City of Chico. Both the Study area and Upper Park are currently designated by the City of Chico General Plan as Park/Open Space.

The area located to the northeast of the Study area has been designated by Butte County's General Plan as Grazing and Open Land. The area located south and east of SR 32 is designated Agriculture Residential which is a very low residential density (one to 40 acres per unit). The existing general plan landuses as well as the currently existing uses surrounding the park are not considered incompatible with the Park designation of the Study area.

The primary activities currently include hiking, jogging, bicycling, and horse back riding. More recently, a site just north of Highway 32 and approximately four miles east of Bruce Road is being used as a disk golf course.

However, a few concerns were identified in the research for this report that involved park access. One of the considerations involves the access to the park through public property. Hikers and mountain bicyclists currently access the Study area from privately held property through Canyon Oaks (located south of Study area). Another trespass concern was noted in the northeastern portion of the Study area from what was once known as Simmons Ranch (this section of Simmons Ranch has been recently purchased by the University of California, Chico).



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Appendices

APPENDIX A

Checklist of Vascular Plant Species Occurring Within the
Upper Bidwell Park Expansion Area
Field Surveys (May June 2000)

A "+" indicates non-native species

SCIENTIFIC NAME	**COMMON NAME**
Acer macrophyllum	Big-leaf maple
Achyrachaena mollis	Blow wives
Adiantum capillus-veneris	Venus-hair fern
Adiantum jordanii	California maidenhair
Aesculus californica	California buckeye
Agoseris heterophylla	Annual agoseris
Aira caryophyllea +	Silver European hairgrass
Allium amplectens	Clasping onion
Allium peninsulare var. peninsulare	Mexican onion
Alnus rhombifolia	White alder
Amsinkia menziesii var. *intermedia*	Common fiddleneck
Amsinkia menziesii var. menziesii	Menzie's fiddleneck
Anagallis arvensis +	Scarlet pimpernell
Anthemis cotula +	Mayweed
Anthriscus caucalis +	Bur-chervil
Aphanes occidentalis	Western lady's mantle
Arceuthobium occidentale	Gray pine dwarf-mistletoe
Arctostaphylos manzanita	Parry manzanita
Aristolochia californica	California pipevine
Artemisia douglasiana	Douglas' mugwort
Astragalus gambelianus	Gambel's dwarf locoweed
Athysanus pusillus	Petty athysanus
Avena barbata +	Wild oats
Avena fatua +	Slender wild oats
Brassica nigra +	Black mustard
Briza minor +	Small quaking grass
Brodiaea californica	Claifornia brodiaea
Brodiaea elegans	Elegant brodiaea
Brodiaea minor	Blue stars
Bromus carinatus ssp. carinatus	California brome
Bromus diandrus +	Ripgut brome
Bromus hordeaceus +	Soft chess
Bromus laevipes	Woodland brome
Bromus madritensis ssp. *rubens* +	Red brome
Bromus madritensis var. *madritensis* +	Foxtail brome

Bromus sterilis	Poverty brome
Calandrinia ciliata	Red maids
Calocedrus decurrens	Incense cedar
Calochortus luteus	Yellow mariposa lily
Calochortus monophyllus	Yellow star-tulip
Calochortus superbus	Superb mariposa lily
Calycadenia oppositifolia **(CNPS LIST 1B)**	Butte calycadenia
Calycadenia sp. (no flowers)	Rosinweed
Calycanthus occidentalis	Spicebush
Capsella bursa-pastoris +	Shepherd's purse
Cardamine californica var. californica	Milkmaids
Cardamine oligosperma	Western bitter cress
Carex barbarae	Whiteroot
Carex densa	Dense sedge
Carex multicaulis	Many-stemmed sedge
Castilleja affinis ssp. affinis	Lay-and Collie's Indian-paintbrush
Castilleja attenuata	Valley tassels
Castilleja lacera	Cut-leaved Indian Paintbrush
Ceanothus cuneatus	Buckbrush
Ceanothus integerrimus	
Centaurea solstitialis +	Yellow star thistle
Centuarium venustum	Canchalagua
Cephalanthus occidentalis	California buttonbush
Cerastium glomeratum +	Sticky chickweed
Cercis occidentalis	Western redbud
Cercocarpus betuloides	Mountain mahogany
Chamaesyce ocellata ssp. ocellata	Valley spurge
Chamomilla suaveolans +	Common pineapple weed
Chlorogalum angustifolium	Narrow-leaved soaproot
Chlorogalum pomeridianum	Wavy-leaved soaproot
Cichorum intybus +	Cichory
Cirsium vulgare +	Bull thistle
Clarkia purpurea ssp. quadrivulnera	Purple clarkia
Claytonia parviflora	Small-flowered miner's lettuce
Claytonia perfoliata	Miner's lettuce
Clematis lasiantha	Chaparral clematis
Clematis ligusticifolia	Western virgin's bower
Collinsia heterophylla	Chinese houses
Collinsia sparsiflora	Few-flowered collinsia
Comandra umbellata	Bastard toadflax
Convolvulus arvensis +	Bindweed
Conyza sp. +	Horseweed

Cornus glabrata	Brown dogwood
Crassula connata	Pygmyweed
Cryptantha flaccida.	Cryptantha
Cyonodon dactylon +	Bermudagrass
Cynoglossum grande	Pacific hound's tongue
Cynosurus echinatus +	Hedgehog dogtail
Cyperus eragrostis	Tall Cyperus
Cystopteris fragilis	Brittle fern
Daucus pusillus	Rattlesnake-weed
Delphinium patens ssp. *patens*	Slender larkspur
Delphinium hesperium ssp. pallens?	Larkspur
Delphinium variegatum	Royal larkspur
Deschampsia danthonoides	Annual hairgrass
Dichelostemma capitatum	Blue dicks
Dichelostemma multiflorum	Many-flowered ookow
Dichelostemma pulchellum	Blue dicks
Dichelostemma volubile	Twining ookow
Dodecatheon clevelandii ssp. patulum	Lowland shootingstar
Draba verna +	Spring whitlow grass
Dudleya cymosa	Spreading dudleya
Eleocharis sp.	Spikerush
Elymus elymoides	Squirreltail
Elymus glaucus	Blue wild-rye
Epilobium canum ssp. latifolium	California fuchsia
Epilobium ciliatum ssp. ciliatum	Fringed-willowherb
Epilobium minutum	Small-flowered willow herb
Epilobium torreyi	Torrey's spike-primrose
Epilobium densiflorum	Dense-flowered spike-primrose
Eremocarpus setigerus	Doveweed
Eriodictyon californicum	Yerba santa
Eriogonum nudum	Naked-stemmed buckwheat
Eriophyllum lanatum ssp. *grandiflorum*	Woolly sunflower
Erodium botrys +	Big heronbill
Erodium brachycarpum +	Obtuse filaree
Erodium cicutarium +	Red-stemmed filaree
Erythronium multiscapoideum	Fawn lily
Eschscholzia californica	California poppy
Eschscholzia caespitosa	Foothill poppy
Eschscholzia lobbii	Frying pan poppy
Festuca arundinaceae +	Reed fescue
Ficus carica +	Fig
Filago californica	California filago
Fraxinus latifolia	Oregon ash

Fritillaria affinis var. affinis	Checkered fritillary
Fritllaria sp. **(no flowers)**	
Fremont's cottonwood	Populus fremontii
Galium aperine +	Cleavers
Galium parisiense +	Wall bedstraw
Galium porrigens var. *tenue*	Narrow-leaved climbing bedstraw
Gastridium ventricosum +	Nitgrass
Geranium carolinianum +	Carolina geranium
Geranium dissectum +	Cut-leaved geranium
Geranium mollis +	Dove's-foot geranium
Gilia tricolor	Bird's-eye gilia
Githopsis pulchella ssp. campestris	Large-flowered bluecup
Gnaphalium sp. +	Cudweed
Grindelia hirsutula var. davyi	Foothill gumplant
Hedera helix +	English ivy
Hemizonia fitchii	Fitch's tarweed
Heteromeles arbutifolia	Toyon
Hordeum marinum ssp. gussoneanum +	Mediterranean barley
Hordeum murinum ssp. *leporinum* +	Hare wall barley
Heuchera micrantha var. rubescens	Crevice alumroot
Hypericum anagalloides	Tinker's penny
Hypericum perforatum +	Klamath weed
Hypochoeris glabra +	Smooth cat's-ear
Iris macrosiphon	Long-tubed iris
Isoetes nuttallii	Nuttall's quillwort
Juncus bufonius var. *bufonius*	Common toadrush
Juncus effusus var. pacificus	Diffuse rush
Juncus patens	Rush
Keckiella breviflora var. glabrisepala	Gaping keckellia
Lactuca serriola +	Prickly lettuce
Lagophylla glandulosa	Glandular hareleaf
Lamium amplexicaule +	Giraffehead
Lasthenia californica	California goldfields
Lathyrus sp.	Sweet pea
Layia fremontii	Tidy-tips
Lemna sp.	Duckweed
Lepidium nitidum	Shining peppergrass
Lessingia sp.	Lessingia
Lilium sp (nf)	Lily
Linanthus bicolor	Bicolored linanthus
Linanthus ciliatus	Whiskerbrush
Linanthus bicolor	Bicolored linanthus

Linanthus filipes	Wild baby's breath
Lolium multiflorum +	Italian ryegrass
Lithophragma bolanderi	Bolander's woodlandstar
Lithophragma sp. (probably parviflora) (nf)	Woodland star
Lomatium macrocarpum	Large-fruited lomatium
Lomatium utriculatum	Common lomatium
Lonicera interrupta	Chaparral honeysuckle
Lotus humistratus	Foothill lotus
Lotus micranthus	Small-flowered lotus
Lotus purshianus var. purshianus	Spanish lotus
Lotus wrangelianus	Wrangel lotus
Lupinus albifrons var. albiforns	Silver bush lupine
Lupinus bicolor	Bicolored lupine
Lupinus microcarpus var. densiflorus	White-whorled lupine
Lupinus nanus	Sky lupine
Lythrum hyssopifolium +	Hyssop loosestrife
Madia elegans ssp. vernalis	Spring madia
Madia subspicata	Spiked tarweed
Marah fabaceus	California manroot
Marrubium vulgare +	Horehound
Matricaria matricarioides +	Pineapple weed
Meconella californica	California meconella
Medicago arabica	
Medicago polymorpha +	Bur clover
Melica californica.	California melica
Melica torreyana	Torrey's melica
Melilotus alba +	White sweet clover
Mentha arvensis	American wild mint
Micropus californicus	Q-tip
Microseris acuminata	Sierra foothill microseris
Mimulus glaucescens **(CNPS List 4)**	Shield-bracted monkey-flower
Mimulus guttatus	Common monkey-flower
Minuartia californica	California sandwort
Monardella villosa	Coyote mint
Muhlenbergia rigens	Deergrass
Nassella pulchra	Purple needlegrass
Naverretia filicaulis	Thread-stemmed navarretia
Navarretia intertexta	Needle-leaved navarretia
Navarretia pubescens	Downy navarretia
Navarretia tagetina	Marigold navarretia
Nemophila heterophylla	Variable-leaved nemophylla
Nemophila pedunculata	Meadow nemophila
Odontostomum hartwegii	Hartweg's odontostomum

Olea europea +	Olive
Parvisedum pumilum	Dwarf-stonecrop
Pellaea andromedifolia	Coffe fern
Penstemon heterophyllus	Foothill beardtongue
Pentagramma pallida	Whiteback fern
Pentagramma triangularis	Gold-backed fern
Perideridia kelloggii	Kellogg's yampah
Petrorhagia dubia +	Grass-pink
Phacelia egena	Rock phacelia
Philadephus lewisii ssp. californicus	Mock orange
Phoradendron villosum	Hairy mistletoe
Piperia elongata	Dense-flowered rein orchid
Pistachia chinensis	Pistachio
Pinus ponderosa	Ponderosa pine
Pinus sabiniana	Foothill pine (Grey pine)
Plagiobothrys austinae	Austin's popcorn-flower
Plagiobothrys canescens	Valley popcorn-flower
Plagiobothrys fulvus	Fulvous popcorn-flower
Plagiobothrys nothofulvus	Common popcorn-flower
Plantago erecta	California plantain
Plantago lanceolata	English plantain
Plantago major +	Common plantain
Platanus racemosa	Sycamore
Plectritis ciliosa	Pink plectritis
Plectritis macrocera	White plectritis
Poa annua +	Annual bluegrass
Poa secunda ssp. *secunda*	One-sided bluegrass
Poa sp.	Bluegrass
Polygala cornuta	Milkwort
Polygonum arenastrum +	Smartweed
Polygonum bidwelliae **(CNPS List 4)**	Bidwell's knotweed
Polygonum californicum	California knotweed
Polypodium calirhiza	California polypody
Polypogon interruptus +	Annual beardgrass
Populus fremontii	Fremont's cottonwood
Pseudotsuga menziesii	Douglas fir
Pterostegia drymarioides	Pterostegia (Granny's hairnet)
Pyracantha fortunena +	Firethorn
Quercus berberidifolia	Scrub oak
Quercus chrysolepis var. chrysolepis	Canyon live oak
Quercus douglasii	Blue oak
Quercus lobata	Valley oak

Quercus wislizenii var. *wislizenii*	Interior live oak
Ranunculus canus	Sacramento Valley buttercup
Ranunculus hebecarpus	Hairy-fruited buttercup
Ranunculus occidentalis	Western buttercup
Raphanus sp. +	Wild radish
Rhamnus crocea	Redberry
Rhamnus tomentella ssp. tomentella	Hoary coffeberry
Rubus discolor +	Himalayan blackberry
Rubus ursinus	California blackberry
Rhus trilobata	Skunkbrush
Rorippa nasturtium-aquaticum	Watercress
Rosa californica	California rose
Rumex crispus +	Curly dock
Rumex sp. +	Dock
Salix lasiolepis	Arroyo willow
Salix laevigata	Red willow
Salix sp.	Willow
Sambucus mexicanus	Blue elderberry
Sanicula bipinnata	Poison sanicle
Sanicula bipinnatifida	Purple sanicle
Sanicula crassicaulis	Pacific sanicle
Saxifraga californica	California saxifrage
Scleranthus annuus	Knawel
Scutellaria californica	California skullcap
Sedum spathulifolium	Broad-leaved stonecrop
Selaginella hansenii	Hansen's spikemoss
Senecio vulgaris +	Old man of spring
Sherardia arvense	Field sherardia
Sidalcea hartwegii	Hartweg's sidalcea
Sidalcea robusta **(CNPS 1B)**	Butte County checkerbloom
Silene californica	California Indian pink
Silene gallica +	Windmill pink
Sisymbrium officinale +	Hedge mustard
Smilax californica	Greenbriar
Solanum parishii	Parish's nightshade
Sonchus asper +	Prickly sow-thistle
Sorghum halepense +	Johnsongrass
Spergularia bocconei +	Sandspurry
Stachys stricta	Sonoma hedge nettle
Stellaria media +	Chickweed
Stellaria nitens +	Chickweed
Sylibimum martimum +	Milk thistle
Symphoricarpos albus var. *laevigatus*	Common snowberry

Taeniathreum caput-medusae+	Medusa-head
Taraxacum officianale +	Dandelion
Tauschia hartwegii	Hartweg's tauschia
Thysanocarpus curvipes	Fringepod
Torilis arvensis +	Common hedge-parsley
Torilis nodosa +	Knotted hedge parsley
Toxicodendron diversilobum	Poison oak
Trichostemma lanceolata	Vinigarweed
Trifolium albopurpureum	Indian clover
Trifolium ciliolatum	Foothill clover
Trifolium depauperatum	Cowbag clover
Trifolium hirtum +	Rose clover
Trifolium microcephalum	Small-headed clover
Trifolium variegatum	White-tipped clover
Trifolium wildenovii	Tomcat clover
Triteleia bridgesii	Bridge's triteleia
Triteleia hyacinthine	White triteleia
Triteleia laxa	Ithuriel's spear
Tryphisaria eriantha	Johnny-tuck
Umbellularia californica	California bay-laurel
Verbascum blattaria +	Common mullein
Verbascum thapsus +	Woolly mullein
Verbena sp.	Verbena
Veronica persica +	Persian speedwell
Vicia sativa +	Spring vetch
Vicia villosa +	Hairy vetch
Vitis californica	California grape
Vulpia bromoides +	Six-week's-fescue
Vulpia microstachys var. *pauciflora*	Few-flowered fescue
Vulpia myurus var. *hirsuta +*	Foxtail fescue
Xanthium strumarium	Cocklebur
Yabea microcarpa	False hedge parsley
Zigadenus venonosus	Death camas

APPENDIX B

Wildlife known or expected to occur within the Bidwell Park Acquisition Area, Butte County, California.

Common Name	(k) (e)	Scientific Name	Habitat Association					Special Status		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs,caves, borrows	FEDERAL	State	Harvest
Arboreal salamander	e	*Aneides lugbris*		X	X	X	X			
California slender salamander	e	*Batrachoseps attenuatus*		X	X		X			
Ensatina	e	*Ensatina eschscholtzii*								
California Newt	e	*Taricha torosa*		X			X			
Rough skinned newt	e	*Taricha granulosa*		X	X		X			
Western toad	k	*Bufo boreas*		X	X		X			
Pacific treefrog	k	*Hyla regilla*		X			X			
Foothill yellow-legged frog	k	*Rana boylii*		X					SC	
California red-legged frog	e	*Rana aurora draytonii*						Threat.	SC	
Western fence lizard	k	*Sceloporus occidentalis*			X	X	X			
Western skink	e	*Eumeces skiltonianus*		X	X		X	Cand.		
California Whiptail	e	*Cnemidophorus tigris*			X		X	Cand.		
Northern alligator lizard	k	*Gerrhonotus coeruleus*			X		X			
Sharp-tailed snake	k	*Contia tenuis*		X						
Pacific rubber boa	k	*Charina bottae*		X	X		X			
Coral-bellied ringneck snake	e	*Diadophis punctatus*			X					
California whipsnake	e	*Masticophis lateralis*		X	X		X	Cand.		
Western yellow-bellied racer	e	*Coluber constrictor*								
Gopher snake	k	*Pituophis melanoleucus*		X	X		X			
California kingsnake	k	*Lampropeltis getulus*			X	X	X			
Garter snake	k	*Thamnophis sirtalis*		X	X		X			
Night snake	k	*Hypsiglena torquata*					X			
Western rattle snake	k	*Crotalus viridis*			X		X			

Table 1. Wildlife known (k) or expected (e) to occur within the Bidwell Park Acquisition Area, Butte County California[a].

Common Name	(k) (e)	Scientific Name[b]	Habitat Association					Special Status		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs,caves, borrows	Federal	State	Harvest
Wood duck	k	*Aix sponsa*	X	X						x
Mallard	k	*Anus platyrhynchos*								x
Common merganser	k	*Mergus merganser*		X						
Turkey vulture	k	*Cathartes aura*					X	Prot.	Prot.	
Bald eagle	k	***Haliaeetus leucocephalus***						FPD	SE	
Golden eagle	k	*Aquila chrysaetos*					X	Prot.	SC	
Red-tailed hawk	k	*Buteo jamaicensis*				X	X	Prot.	Prot.	
Coopers hawk	k	*Accipiter cooperii*		X		X		Prot.	SC	
Sharp-shinned hawk	k	*Accipiter striatus*		X	X	X		Prot.	SC	
American kestrel	k	*Falco sparverius*						Prot.		
American peregrine falcon	k	*Falco peregrinus anatum*					X	FPD End.	End.	
Prairie falcon	e	*Falco mexicanus*						Prot.		
Morning dove	k	*Zenaida macroura*		X			X			x
California quail	k	*Callipepla californica*	X		X					x
Band-tailed pigeon	k	*Columba fasciata*	X	X		X				x
Wild turkey	k	*Meleagris gallopava*	X	X	X					x
Great horned owl	k	*Bubo virginianus*		X				Prot.		
Northern Saw-whet owl	k	*Aegolius acadicus*		X		X		Prot.		
Western screech owl	k	*Otus kennicotti*				X		Prot.		
White-throated swift	e	*Aeronautes saxatalis*					X			
Anna's hummingbird	k	*Calypte anna*		X						
Calliope hummingbird	k	*Stellula calliope*		X						
Acorn woodpecker	k	*Melanerpes formicivorus*	X	X		X				
Lewis's woodpecker		*Melanerpes lewis*	X		X	X				
Northern flicker	k	*Colaptes auratus*		X		X				

Common Name	2.4.2 (e)	2.4.3 Scientific Name	Habitat Association					Special Status		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs, caves, borrows	Federal	State	Harvest
Hairy woodpecker	k	*Picoides villosus*	X	X		X				
Downy woodpecker	k	*Picoides pubescens*		X		X				
Red-breasted sapsucker	k	*Sphyrapicus ruber*		X		X				
Ash-throated flycatcher	k	*Myiarchus cinerascens*		X		X				
Black phoebe	k	*Sayornis nigricans*		X	X					
Western flycatcher	k	*Empidonax difficilis*		X		X				
Tree Swallow	k	*Tachycineta bicolor*		X		X				
Violet-green swallow	k	*Tachycineta thalassina*				X				
Cliff swallow	k	*Hirundo pyrrhonota*		X			X	Prot		
Scrub jay	k	***Aphelocoma coerulescens***	X	X	X	X				
Common raven	k	*Corvus corax*								
Huttons vireo	k	*Vireo huttoni*		X						
Warbling vireo	k	*Vireo gilvus*		X						
Mountain chickadee	k	*Parus gambeli*				x				
Ruby-crowned kinglet	k	*Regulus calendula*		x	x					
Titmouse	k	*Parus inornatus*		x	x					
Bushtit	k	*Psaltriparus minimus*		x	x					
White-breasted nuthatch	k	*Sitta carolinensis*		x	x	X				
American dipper	k	*Cinclus mexicanus*		x						
House wren	k	*Troglodytes aedon*		x	x					
American robin	k	*Turdus migratorius*				X				
Western bluebird	k	*Sialia mexicana*								
Hermit thrush	k	*Catharus guttatus*		x						
Wrentit	k	*Chamaea fasciata*		x						
Rock wren	k	*Salpinctes obsoletus*					x			
Winter wren	k	*Troglodytes troglodytes*		x	x					
Brown creeper	k	*Certhia americana*			x	X				
Orange-crowned warbler	k	*Vermivora celata*		x						
yellow breasted chat	k	*Icteria virens*		x					SC (n)	
Nashville warbler	k	*Vermivora ruficapilla*		x						
Yellow-rumped warbler	k	*Dendroica coronata*		x						

Common Name	(k) (e)	Scientific Name	Habitat Association					*Special Status*		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs,caves, borrows	Federal	State	Harvest
MacGillivray's warbler	e	*Oporornis tolmiei*		x						
Black-throated gray warbler	k	*Dendroica nigrescens*		x						
Western tanager	k	*Piranga ludoviciana*								
Evening Grosbeak	k	***Coccothraustes vespertinus***								
Black headed grosbeak	k	***Pheucticus melanocephalus***								
Lazuli Bunting	e	*Passerina amoena*		x						
Spotted towhee	k	*Pipilo maculatus*						Cand.		
California towhee	k	*Pipilo fuscus*			x					
Golden-crowned sparrow	k	*Zonotrichia querula*			x					
White-crowned sparrow	k	*Zonotrichia leucophrys*			x					
Lark sparrow	k	*Chondestes grammacus*								
Dark-eyed junco	k	*Junco hyemalis*			x					
Western meadowlark	e	*Sturnella neglecta*								
Brown-headed cowbird	k	*Xanthocephalus xanthocephalus*				X				
Bullock's Oriole	k	*Icterus bullockii*								
Lawerences goldfinch	k	*Carduelis lawrencei*		x	x					
Pine siskin	k	*Carduelis pinus*								
Lesser goldfinch	k	*Carduelis psaltria*		x						
American goldfinch	k	*Carduelis psaltria*		x						
House finch	k	*Carpodacus mexicanus*								

a) List derived from Version 7.0 of the California Wildlife Habitat Relationships System (CWHR), observations of birds during site visits, and from a reference site near Mud Creek. The list was edited with special reference to the Bidwell Park Acquisition Area within the USGS quadrangle Paradise West.

b) Taxonomic names from Peterson.R.T. 1990.

Table 1. Wildlife known (k) or expected (e) to occur within the Bidwell Park Acquisition Area, Butte County California[a].

Common Name	(k)[c] (e)	Scientific Name[b]	Habitat Association					Special Status		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs,caves, borrows	Federal	State	Harvest
opossum	k	*Didelphis virginiana*	X	X	X	X	X			x
Dusky shrew	e	*Sorex monticolus*		X	X					
water shrew	e	*Sorex palustris*		X						
Trowbridge's shrew	e	*Sorex trowbridgii*		X	X					
vagrant shrew	k	*Sorex vagrans*		X	X			Cand.		
broad-handed mole	k	*Scapanus latimanus*		X						
big brown bat	e	*Eptesicus fuscus*		X		X	X			
silver-haired bat	e	*Lasionycteris noctivagans*		X		X	X			
western red bat	e	*Lasiurus blossevillii*		X		X	X			
hoary bat	e	*Lasiurus cinereus*		X		X				
California myotis	e	*Myotis californicus*		X		X	X			
western small-footed myotis	e	*Myotis ciliolabrum*		X		X	X	SC		
western pipistrelle	k	*Pipistrellus hesperus*		X		X	X			
little brown myotis	e	*Myotis lucifugus*		X		X	X	Cand.	SC	
Yuma myotis	k	*Myotis yumanensis*		X		X	X			
Mexican free-tailed bat	k	*Tadarida brasiliensis*		X			X			
black-tailed hare	k	*Lepus californicus*		X					SC	x
white-tailed hare		*Lepus townsendii*								
Nuttall's cottontail	k	*Sylvilagus nuttallii*								
brush rabbit	e	*Sylvilagus bachmani*		X	X		X			
western gray squirrel	k	*Sciurus griseus*	X	X	X	X				X
California ground squirrel	k	***Spermophilus beecheyi***	x	x	x		X			x
Belding's ground squirrel	k	*Spermophilus beldingi*	x		x					x
golden-mantled ground squirrel	e	*Spermophilus lateralis*	x		x					x

Common Name	(k) (e)	Scientific Name	Habitat Association					Special Status		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs,caves, borrows	FEDERAL	State	Harvest
Townsend's ground squirrel	e	*Spermophilus townsendii*								x
pocket gopher	k	*Thomomys bottae*		x			x			
California pocket mouse	k	*Chaetodipus californicus*					x			
Beaver	k	*Castor canadensis*	x	x						x
dusky-footed woodrat	k	*Neotoma fuscipes*	x	x	x			Cand.	SC	
brush mouse	e	*Peromyscus boylei*	x	x	x	X	x			
deer mouse	k	*Peromyscus maniculatus*	x	x	x		x			
Pinyon mouse	e	*Peromyscus truei*		x	x		x			
western harvest mouse	k	*Reithrodontomys megalotis*		x						
California vole	k	*Microtus californicus*		x			x			
long-tailed vole	e	*Microtus longicaudus*								
house mouse	k	*Mus musculus*		x	x		x			
Norway rat	e	*Rattus norvegicus*		x			x			
black rat	e	*Rattus rattus*	x	x	x		x			
western jumping mouse	e	*Zapus princeps*								
porcupine	k	*Erethizon dorsatum*		x	x	X	x			
coyote	k	*Canis latrans*		x	x	X	x			x
Red fox	e	*Vulpes vulpes necator*	x	x	x		x		Thret.	
Red fox (non-native)	e	*Vulpes vilupes*			x		x			
gray fox	k	*Urocyon cinereoargenteus*		x	x	X	x			x
black bear	k	*Ursus americanus*	x	x	x	X	x			x

Common Name	(k) (e)	Scientific Name	Habitat Association					Special Status		
			Acorns	Riparian	Logs, brush piles	Snags	Rocks, cliffs,caves, borrows	FEDERAL	State	Harvest
ringtail	k	*Bassariscus astutus*		x	x	X	x		Prot.	
raccoon	k	*Procyon lotor*	x	x	x	X	x			x
striped skunk	k	*Mephitis mephitis*		x	x		x			
western spotted skunk	e	*Spilogale gracilis*		x	x	X	x	Cand.		
mountain lion	k	*Felis concolor*		x		X	x		Prot.	
bobcat	k	*Felis rufus*		x	x		x			X
feral cat	k	*Felis sylvestris*		x	x		x			
feral pig	e	*Sus scrofa*	x	x	x					x
mule deer	e	*Odocoileus hemionus*	x	x						x
black-tailed deer	k	*Odocoileus hemionus columbianus*	x	x						x

a) List derived from Version 7.0 of the California Wildlife Habitat Relationships System (CWHR) and edited with special reference to the Simmons Ranch within the USGS quadrangle Paradise West.
b) Taxonomic names from Ingles, L. G. (1965).
c) Known and expected status of bats were verified by Dr. Albert Beck, local bat expert (Dr. Albert Beck, pers. comm.)

Special Status Codes

Cand. = candidate species
SC = species of special concern
Prot. = protected species
End. = Endangered species
Thret. = threatened species
FPD = federally proposed delisting
(a) = Species or subspecies with special status primarily associated with wetlands, marshes, and riparian areas.
(n) = nesting