Chapter 2: Affected Environment

The affected environment is discussed in relation to the Proposed Action

Existing Situation

Land Ownership

The Vicinity Map depicts the ownership within the overall boundaries of this CRMP. This area presently includes 123,997 acres. Of this amount 72,495 acres (including the 1,419 acres recently purchased from the Rocky Mountain Elk Foundation) are BLM-administered and comprise the Cache Creek Natural Area (CCNA); 3,476 acres are State of California-administered (CDFG and State Lands Commission); 1300 acres are Yolo County Parks; and the remainder of 48,404 acres are in private ownership

Future Acquisitions within the CCNA

Additional acquisitions of private lands from willing sellers will likely occur by BLM, CDFG, and Yolo County.

Several landowners interested in selling their property have already contacted BLM. Other owners within and adjacent to the CCNA will be contacted by BLM to see if they are interested in selling. If they are interested in selling, negotiations will begin. If they are not interested, further negotiations will not be pursued. Acquisitions will be prioritized primarily by their relative resource value and importance for public access.

Socio-Economics and Land Uses

Economic uses currently operating within the CCNA include water management, and a variety of recreational activities (both commercial and non-commercial. Other uses occurring adjacent to the CCNA include livestock grazing, mining, and commercial firewood harvesting. Additionally there is a mineral springs resort located at Wilbur Springs.

I. Water Management

The Yolo County Flood Control and Water Conservation District (the District) owns and operates the Cache Creek and Indian Valley Dams. The District is an independent Special District with its own Board of Directors and Management. The District controls the majority of surface water rights on Cache Creek through this portion of the watershed. The District does not necessarily represent the viewpoints of Yolo County, nor does Yolo County necessarily represent the viewpoints of the District.

Cache Creek Dam on Cache Creek

II. Grazing

There are no longer any BLM grazing allotments within the CCNA. The Perkins Creek Allotment near the western boundary was relinquished at the request of the lessee in April, 2003.

The former Payne Ranch, which was acquired by the BLM and the Rocky Mountain Elk Foundation in 1999-2001, currently has no authorized grazing. This property was heavily grazed for many years, until the lease expired in June, 2001. Any grazing authorized as part of the Proposed Action of this CRMP will be implemented under strict prescriptions for noxious weed reduction (see Grazing Management discussion in Chapter 3).

There are several ranches on private lands adjacent to the CCNA which are currently being grazed by livestock.

III. Recreation

Two rafting concessionaires currently work the stretch of Cache Creek from Buck Island downstream to the Rumsey area, and can do considerable business during the peak summer season.

An equestrian concessionaire has run horseback-riding trips in the Fiske Creek/Yolo County Regional Park area, and has expressed interest in expanding this concession to adjacent BLM lands on the Payne Ranch acquisition.

Guide services have expressed an interest in obtaining permits to lead guided pack trips within the CCNA. One such permit was issued in September 2000.

Considerable numbers of users are also experiencing the CCNA on their own, without the use of guide services. Varied forms of recreational activities help support the local economies through gas, food, and various supplies.

Boating past Mario Andretti Bank

IV. Mining

Homestake Mining Company's McLaughlin Gold Mine is within the boundary of the CCNA. The majority of land within the mine area is privately-owned, with the remainder consisting of claims on federal land. Mining excavations have ceased. Processing of stockpiled ore and various phases of land reclamation will continue through 2004.

There are other active mining claims and several smaller mines scattered throughout the area, both on adjacent public lands outside of the CCNA and on private land. Other abandoned mines, located primarily on private land, are found throughout this area.

V. Firewood Harvesting

Currently there is no firewood cutting authorized on federal, state, or Yolo County park property in the Cache Creek area and this use will not be allowed in the future.

Firewood cutting is presently occurring on nearby private lands along

Highway 20 to the north of the 20/16 intersection in Colusa County.

Water Rights

When the BLM purchased the Payne Ranch, the existing water rights were conveyed to the BLM. This includes approximately two dozen impoundments historically used by livestock. Within the remainder of the CCNA the BLM also has water rights for seven small reservoirs and nine springs.

The CDFG maintains riparian water rights on their lands adjacent to the North Fork. This water has been used throughout the summer for several years to maintain an irrigated pasture for tule elk just downstream from the Highway 20 Bridge on the North Fork.

State statute requires that Yolo County Flood Control and Water Conservation District maintain fisheries below dams in as good condition as the fishery would be absent the dam. The appropriative water right for Indian Valley Reservoir requires the District to maintain a 10 cubic feet per second minimum release. There is no such stipulation at Cache Creek Dam, where Cache Creek would often lack hydrologic continuity during the late summer under pre-dam conditions (prior to 1914).

Regional Transportation

Highways 16 and 20 provide public access via the major arteries of I-5 (Willows, Williams, Woodland, and Sacramento), I-80 (Sacramento and San Francisco), and Highway 101 (San Francisco, North Bay, Ukiah, and Eureka). Highways 53, 29, and 20 provide local access from the west, while the Morgan Valley Road and Knoxville-Berryessa Road provide a limited access from the south (see Vicinity Map).

Affected Environment

General Setting

The CCNA is within the California Coast Range province, approximately 60 miles northwest of Sacramento. The Coast Range province includes a series of north-northwest trending mountain ranges separated by short narrow valleys. The province is bounded by the Central Valley on the east and by the Pacific Ocean on the west. It extends northerly to the south coast of Oregon and southerly more than 500 miles.

The climate is typical of northern California, a Mediterranean-type climate with warm summers and mild winters. The summers are mainly influenced by a high pressure system which lies off the coast of California. This high pressure system forces polar air masses to the north, causing the warm dry summers. During the winter months this high pressure cell shifts to the south, allowing frontal systems to bring precipitation over the state.

Precipitation averages 25 inches annually. Approximately 95 percent of this is received from October through April, while the remainder falls during the months of, May, June, and September. Precipitation falls primarily as rain, although some snow falls in the higher elevations. This snow usually melts rapidly and rarely remains for as long as a few days. Occasionally, some precipitation may be received during the summer months from local thunderstorms, which have on occasion also sparked wildfires such as in September, 2003. The area is subject to extremely high summer temperatures and prolonged drought periods.

Physiography

Clear Lake is a natural lake which is quite possibly the oldest lake in North America. The water level of the lake is controlled by the Grigsby Riffle, a rock formation that creates a lip or high area on the edge of the lake near the Highway 53 bridge over which water must flow into Cache Creek. The dam near Clear Lake is not on the lake itself, but on Cache Creek, approximately five miles downstream of the lake and below the riffle. The dam functions to regulate the summer outflow from Clear Lake and to manage some winter flood flows for consumptive use downstream.

Cache Creek runs northwest to southeast and forms a rugged, steep-sided canyon through most of the area. These steep canyon walls occasionally open to broad, grassy meadows with scattered oaks, such as Baton Flats, Wilson Valley, and Kennedy Flats. Prior to the construction of Cache Creek and Indian Valley Dams, much of Cache Creek lacked hydrologic continuity during the summer months.

Cache Creek Canyon at Kennedy Flats from Cache Creek Ridge Trail

The North Fork originates on the Mendocino National Forest flowing into Indian Valley Reservoir, then exits Indian Valley Dam and joins Cache Creek at a point 2¼ miles downstream of the Highway 20 bridge.

Bear Creek, which originates in the watershed above Bear Valley and continues free-flowing to the confluence with Cache Creek, flows year-round but with much reduced flows during the summer months.

Other tributary streams seasonally flowing into Cache Creek include Dry Creek, Rocky Creek, Trout Creek and Davis Creek.

Much of the uplands are dominated by rolling chaparral-covered hills. The recently-acquired Payne Ranch includes an expanse of oak savannah and oak woodlands which are less extreme topographically from the surrounding BLM lands.

Elevations within the CCNA range from about 425 feet along the downstream boundary at Cache Creek just upstream of Rumsey, to almost 3200 feet at Brushy Sky High, a few miles east of Cache Creek Dam.

Vegetation - Native

Wildlife Habitat Relationships (WHR) habitat types are used in this CRMP to describe vegetative communities within the CCNA.

California chaparral dominates the majority of the CCNA. Two chaparral types, chamise chaparral and mixed chaparral, cover large expanses of the mountainous slopes. Chamise (*Adenostoma fasciculatum*) is the dominant shrub species found. Other species include buckbrush (*Ceanothus cuneatus*), several species of manzanita (*Arctostaphylos* sp.), birchleaf mountain mahogany (*Cercocarpus betuloides*), yerba santa (*Eriodictyon californicum*), and California buckeye (*Aesculus californica*).

Much of the CCNA is dominated by chaparral habitat.

A significant factor affecting vegetation types is the local abundance of serpentine soils. These soils have chemical properties (low calcium; high magnesium, nickel and chromium) that restrict growth to serpentine-tolerant plants. This habitat is classified as either mixed chaparral or closed-cone pine-cypress according to WHR guidelines and is also known commonly as serpentine chaparral. Common vegetation here includes McNab cypress (*Cupressus mcnabiana*), gray pine (*Pinus sabiniana*), leather oak (*Quercus durata*), and white-leaved manzanita (*Arctostaphylos viscida*). In 1985 an 11,000-acre block of public land was designated as the Northern California Chaparral Research Natural Area to promote botanical and other academic research, while preventing any surface-disturbing activities from occurring (BLM, 1985).

WHR habitat types within the CCNA comprised primarily of trees include blue oak woodland, dominated by blue oak (*Quercus douglasii*); blue oak-gray pine, dominated by blue oak and gray pine (*Pinus sabiniana*); and valley oak woodland, dominated by valley oak (*Q. lobata)*. Less abundant oak species include canyon oak (*Q. chrysolepis*) and interior live oak (*Q. wislizenii*).

Dominant grass species found in oak habitats include slender wild oat (*Avena barbata*), wild oat (*A. fatua*), and soft chess (*Bromus mollis*), all annual species. Medusahead (*Elymus caput-medusae*), a nonnative annual grass, also grows abundantly in oak habitats. This species is discussed further in the next section.

Oak savannah habitat is an important habitat feature of the CCNA

Vegetation - Noxious

Several species of noxious non-native vegetation have out-competed and adversely affected native vegetation within the CCNA. Among those which have had the most serious consequences to native species are saltcedar (tamarisk), medusahead, yellow starthistle (*Centaurea solstitialis*), barbed goatgrass (*Aegilops triuncialis*), and perennial pepperweed (*Lepidium latifolium*). Scattered small populations of ravennagrass (also known as hardy pampas grass - *Saccharum ravennae*), and giant reed (*Arundo donax*) have been found in riparian habitats.

Since 1989 riparian habitat along Cache Creek has been periodically monitored by photo points during the summertime. Monitoring has focused on documenting the occurrence and spread of exotic species within the riparian habitat.

Saltcedar (*Tamarix parviflora*) is not known to occur on Cache Creek from Cache Creek Dam downstream to the confluence with the North Fork. The North Fork has approximately a few dozen scattered clumps located between the Highway 20 Bridge and the confluence with Cache Creek. Sources of saltcedar in this area of Cache Creek appear to be Long Valley Creek in Spring Valley and Grizzly Creek, which empties into the North Fork near the east end of the Highway 20 bridge. Saltcedar has been observed growing approximately 2 ½ miles up Grizzly Creek from the confluence with the North Fork. The stretch of Cache Creek between the confluence with the North Fork and Bear Creek has scattered saltcedar, some in clumps, and others as younger individual plants. Presently it is not considered a serious infestation on this stretch of the creek; however control should be implemented soon to prevent further spread throughout this stretch that is considered the most primitive area of the creek. Beyond the confluence with Bear Creek however, saltcedar is found in much greater abundance, entering Cache Creek from

Bear Creek. The stretch of Bear Creek from the confluence with Sulphur Creek downstream to the confluence with Cache Creek is seriously infested. Very few native trees occur in this 12-mile stretch of Bear Creek due to the high salinity and alkalinity levels which has favored the spread of saltcedar. A 7.4-mile length of the creek is included within the recent Payne Ranch acquisition.

In 1998 the U.S. Department of Agriculture's Agricultural Research Station headquartered in Temple, Texas proposed the release of the saltcedar-predating Chinese leaf beetle on this stretch of Bear Creek to help control the spread of this noxious plant. An initial release in the Owen's Valley has shown promising results (Carruthers, 2001). In June 2001 researchers from USDA released a total of 150 adult beetles inside a sealed tent along Bear Creek. This release failed, and a second release of leaf beetles from the Mediterranean area was completed in the spring and summer of 2004. There has been tremendous success with these beetles in controlling the spread of saltcedar in other test areas throughout the West, and it is hoped that if the beetles can successfully establish on Bear Creek, they will also be successful in reducing the amount of saltcedar here and the need for further herbicide treatment could be significantly lowered.

Ravennagrass has spread throughout Cache Creek. It is not as significant in numbers as saltcedar and does not have as serious an effect on the aquatic environment, but it can spread quite easily under the right conditions.

USDA researchers releasing leaf beetles on saltcedar for biocontrol on Bear Creek

Giant reed (*Arundo donax*), resembling bamboo to the non-botanist, is found scattered along both the North Fork and Cache Creek. It is found in Grizzly Creek (which feeds into the North Fork), as well as Bear Creek and other tributaries. Although numbers have not been tallied for giant reed, it is believed to be an amount which is manageable.

Medusahead, an exotic annual grass introduced from the Mediterranean region, has invaded upland oak habitats such as blue oak woodland, blue oak savannah, and blue oak-gray pine. Infestation is significant in portions of the acquired Payne Ranch and adjacent private lands.

Yellow starthistle (YST), has invaded habitats from the edge of the riparian areas and on up throughout the Cache Creek and Bear Creek drainages. This plant has spread at a phenomenal rate throughout the West in the past several decades. Many wildlife species will forage on YST before it grows its characteristic spines, but it is poisonous to horses during any growth stage.

When spring rainfall has been minimal, grasshoppers have been observed in the summer time heavily predating flowering YST in the CCNA.

Yellow starthistle was not yet present when native grasses declined some time ago, but it is still considered a serious impediment to the establishment of native grasses. Locally, there has been some biological control work implemented by the California Department of Agriculture's Biological Control Program within the past decade. Several certified bio-control insects have been released which feed exclusively on various growth stages of YST. The ultimate goal of this program is to control the spread of this weed by minimizing seed production (Turner, 1992). Initial results of these releases have shown that only small localized YST infestations are impacted by these bio-control agents.

Several YST conversion projects are located within the CCNA. These include a dry seeding located at the downstream end of Wilson Valley, an irrigated pasture on CDFG land near the confluence of the North Fork and Perkins Creek, a dry seeding in the County Line Ridge area, and several scattered smaller conversions on the former Pluth Ranch, acquired by BLM in 1997. These seedings have succeeded in replacing YST-dominated grassland with higher quality wildlife forage. With the exception of the Wilson Valley seeding, all seedings have been restricted to native species.

In the past decade barbed goatgrass has spread throughout the Bear Creek drainage, primarily throughout the Payne Ranch acquisition. When mature it is unpalatable, and can reduce the abundance of native perennial bunchgrasses. This grass also competes with more desirable introduced annuals and native forbs, and appears to do well on serpentine soils that are generally resistant to the spread of annual grasses (DiTomaso, 2001).

Perennial pepperweed is another serious noxious weed throughout the Cache Creek drainage. It is a particularly serious pest in the Bear Creek watershed. Pepperweed is an aggressive invader of riparian habitats, forming dense monotypic stands that crowd out beneficial native species.

Fire and Fuels Management

Periodic fire is necessary to keep chaparral species healthy and vigorous. Numerous researchers have documented the natural role of fire within the chaparral ecosystem. In chaparral, what may appear to be a relatively stable community at any given time or place is in reality only a phase in a larger cycle of growth → maturity → removal → regrowth that takes decades to complete. Fire serves as the major cause of secondary succession in chaparral by creating the pioneer conditions necessary for seedling establishment.

By virtue of its vegetative characteristics (chemical, physical and physiological), California chaparral is one of the most fire-susceptible types in the world. As the dominant chaparral species, chamise is characterized by a high surface area-to-volume ratio, seasonally low dead and live fuel moisture content, and high extractive contents. As stands of chamise mature, their flammability increases. This

inherent flammability ensures its continuation as a major component of the chaparral type. Aside from vegetative characteristics that contribute to its flammability, chaparral species have developed adaptive characteristics in response to fire. These adaptive characteristics include the production of seed at an early age, seeds that maintain viability in the soil for decades, and the ability to sprout from roots or root crown burls.

Until the late 1970's, the BLM did not use fire as a tool for the management of chaparral to achieve such benefits as fuel-hazard reduction and improved wildlife habitat. Past practice has been the strict protection of chaparral from fire. After many years of developing new, innovative, and effective fire-suppression techniques, it has become obvious that there is no way to totally prevent wildfires. As exemplified by the major conflagrations that have occurred in California, wildfires will eventually occur and indiscriminately burn large areas of chaparral.

Starting in 1984, fire was reintroduced as a significant tool for land and resource management within the CCNA, using the helitorch to burn in mosaic patterns. In general, the objectives of prescribed burning are to reduce the fire hazard by breaking up the contiguous stands of mature chaparral, and to improve wildlife habitat.

Several prescribed burns have been completed through a cooperative effort by BLM, the California Department of Forestry and Fire Protection, CDFG, and other state and local agencies. As of June, 2003, there have been 25 prescribed burns on public land within the CCNA, treating approximately 45,000 acres.

Prescribed burning in the CCNA utilizing the helitorch has been implemented since 1984.

In recent years there has been concern regarding the timing of these prescribed burns. Wildfires occur during the hot summer months, and the subsequent natural revegetation is affected by this timing. Since prescribed burns cannot be completed during summer months due to extreme temperatures as well as liability and safety factors, fall burns are preferred to approximate as closely as possible the natural burning periods. It has been found that prescribed burns conducted during this time result in a greater diversity of grasses and forbs, while important wildlife forage such as buckbrush tend to increase. However, monitoring has shown that prescribed burns conducted during the spring, while reducing the threat of future wildfires and temporarily improving habitat conditions can result in adverse habitat conditions in the long run by decreasing vegetative diversity through a decrease or even elimination of important browse species such as buckbrush and other desirable species of *Ceanothus.*

There has also been recent concern regarding impacts of spring burning on breeding birds found in the chaparral habitat. There can be significantly higher mortality of nesting birds and their eggs from burning at this time if adjustments in fire strategy are not made. Mortality of breeding birds can be mitigated by carefully planning precise locations for the burning, i.e. focusing on narrow strips along ridgelines, and not burning the dense pockets of brush located on the hillsides. It has also been observed that spring burns can negatively impact use of fawning and calving habitat by deer and elk if too much protective cover is burned.

The BLM's strategy behind fall and spring prescribed burns is quite different. In the fall the primary objectives are to improve wildlife habitat conditions and fuel hazard reduction by breaking up the larger dense blocks of chaparral by spot-burning in a mosaic pattern, primarily on south-facing slopes. This creates more edge and beneficial effects for post-fire vegetation. In the spring the primary objective is fuel hazard reduction, but done in a manner as to have the least impact to nesting birds. This is accomplished by burning along major ridgelines, firebreaks, and topographical boundaries of an area, rather than burning small patches within the dense chaparral. This technique is an important mitigation to decrease impacts to nesting birds.

Prescribed burns implemented with a wildlife habitat improvement objective are preferably done in the fall; however the prescribed burn window is so narrow that fall burns are often not logistically possible.

Prescribed burning both for wildlife habitat improvement and fuels hazard reduction will continue to occur within the Cache Creek Wilderness Study Area (or if designated, the Cache Creek Wilderness Area) using methods that do not result in any surface disturbance.

Fire History

A fire history review of the CCNA was made of BLM records for the period of 1958 through 2004. This review gives a good indication that wildfires occur frequently and are principally man-caused.

During this 45-year period for which there are records, 87 wildfires were documented within and adjacent to the CCNA, burning approximately 109,000 acres of public land. The largest fires (10,000+ acres total) occurred in 1964, 1972, 1973, 1981, 1999, and 2004. Of the 87 wildfires, 84 were man-caused. Of these 84, incendiary and smoking caused 78.

The Rumsey Wildfire of October, 2004 burned over 8,000 acres of BLM lands within and adjacent to the CCNA.

Wildlife

The wildlife resource can best be described as very diverse within the many habitats within the CCNA.

The bald eagle, currently classified as federally threatened, is a year-round resident within the CCNA. This species has successfully nested here since 2000, in addition to wintering in significant numbers from mid-November through March. Nesting and wintering eagles have been attracted here because of the abundant forage fish in the creek as well as the large expanse of isolated habitat found within the canyon, essentially free from human disturbance.

Pair of wintering adult bald eagles perched along Cache Creek

The CCNA is within the original range of the tule elk. These elk occur in three subherds, having originated from a group relocated to Colusa County from Del Monte Park in Monterey County in 1922 by CDFG. Two of these subherds, the Wilson Valley and Bear Creek subherds, are found within the CCNA. A third group is found along Cortina Ridge, just outside of the area to the north and east.

The Wilson Valley subherd includes 50-60 elk and ranges from the Spring Valley area along the North Fork to a point just downstream of Wilson Valley on Cache Creek. Several habitat improvements for this subherd have been completed, including brush-to-grass conversions, other seedings to replace noxious plants, prescribed burns, and water developments. In recent years there has been considerable use of these habitat improvements by these elk, reflected by a substantial increase in elk numbers here. There has been a limited hunting season of tule elk at Cache Creek annually in October since 1989.

The Bear Creek subherd is found adjacent to Bear Creek along Highway 16 and occasionally in the interior portions of the former Payne Ranch. Numbers in this subherd have dropped from over 100 in 1973 to a current population of approximately 30 elk.

The Cortina Ridge subherd to the north and east of the intersection of State Highways 16 and 20 includes approximately 75 elk according to the most recent estimates (spring, 2003), down from much higher numbers in the late 1980's of approximately 250 animals.

Approximately 150 tule elk reside year-round within the CCNA.

Several other game species occur within the CCNA which attract significant numbers of hunters. These include blacktail deer, black bear, wild pig, gray squirrel, wild turkey, mourning dove, and California quail. In recent years, the number of wild pigs on public lands has declined due to increased hunting pressure, although there have been recent reports from hunters of increased pig sightings on the Payne Ranch acquisition.

Many non-game species of furbearers occur, including mountain lion, coyote, gray fox, bobcat, badger, raccoon, beaver, and river otter.

Beaver dam on North Fork

Dense chaparral habitat supports species such as the jackrabbit, brush rabbit, wren-tit, California thrasher, and California towhee.

Many visitors come to the CCNA to view the variety of bird species found in the diverse habitats. Blue oak woodlands such as along the Redbud Trail are a popular destination in the springtime to view the variety of songbirds during the breeding season. The uncommon pileated woodpecker and pygmy owl are sometimes observed in this habitat. Roadrunners are occasionally spotted in open areas along trails, such as the Payne Ranch and Langs Peak Road. Other species commonly seen here include the common flicker, acorn woodpecker, tree swallow, Stellar's jay, and scrub jay.

Along the creeks one can find riparian-obligate species such as osprey, great blue heron, great egret, green heron, black crowned night heron, bittern, spotted sandpiper, least sandpiper, belted kingfisher, mallard, wood duck, widgeon, and common merganser.

Raptors found include the bald eagle, golden eagle, osprey, red-tailed hawk, Cooper's hawk, sharp-shinned hawk, kestrel, and the resident prairie falcon. The recently federally-delisted (but still State Endangered) peregrine falcon is occasionally sighted foraging through the CCNA. Owls found include the great horned, long-eared, and pygmy owl.

Common herptile species include California newt, Pacific treefrog, bullfrog, foothill yellow-legged frog, western toad, northwestern pond turtle, western fence lizard, western skink, western whiptail, alligator lizard, gopher snake, common king snake, rubber boa, common garter snake, western terrestrial garter snake, western aquatic garter snake, and the northern Pacific rattlesnake.

Special Status Species

These include species which are federally-listed, proposed, candidate, or BLM Sensitive Species.

The one current and one formerly federally-listed wildlife species known to occur within the management area, the bald eagle and the peregrine falcon, recently had changes in their status proposed by the U.S. Fish and Wildlife Service. In July of 1999, the Secretary of Interior proposed to remove the

threatened bald eagle from the endangered species list. In July of 2000 this decision was put on hold, primarily due to uncertainties of future bald eagle protection if the birds' habitat is not given the same degree of protection which it received as a listed species. As mentioned previously, an active bald eagle nest site was recently discovered in a remote area of the CCNA. The bald eagle also occurs in significant numbers within the canyon area during the winter. Peak numbers usually occur about mid to late January (BLM, 1985).

The peregrine falcon was de-listed from the federal endangered species list in August 1999. However it is still a State Endangered species. This species is only known to pass through the area while foraging. There are no known nest sites, as the habitat is not conducive to that required for nesting.

The federally-threatened California red-legged frog (*Rana aurora draytonii*) could possibly occur here, but has not been documented. Recent herptile surveys conducted in Bear Creek and Cache Creek by the Davis Field Station of the Biological Division of the U.S. Geological Survey did not document any occurrences of this species (Roger Hothem, USGS Davis Field Station, personal communication).

The Sacramento perch (*Archoplites interruptus*) is known to occur in Clear Lake and likely occurs in the channel area above Cache Creek Dam. It is possible that this species occurs in Cache Creek by passing through the dam, but it has not been documented (Moyle, personal communication). The Sacramento perch is currently classified as a CDFG Species of Special Concern (CDFG, California Natural Diversity Data Base, 1996).

There are no federally proposed or candidate animal species known within the CCNA. Three BLM Sensitive animal species are found, including Townsend's western big-eared bat (*Plecotus townsendii*), Pallid bat (*Antrozous pallidus*), St. Helena mountain king snake (*Lampropeltis zonata zonata*), and the foothill yellow-legged frog (*Rana boylei*).

Several BLM Sensitive Plants are known to occur, including drymaria-like western flax *(Hesperolinon drymarioides),* adobe lily (*Fritillaria pluriflora*), Hall's madia, *(Madia hallii*), and Snow Mountain buckwheat *(Eriogonum nervulosum).* (CNPS, 1994)

Adobe lily in early spring

Fisheries

Fisheries habitat evaluated within the CCNA includes 33.4 miles of Cache Creek below Cache Creek Dam, 12.8 miles of the North Fork below Indian Valley Dam, and 11.7 miles of Bear Creek above the confluence with Cache Creek.

The 3.1-mile portion of the Cache Creek channel between Cache Creek

Dam and Highway 53 is not included within the stretch of Cache Creek evaluated in this plan since the channel is directly connected with the lake, and the fish species found here include most of the same species as those occurring in Clear Lake. Therefore the species list in Table 1 on page 23 includes only those species commonly occurring below Cache Creek Dam year-round (Moyle, Slotton, personal communication), while Table 1A adds those species which are occasionally present only by escaping beyond Cache Creek Dam, the only outlet from Clear Lake (Moyle, Slotton).

Summer and winter releases from Cache Creek Dam are stipulated by various court decrees. Winter releases may only occur for flood control purposes based on a fill curve. Depending upon the time of the year, releases may be at a lake level of 5.5 feet on the Rumsey Gauge, the official measurement of lake levels. The Clear Lake flood pool is considered to be from 7.56 feet to 9.0 feet on the Rumsey Gauge. Water is not actually held back for flood control, but rather stored per court decree for later summertime release. In heavy winter storm events and above-average rainfall years, there may be flood control releases from Cache Creek Dam to reduce the potential for flooding around the lake's shoreline. These water releases do have both positive and negative effects on the fisheries within the creek.

Both game and non-game fish species occur in Cache Creek. The majority of sport fishing focuses on channel catfish and smallmouth bass. Several non-game species provide a critical source of food to wildlife such as the bald eagle and black bear (BLM, 1985). From November through March wintering bald eagles feed almost exclusively on the larger non-game fish species. During periods of low water flow, black bear have been observed feeding heavily on the larger fish which become stranded in shallow pools. Other mammalian, avian, and herptile predators feed on the smaller fish.

Criteria for water releases during the winter from Indian Valley Dam are set by the U.S. Army Corps of Engineers. There is a fill curve for the reservoir with a 60,000 acre-foot flood pool. During high rainfall events, water is stored in the reservoir. If the reservoir level rises into the flood pool, the water is stored temporarily and then released after the downstream Cache Creek flows at the Rumsey Bridge have dropped below 20,000 cfs.

The North Fork supports more species typically associated with colder water since the water depth at the point of release is much deeper than it is at Cache Creek Dam. In the past CDFG stocked the reservoir with Eagle Lake strain rainbow trout and kokanee salmon, while brown trout were stocked below the dam. Fish species found in the North Fork below Indian Valley Reservoir are shown in Table 2 on page 23.

In past years the effects of in-stream gravel mining resulted in accelerated channel degradation in the lower reaches of the North Fork. To prevent further degradation, the Lake County Community Development Department adopted a moratorium on in-channel gravel mining here in the mid-1980's. This moratorium will remain in effect until such time that “it can be demonstrated by a landowner or mining permit applicant that chronic channel down-cutting within the creek system

has ceased and the channel elevation has aggraded to the earliest historic level for which sufficient data exists". Fish occurring in Bear Creek are warm water species; however the rainbow trout is known to occur in some of the upper tributaries where colder water is found (Moyle, personal communication). A species list for Bear Creek is found in Table 3 on page 24.

Table 1: Fish Species of Cache Creek between Cache Creek Dam and Rumsey

Common Name	*Scientific Name*
Pacific lamprey*	*Lampetra tridentata*
Rainbow trout*	*Oncorhynchus mykiss*
Common carp	*Cyprinus carpio*
California roach*	*Lavinia symmetricus*
Red shiner	*Cyprinella lutrensis*
Sacramento pikeminnow*	*Ptychocheilus grandis*
Speckled dace*	*Rhinichthys osculus*
Hardhead*	*Mylopharodon conocephalus*
Sacramento sucker*	*Catostomus occidentalis*
Black bullhead	*Ameiurus melas*
Channel catfish	*Ictalurus catus*
Western Mosquitofish	*Gambusia affinis*
Green sunfish	*Lepomis cyanellus*
Bluegill	*Lepomis macrochirus*
Smallmouth bass	*Micropterus dolomieui*
Largemouth bass	*Micropterus salmoides*
Prickly sculpin*	*Cottus asper*

Table 1A: Species Present only by Occasional Escape below Cache Creek Dam

Goldfish	*Carassius auratus*
Hitch*	*Lavinia exilicauda*
Golden shiner	*Notemigonus crysoleucas*
Sacramento blackfish*	*Orthodon microlepidotus*
White catfish	*Ameiurus catus*
Brown bullhead	*Ameiurus melas*
Inland silverside	*Menidia beryllina*
Sacramento perch*	*Archoplites interruptus*
Redear sunfish	*Lepomis microlophus*
White crappie	*Pomoxis annularis*
Black crappie	*Pomoxis nigromaculatus*
Clear Lake Tule perch*	*Hysterocarpus traski lagunae*

***Native species**

Table 2: Fish Species of North Fork

Common Name	*Scientific Name*
Rainbow trout*	*Oncorhynchus mykiss*
Brown trout	*Salmo trutta*
Smallmouth bass	*Micropterus dolomieui*
White crappie	*Pomoxis annularis*
Sacramento pikeminnow*	*Ptychocheilus grandis*
Sacramento sucker*	*Catostomus occidentalis*
Common carp	*Cyprinus carpio*
Hardhead*	*Mylopharodon conocephalus*
California roach*	*Hesperoleucus symmetricus*
Speckled dace*	*Rhinichthys osculus*
Riffle sculpin*	*Cottus gulosus*

Table 3: Fish Species of Bear Creek

Common Name	*Scientific Name*
Green sunfish	*Lepomis cyanellus*
Bluegill	*Lepomis macrochirus*
Smallmouth bass	*Micropterus dolomieui*
Sacramento pikeminnow*	*Ptychocheilus grandis*
Sacramento sucker*	*Catostomus occidentalis*
California roach*	*Hesperoleucus symmetricus*
Speckled dace*	*Rhinichthys osculus*

* Native species

Riparian

The Valley Foothill Riparian WHR habitat type is a critical component for wildlife species throughout the year. It shades and lowers the temperature of the water, increasing the survival rate of fish and other animals. It also anchors soil in place and slows the flow of water, further reducing erosion.

There has been a tremendous increase in riparian vegetation during the past 13 years along that portion of the North Fork which CDFG purchased in 1987. This has coincided with the elimination of both livestock grazing and gravel mining. Summer releases of stored water from Indian Valley Reservoir also provide increased water availability during the hot summer months to the benefit of riparian vegetation.

Common native trees occurring in this habitat include cottonwood, alder, and several species of willow. These trees provide the riparian obligate species with critical nesting habitat for small birds and cover for most other species. Other wildlife such as deer and elk forage directly on the vegetative matter of these trees especially willows.

Riparian vegetation along Bear Creek

In certain locations previously mentioned there has been an invasion of the noxious nonnative saltcedar.

Cultural Resources

There are three categories of cultural resources within the CCNA: prehistoric, historic, and Native American traditional use.

Prehistoric resources represent Native American occupation of this area before the arrival of Europeans (ca. 1854). Information about prehistoric resources is obtained through scientific investigations by archaeologists, ethnographers, and other sources.

Historic resources are defined as cultural remains older than 50 years, which represent human activity within the Plan area after the arrival of Europeans (or AD 1854).

Modern descendants of Native inhabitants continue to perform traditional activities within the CCNA. Known uses of the area include 1) plant procurement such as collection of traditional basketry materials and food items, and 2) collection of magnesite from a traditional quarry area.

Prehistoric Cultural Resources

The CCNA was inhabited prehistorically by the Chen-po-sel tribelet of the Hill Patwin, a Penutian speaking group (Barrett 1908; Heizer 1967; Kroeber 1925, 1932; Merriam 1967; McClellan 1953; McKern 1922; Powers 1877; Rogers 1891). Modern descendants are disbursed between several rancherias east of the Plan area. Limited archaeological research within the CCNA has been focused from the North Fork at Highway 20 to the downstream end of Wilson Valley

(Badovinac 1994; Basgall 1993; Bouey and Basgall 1990; Drucker 1948, n.d.; Greenway 1988; Jackson and Fredrickson 1978; Johnson 1978, n.d.; Neitz 1935). To date, thirty-five prehistoric sites have been identified. Site types range from small lithic scatters to large permanent village sites dating from the Contact Period to as early as 11,000 B.P.

The aforementioned sites are now part of what has been designated an Archaeological District on the National Register of Historic Places.

Only limited archaeological research has been completed within the CCNA. It is highly probable that the unsurveyed areas will have a broad range of significant cultural resource values. In terms of planning, any unsurveyed areas and recent acquisitions should be considered highly sensitive archaeologically.

Archaeological research of prehistoric sites has been conducted throughout the CCNA in recent years.

Historic Cultural Resources

Euro-Americans arrived in the Cache Creek area around 1854 (Hanson 1944). However, homesteading is not known to have occurred until the 1870's (GLO Plats), most notably in Wilson Valley, at Baton Flat, and along the North Fork. A number of homestead sites are also known from the former Payne Ranch.

In addition to homesteading activities, the North Fork area was also the location for a post office (Nita), inn and stage stop (Hanson 1892; Hanson 1944; Mauldin 1950; Palmer 1881; Powers 1877; GLO plats). Several schools were also constructed, the first in Grizzly Canyon and the last, which served the local population into the 1930's, within the same general area.

Several mercury mines were also developed within and adjacent to the CCNA in the 1800's. One of these, the Zodiac Mine (formerly Shamrock Mine) which has since been relinquished, was adjacent to Rocky Creek.

Traditional Native American Land Use

The CCNA is rich in natural resources utilized by Native Americans (DuBois 1935; Hanson 1944; Hudson 1902; Knudtson 1977; McCarthy 1982; McClellan 1953; McKern 1922, 1923; Merriam 1967; Kroeber 1925; Powers 1877). For example prehistorically, native flora provided many sources of food including acorns, pine nuts, bulbs, and a variety of seed grasses. A variety of fauna were also used for food including several types of fish, fresh water mussel, pond turtle, bear, elk, deer, mountain lion, and various birds including waterfowl.

In addition to the food resources,

Native Americans also procured plant and mineral resources for such activities as basket making and tool production. For example, willow, redbud, and various species of fern are known to have been used in the production of basketry. Local minerals such as chert, sandstone, and magnesite are known to have been used in tool-making.

Today modern descendants of native inhabitants continue to perform traditional activities within the CCNA. For example, plant procurement such as collection of traditional basketry materials and food items is occurring, as is collection of magnesite from a traditional quarry area on Perkins Creek Ridge.

Negative impacts to cultural resources result from natural and modern cultural processes. Examples of disturbances include casual surface collection by recreational users, rooting by feral pigs, rodent burrowing, stream bank erosion from high water releases, and the natural wearing down of land surfaces over time. Scientific research and monitoring continue to be the most effective tools for mitigating these impacts.

Recreation

The CCNA is extremely rich in recreational opportunities. Historically, use of this area focused primarily on hunting by surrounding landowners, due to minimal public access. However, significant land acquisitions and greater public awareness have greatly diversified recreational use. This trend has been borne out by field observations as well as visitor-use surveys. These surveys were conducted for approximately five years at the Redbud Trailhead. Between July 1990 and March 1995, visitors reported the following activities during the survey:

Activity	Number	%
Hiking	1143	49%
Sightseeing	795	34%
Hunting	619	26%
Bird watching	564	24%
Backpacking	328	14%
Horseback riding	99	4%
Rafting	86	3%
TOTAL	2321	154%

The percentages add up to more than 100% because some people listed more than one activity on their survey cards. While not scientific this voluntary survey gave an indication of the number of people and the type of recreational pursuits they were seeking in the CCNA during the duration of the survey. Comments provided on these cards have indicated, in many cases strongly, just what the public likes and dislikes about the current management and uses within the CCNA.

Other less frequent recreational pursuits (in decreasing order of popularity) included mountain biking, fishing, swimming, target shooting, camping, inner tubing, photography, kayaking, rock hounding, canoeing, picnicking, dog running, and gold panning.

The CCNA is used year-round for hunting, subject to seasons determined

by CDFG. Blacktail deer, wild turkey, quail, and dove are the most common game species taken by hunters, and to a lesser extent elk, black bear and tree squirrels. These species are restricted to specific seasons. Other game species such as wild pig and jackrabbits have open seasons. Use of dogs in the pursuit of mammals is not allowed on the Fish & Game-managed lands at Cache Creek (Cache Creek Wildlife Area). Since 1989 CDFG has authorized a limited-entry tule elk hunt on a statewide drawing basis. A small number of tags are issued annually for this special hunt. Since hunting regulations can change from year-too-year, CDFG advises hunters to check the current year's hunting regulations for any changes.

The lower stretch of Cache Creek, from Buck Island downstream through Yolo County's Cache Creek Canyon Regional Park (Hopkins, Yolo County Division of Parks and Grounds), is extremely popular for both commercial and private rafting. Two commercial outfitters currently run the segment of Cache Creek from Buck Island to Camp Haswell. They use both the upper and lower Yolo County day-use sites (the lower site is also used for group camping. The commercial rafting season runs every weekend from about early May through Labor Day weekend, depending on sufficient water releases from Clear Lake and Indian Valley Reservoir.

In addition to commercial rafting, this lower stretch is also popular during the summer months for private rafting, inner tubing, and kayaking. Kayakers use the lower section whenever there is sufficient water.

There is increasing interest in private trips from the Redbud Trailhead to Highway 16, both during the summer months when water releases from Indian Valley Reservoir are sufficient, and in the winter months during peak storm releases.

A group of boaters prepares for put-in on the North Fork.

Yolo County Flood Control and Water Conservation District does not allow legal public access across Cache Creek Dam for a number of reasons, including but not limited to security and easement issues, potentially hazardous conditions created by the very limited space at the dam site itself, and the physical layout of the property and potential liability issues. Additionally there is no reasonable put-in access across public lands to reach Cache Creek above its confluence with the North Fork. There is also a dangerous class 5+ rapid just upstream of Deadman Canyon where several fatalities and other serious injuries have occurred, most often from visitors without any protective safety gear, who carry inner tubes in from the Redbud Trailhead parking area. This rapid is not boatable and must be portaged.

With strategic land acquisitions and

increased publicity of the area, hiking and horseback riding have increased dramatically over the past 5-10 years. Most of this use has been focused on the Redbud Trail, beginning at the Redbud Trailhead. Other access has come from the Perkins Creek Ridge Trail, the Judge Davis Trail off Highway 20 near the Lake/Colusa county line, undeveloped sites off Highway 16 at the Payne Ranch acquisition, and the Brushy Sky High area (mainly by adjacent landowners who can legally access here).

Inspiration Point along the Redbud Trail is a popular stopping point for hikers.

The Blue Ridge Trail now runs for 8½ miles from the Yolo County group camp site near the Road 40 low-water bridge to the end of the Fiske Creek road. This trail is gaining in popularity due to its spectacular views from the ridge, brilliant display of spring wildflowers, wildlife viewing opportunities, and solitude. Future expansion of this trail is likely, especially with the acquisition of additional lands along Blue Ridge to the south by CDFG. Although this is a rugged trail designed mainly for hikers, some expert horseback riders and mountain bike enthusiasts have attempted it in the past. However this trail has been closed to equestrian use due to extremely treacherous footing and exposed steep slopes.

Two additional trails have been developed on the Blue Ridge Ranch acquisition in the Fiske Creek drainage. The Fiske Creek Trail is an excellent 4-mile long mountain bike trail and is also open for equestrian and hiking use. It extends from Road 40 down to Fiske Creek and follows the creek south to Fiske Creek Road. This creates an approximately 16-mile loop ride for mountain bikes, starting at the Lower Yolo County Recreation Site, and including Road 40, the Fiske Creek Road, and the Fiske Creek Trail. Improvement of the Fiske Creek Trail (to reduce serious erosion and to remove an old trailer) resulted in increased illegal vehicle use along the trail before it was barricaded in the spring of 2000.

The Frog Pond Trail was originally established by Yolo County, and is across Cache Creek from the three Cache Creek Canyon Regional Park recreation sites. Access was formerly limited due to moderately high irrigation flows during the summer months making crossing the river in the vicinity of the Yolo County campground difficult, and until 1994 there was no legal public access from Road 40. With the BLM's acquisition of the 2032-acre Blue Ridge Ranch, legal public access was established and a Memorandum of Understanding (MOU) developed with Yolo County for cooperative recreation management of this portion of the CCNA. Since 1994 the 5-mile loop trail has been reconstructed and maintained for hiking, equestrian, and mountain bike

use.

In 1993 the acquisition of property by CDFG along Highway 20 near the Lake/Colusa county line created an access point for the new Judge Davis Trail. The California Department of Transportation constructed a trailhead and small parking lot at this site as part of Highway 20 reconstruction. This hiking and equestrian trail leads to a ridge top at the BLM boundary after climbing for about 1½ miles. At this point users can continue down to Cache Creek near the downstream end of Wilson Valley, or follow a newly-built connector trail to access Cache Creek Ridge. CDFG has been closing this trail to equestrian use from the third Saturday in November through the third Saturday in April to protect the trail and surrounding land from impacts due to equestrian use during wet soils conditions. Recently CDFG amended this closure to restrict mountain bikes during this same time period. However, the BLM and CDFG are presently working together to develop strategies to provide a direct access link from the Judge Davis Trailhead to the recently-acquired Payne Ranch.

The Redbud Trail is very popular for both hiking and horseback riding. Congestion in the parking lot at the trailhead became such a problem at times that the entire area was reconstructed and expanded in 1999 to facilitate parking for additional and larger vehicles such as horse trailers.

In 1997, the BLM issued a Special Recreation Use Permit to an equestrian concessionaire for horseback rides in the Fiske Creek area. While in operation this concession offered hourly, 2-hour, and half-day rides along the Frog Pond and Fiske Creek Trails. The BLM plans to continue to work closely with recreation concessionaires in proposed expansion of activities to ensure that quality public recreation opportunities are maintained while protecting the natural character of the land without impinging on the uses of the general public.

Plinking and target shooting, both forms of non-hunting shooting, frequently occur within the CCNA usually near the access points or along the main trails. Fiske Lake off Road 40 receives a fair amount of target shooting when the road is open after the rainy season. Other target shooting is scattered throughout the CCNA. Conflicts occurring between shooters and hikers or nature watchers seeking solitude, particularly along the Redbud Trail, were often identified on the visitor use survey cards. There have even been complaints from hunters about excessive noise and disturbance from target shooting.

Target shooting is prohibited in State Wildlife Areas, unless there is a designated shooting site. Currently there are no designated sites within CDFG's Cache Creek Wildlife Area or Yolo County's Cache Creek Canyon Regional Park.

The CCNA is extremely rich in wildlife, floristic, cultural, and scenic values. Several articles have been written about this area in regional and national media, and word-of-mouth is continuing to attract larger numbers of visitors to view bald eagles, tule elk, and other wildlife. For several years, the BLM has led wintertime bald eagle viewing hikes and in certain years wildflower nature hikes in the spring. Local schools, conservation organizations such as the

California Native Plant Society (CNPS) and Audubon Society, and many others interested in the natural values of the CCNA are continually attracted to the area in ever-increasing numbers.

Winter time bald eagle hikes along the Redbud Trail have been a popular attraction for the public.

Mountain bike use has generally been limited to the Redbud Trail and the Fiske Creek/Frog Pond Trail area. A modest level of mountain biking occurs along the Redbud Trail to Wilson Valley when trail conditions and water levels allow. As per current policy, the BLM allows but does not actively promote mountain bike use, even though this is not a designated part of the WSA. The opposite is true in the Fiske Creek area, on the eastern side of the CCNA. After BLM acquired the Blue Ridge Ranch in 1994, two trail systems (Fiske Creek Trail and the Frog Pond Trail) were combined with the already popular Road 40 to provide excellent mountain biking opportunities. Since the acquisition of the Payne Ranch, some mountain bike use is occurring in this area as well.

Other creek-oriented recreational activities include fishing and swimming in Cache Creek. Overnight camping in the backcountry is often associated with some other activity (i.e., hunting, horseback riding, and hiking).

Acquisition of the former Payne Ranch has dramatically increased public interest in furthering recreational opportunities within these areas. The acquired portions of the Payne Ranch have become very popular for hiking, hunting, equestrian use, mountain biking, and even fishing. However, a lack of safe public access points off State Highways 20 and 16 resulted in haphazard vehicle parking on turnouts and in potentially dangerous locations shortly after acquisition of this property.

Access and Land Acquisition

Acquisition of important private inholdings and access points by the BLM and CDFG has dramatically improved, and continues to enhance public access to the CCNA. All acquisitions are completed only with willing sellers; no one is forced to sell and there is no condemnation of private property.

Several landowners interested in selling their property have already contacted the BLM. Other owners within and adjacent to the CCNA will be contacted by BLM to see if they are interested in selling. If they are interested in selling, negotiations will begin. If they are not interested, further negotiations will not be pursued. Acquisitions will be prioritized primarily by their relative resource value and importance for public access.

Vehicular access is largely limited to the perimeter of the CCNA, particularly along Highway 20. Existing public access points from which users can embark on non-vehicular recreational

pursuits include:

1) **Redbud Trailhead -** This trailhead provides access to the North Fork and Cache Creek for non-commercial water-based activities, as well as hiking along the Redbud Trail to Wilson Valley. Commercial rafting concessionaires are not permitted to launch here.

The recently reconstructed cabled parking area at this trailhead includes space for trailers and other vehicles and currently has an entrance sign, covered information kiosk with visitor information and map, and restroom facilities.

2) **Perkins Creek Ridge Trailhead** - This access was recently relocated to a site near the entrance to the Clearlake landfill from its former site approximately one mile by road to the east. This was necessitated by continued vandalism, unauthorized shooting, and several other problems associated with this site. There are no facilities here, but at this time it provides a non-motorized access to the BLM lands on Perkins Creek Ridge and the northwest portion of the CCNA. This trail joins the Redbud Trail after approximately 5 miles.

A new public access to Perkins Creek Ridge which will eventually replace the landfill-area access will be constructed once a suitable site has been identified and purchased. This site will be constructed to allow sufficient parking for vehicles including horse trailers and should not have the same problems with vandalism and shooting that the previous parking area experienced.

3) **Judge Davis Trailhead** - This trail just west of the Lake/Colusa county line provides a non-motorized access to the lower Wilson Valley area of the CCNA and also a new link to the Cache Creek Ridge area of the Payne Ranch acquisition from Highway 20.

4) **Other Highway 20 access** - There are three undeveloped access points to additional public lands within the CCNA. These include the gated access to the County Line Ridge area just ¼ mile east of the Judge Davis trailhead on the north side of Highway 20, the access across from the Oasis Cafe, and the Grizzly Canyon access, approximately 2 miles west of the Oasis. These all remain available for non-motorized access, but parking is extremely limited.

5) **Rieff/Rayhouse Road access** - This road, which lies within both Lake and Yolo Counties, is known as the Rieff Road in Lake County and the Rayhouse Road, or County Road 40, in Yolo County. There are a number of recreational access points from this road. These include the trailhead to Frog Pond Trail, the Fiske Creek Trailhead, the Blue Ridge Trailhead, the Langs Peak Road to Buck Island, and the Fiske Creek Road to the southern Blue Ridge Trailhead.

An additional non-motorized access point leading to the Twin Sisters area in the southern portion of the CCNA is located just inside the Lake County line on the north side of Reiff Road.

6) **Benmore Canyon area near Spring Valley** - Technically, the large block of public land at Benmore Canyon has public access, being contiguous with the land that includes the Walker Ridge Road. However, there are no public roads or trails facilitating this access from any point. Because of this situation, these BLM lands are essentially unavailable for most public users.

Scenic

Perhaps the premier attraction of the CCNA is the scenic quality of the landscape. It has extremely diverse terrain and natural values including expansive vistas from high ridges such as Blue Ridge, Perkins Creek Ridge, Cache Creek Ridge, and Brushy Sky High. There are also panoramic views of Cache Creek from places such as the Redbud Trail, and Buck Island. The river corridor provides beautiful views of the surrounding hills, the lush riparian habitat, and fascinating geological features to those rafting or hiking through the canyon.

View of Cache Creek from Cache Creek Ridge Trail

Water and Flow Management

Water levels in Cache Creek can fluctuate significantly by season. Water releases are controlled by Cache Creek Dam at the outlet of Clear Lake and Indian Valley Dam on the North Fork Cache Creek. There are no dams on Bear Creek.

Typically, water is stored behind the two dams during the rainy season, to be used for Yolo County Flood Control and Water Conservation District's subsequent agricultural irrigation from April through September.

In below average rainfall years (which are actually similar to pre-dam and pre-flow management conditions) the water situation can be dramatically different. For example, during California's last extended drought (1987-1992), summer irrigation releases were decreased, in some cases dramatically. During the years of 1977 and 1990 there were no summer releases from Clear Lake due to low water levels in Clear Lake. But in the summer of 1990 Indian Valley Reservoir was able to maintain the required 10 cfs. This resulted in much reduced water flows in Cache Creek from Cache Creek Dam to the confluence with the North Fork throughout the summer. The volume of water was significantly decreased and noticeably warmer due to the very shallow depth.

In heavy rainfall years including 1983, 1986, 1993, and 1995 through 1998 there have been flood releases from both dams during extended storm periods. The flooding situation can become very serious around the shoreline of Clear Lake. Cache Creek Dam was designed to accommodate a maximum release of 21,000 cubic feet per second (cfs), but because of the shallow nature of the channel leading from the lake to the dam, the maximum amount of water that can leave the lake to get through the channel to the dam, even during major flooding (11.0 ft. Rumsey Gauge), is less than 4,700 cfs (Lake County Water Resources Division, 1995). During major storm events, Clear Lake can fill at a rate 10-15 times faster than water can pass over the Grigsby Riffle for discharge through the dam.

Consequently, flooding around the lakeshore can occur rapidly. When Clear Lake is considered full (7.56 feet on the Rumsey Gauge), the riffle is calculated to pass about 2,500 cfs. At the flood stage of 9.0 feet Rumsey Gauge, the calculated maximum discharge over the riffle is about 3,500 cfs.

In extended storm periods, water can be released from both dams. This amount of released water combined with all water from the tributaries that feed into Cache Creek can cause significant erosion by undercutting banks, creating landslides, and undermining and toppling trees and riparian vegetation.

Water releases during the irrigation season improves the quality and quantity of riparian habitat during the hot summer months. Indian Valley Dam releases 10 cfs of stored water throughout the year, even after there is no longer net inflow. Cache Creek Dam leaks approximately 3 to 12 cfs throughout the year, depending upon the elevation of Clear Lake. Had the dam not been present, the modest amount of water retained in Clear Lake would have spilled past the Grigsby Riffle to the creek during the very early spring. Cache Creek downstream of the riffle would have been dry. During drought conditions, the condition of the creeks is improved by the presence of dams over the natural condition. To the extent stored water is being released or leaking through the dam downstream, the two dams provide water for wildlife during critical summer months.

Rangeland Management

There are no BLM grazing leases within the CCNA and none are planned under the Proposed Action.

Livestock grazing on the Payne Ranch acquisition was authorized for a short time under a grandfathered lease which was in effect when the ranch was purchased by BLM. This lease expired in June of 2001; hence any authorized grazing will be implemented under strict prescriptions for noxious weed reduction (see Grazing discussion in Chapter 3). Prior to any authorized grazing, BLM will prepare the required NEPA documentation to address any impacts and identify any necessary mitigation measures. If grazing is authorized at some point in the future, it will be compatible with resource management objectives, i.e. weed control and sensitive habitat protection, as well as suitable limits on stocking rate and season of use. Current plans call for resting the range from all grazing until 2005 at which time grazing could occur under carefully prescribed conditions.

Throughout the CCNA prescribed burns are planned to increase the quantity and quality of available forage for wildlife, as well as reducing fuels hazards.

Wilderness

The Rocky Creek/Cache Creek Wilderness Study Area (WSA) is included within the CCNA. This 33,582-acre block of public land was designated a WSA in 1979. Following this designation, the resource values here were intensively studied to determine potential wilderness suitability.

The prominent feature within the WSA is Cache Creek, which runs east for approximately 20 miles and forms a rugged, steep-sided canyon through most of the CCNA. The steep canyon walls occasionally open to broad, grassy

meadows with scattered valley oaks, such as Baton Flat, Wilson Valley, and Kennedy Flats. Numerous steep tributaries also feed into Cache Creek, including Dry Creek, Rocky Creek, Trout Creek, Crack Canyon, and Davis Creek. The remainder of the WSA is dominated by rolling chaparral-covered hills. Elevations within the WSA range from 720 feet along the creek near the mouth of Davis Creek to 3,196 feet at Brushy Sky High in the western portion of the WSA.

Cache Creek WSA looking east from The Peninsula

The Rocky Creek/Cache Creek WSA was studied under Section 603 of the Federal Land Policy and Management Act (FLPMA), and was included in the Clear Lake Resource Area Management Framework Plan Update which was finalized in 1984. An additional 1,526-acre tract contiguous with the WSA along Cache Creek in Wilson Valley was acquired in 1985 after the wilderness inventory

In October, 1986, the final EIS for the Clear Lake Resource Area's wilderness study areas was approved. For Rocky Creek/Cache Creek WSA, the three alternatives analyzed included:

1) All wilderness;
2) Partial wilderness, which would designate 91 percent of the WSA as wilderness; and
3) No wilderness.

The BLM's preferred alternative in the Final EIS was the no wilderness alternative. It should be noted that CDFG also supported the no wilderness alternative, unless special stipulations could be included in the eventual legislation to allow certain wildlife habitat improvement measures utilizing mechanical means to be allowed within designated wilderness.

However since the release of the Final EIS, there has been considerable interest and lobbying by wilderness advocates in support of a wilderness designation for this WSA.

With the introduction of Senate Bill 738 by Senator Boxer in 2004, a total of 30,870 acres of the CCNA within Congressional District 1 has been proposed for wilderness designation. This decision now rests with Congress.

The WSA has been a very popular destination for those public land users seeking diversity in types of primitive recreation (see Recreation section). It has been closed to motorized vehicles to maintain this primitive nature. At this time trailheads are located at Redbud Trailhead, Judge Davis Trailhead, Twin Sisters, and the Perkins Creek Ridge area near the county landfill, with a new location proposed nearby that would provide an improved access to Perkins Creek Ridge. In addition the Langs Peak Road provides 4WD access into the interior of the CCNA at Buck Island, just outside of the present WSA boundary. In Senator Boxer's proposed wilderness legislation, this access would

continue, and would be cherry-stemmed out of any designated wilderness. Additional trailheads at Cowboy Camp and High Bridge are planned to provide access to the Payne Ranch acquisition from Highway 16.

The WSA is monitored twice yearly from the air, and an average of once every two weeks on the ground. Monitoring focuses on resource impacts and damage, unauthorized activities, as well as visitor use and wildlife use.

Geology

The Great Valley Sequence, which is extensively exposed in the area, consists of about 40,000 feet of Jurassic and Cretaceous shale, siltstone, sandstone, and occasional lenses of conglomerate and limestone. At the northern end of Morgan Valley, the Knoxville Formation of the Great Valley Sequence is in contact with serpentine.

Much of the mercury and all of the magnesite and asbestos in the Coast Ranges occurs in altered serpentine. Hot solutions rich in SiO_2 and CO_2, rising along faults, have replaced serpentine with silica-carbonate rock, which consists of chalcedony, opal, quartz, magnesite, and calcite. The Franciscan Formation is exposed at three locations within the CCNA. One is near Wilbur Springs where it is in fault contact with serpentine. The other two are located in Deadman Canyon where they are shown in depositional contact.

The Cache Formation of Pliocene age is located on the east side of the area, south of Highway 20. This Formation consists of lacustrine clays, silts, sand, and gravel beds with minor amounts of tuff that are from 1,000 to 6,500 feet thick. Terrestrial vertebrate fossils from this unit suggest an age of about 1.8 to 3.0 million years.

Basalt occurs at Quakenbush Mountain, near the junction of Ferris Canyon and Cache Creek, at the McLaughlin Mine near Knoxville, and on Coyote Peak near Wilbur Springs. (Vredenburgh, 1981).

Locatable minerals within the CCNA include mercury, gold, asbestos and chromite. In addition gold-mercury ore has been reported adjacent to the area at Wilbur Springs to the north, at Knoxville to the south, at the Baker Mine to the southwest, and at the Sulphur Bank Mine to the west (Becker, 1888). Mercury has been the primary metal sought at the mines in these areas.

The 1980 announcement of the discovery of a significant gold deposit near Knoxville lead to the development of Homestake Mining Company's McLaughlin Mine. This deposit, which is no longer being mined, produced over three million ounces of gold. The gold discovery at the McLaughlin Mine lead to an extensive program of exploration which investigated the potential of all the mercury mines in the area, but no additional economic gold deposits have been located.

The Shamrock Mine situated along Rocky Creek within the Cache Creek WSA, was formerly the only known locatable mine within the CCNA. This mine was located and worked prior to 1903 (Forstner, 1903). In 1927 and 1935, Orville Blevins of Redding produced mercury from the property. Foyle Mason acquired the claims in the early 1940's and held it until his death in 1980. In 1968, M.C. Smith and Kay Miller, both of Redding, located the Deep Shaft and Zodiac claims over Mason's

claims (the Shamrock and Merle) apparently with his permission. Smith and Miller erected a mill at the cost of $100,000 and produced a “couple of hundred” flasks of mercury. They determined the presence of gold on these claims, but were more interested in the mercury (Vredenburgh, 1981). These claims have since been relinquished, and because they are located within a WSA, no new claims can be located here.

Other locatable minerals within the CCNA have very little potential. Placer chromite is known to occur east of Deadman Canyon. Asbestos has been prospected north of Brushy Sky High. Here, a chrysotile vein occurs in highly sheared serpentine. The asbestos fibers in this vein average an eighth of an inch long and are slightly brittle. In 1952, soil was removed with a bulldozer and prospect trenches were cut at four points across the vein (Brice 1953, p. 60)

Oil, gas, and geothermal energy are leasable resources which potentially could occur in economic quantities. There are oil and gas seeps at Wilbur Springs, and oil seeps are reported at Knoxville (Lawton, 1956, Averitt, 1945). Five oil seepages in the Wilbur Springs area prompted the drilling of five shallow wells on the Wilbur Springs Anticline between 1844 and 1937. All of these wells were less than 3,000 feet deep. None resulted in commercial production, but there were shows of oil in several of them (Lawton, 1956, p. 211). Department of the Interior Leasable Mineral Classification Maps identify as prospectively valuable for oil and gas resources those lands in the eastern portion of the CCNA where sedimentary formations of Cretaceous age are found. Potential for oil and gas resources is moderate using the BLM 3031 Mineral Potential Classification System.

There are hot springs at Wilbur Springs and Knoxville. A series of shallow temperature gradient holes, drilled in the Wilbur Springs area, indicate thermal gradients as high as 0.3˚ C/m, and two deep holes drilled to 400 meters and 1,200 meters reached maximum bottom temperatures of 120˚ C and 140˚ C respectively (Vredenburgh, 1981, p. 15). Harrington and Verosub (1981) studied the Wilbur Springs area, and concluded that the geothermal reservoir supplying heat for the hot springs continues south of Highway 20 in the vicinity of Destanella Flat.

Department of the Interior Leasable Mineral Classification Maps indicate that a portion of the CCNA in T.13 N., R.6 W. is within the Geysers Known Geothermal Resource Area. Potential of the geothermal resources here is considered to be high, although any development here within the foreseeable future is considered to be very limited.

There are no valid mining claims and no mineral leases active on lands within the CCNA. Potential for mineral development in these areas is also considered to be very limited within the foreseeable future. Since the extensive exploration of a large area following the discovery of the McLaughlin Mine at Knoxville in 1980 found no exploration targets within the CCNA, there has been no interest in gold exploration.

The potential for the development of any mercury deposits within the foreseeable future is low. The mercury deposits of northern California are relatively small in size and any mining development would be very costly

because of the toxic nature of mercury. Permitting of a mercury mining operation would be very difficult and expensive, and it is doubtful that such an operation would be feasible. Potential for mercury would be moderate.

The asbestos locations which occur within the CCNA are minor deposits with no potential for development within the foreseeable future. Asbestos by nature is dangerous and difficult and expensive to mine safely. Health regulations make the mining of asbestos in the United States very difficult. Potential for asbestos is low.

Chromite deposits of northern California have never been economically feasible. The deposits are normally small and the chromite is not of the best quality. Mining has only occurred during the World Wars when the U.S. Government subsidized the price of chromite in order to produce chromite in the U.S. for stockpiling as a strategic material. Potential for chromite within the CCNA is low. The potential for all other locatable minerals is also low here.

Sand and gravel deposits along the North Fork from Long Valley Creek to the confluence with Cache Creek have potential for use in concrete aggregate (Klein and Goldman, 1958). However since the mid-1980's there has been a moratorium on in-channel mining here. The Lake County Community Development Department is enforcing this moratorium until such time that “it can be demonstrated by a landowner or mining permit applicant that chronic channel down-cutting within the creek system has ceased and the channel elevation has aggraded to the earliest historic level for which sufficient data exists”. This policy encourages the development of quarry sites to the east of the North Fork, as well as terrace ponding where it can be shown that no adverse impacts to wildlife will result and is consistent with other policies. Currently there is an active terrace ponding operation on private land on the west side of Highway 20 one mile east of the Spring Valley turnoff. A nearby gravel processing area is under lease from the BLM along the east side of the highway.

Soils

Soils within the CCNA form rugged hills, mountains, and intervening valleys, with ridges trending to the northwest. This pattern is the result of a complex sequence of geologic folds and faults. The area is highly dissected with low-flowing perennial and intermittent streams providing water for Cache Creek.

These soils are shallow, well-drained, and are formed in material weathered from sandstone or shale. The slope varies from 8% to 50%. Soils on steeper slopes may have a potential for erosion and mass movements during high rainfall events.

Four major soil units are found within the Lake County portion of the CCNA and are described in the Lake County Soil Survey:

(1) Phipps-Balley: Found east of the City of Clearlake. These soils consist of very deep, sloping to very steep, well drained loam and gravelly sand clay loam; on uplifted, dissected hills. Vegetation consists primarily of typical chaparral brush species, oaks and annual grasses. Uses include livestock grazing, wildlife habitat, and watershed.

(2) Millsholm-Skyhigh-Bressa: Found mainly in the Clear Lake Basin and in the southern and eastern parts of the county. These soils include shallow and moderately sloping to steep, well drained loam on hills. Uses include livestock grazing, wildlife habitat, and home site development.

(3) Henneke-Okiota-Montara: Found in the eastern and southern portions of the CCNA. This soil is shallow, moderately sloping to steep, well drained and somewhat excessively drained very gravelly loam and clay loam on hills and mountains. These soils are derived from serpentine and peridotite. Vegetation consists primarily of typical chaparral brush species. Uses include wildlife habitat, watershed, and home site development.

(4) Maymen-Etsel: This soil is shallow, moderately sloping to very steep, somewhat excessively drained loam and gravelly loam. It occurs on hills and mountains. Vegetation consists primarily of brush and scattered hardwood trees. This unit is used mainly for wildlife habitat and watershed. It is also used for recreation and home site development.

The Yolo County portion of the CCNA primarily includes the Davis Creek and Fiske Creek watersheds. Soils here are somewhat excessively drained to well-drained on uplands and high terraces. Soil types here include:

(1) Dibble-Millsholm: This soil is well-drained, steep to very steep loams to silty clay loams; over sandstone.

(2) Rock land: Steep to very steep areas that are 50 to 90 percent rock outcrops.

No soil survey is available for the Colusa County portion of the CCNA, however since the counties adjoin in this area, some similarities can be drawn.