



Alameda Creek Alliance

PO Box 192 • Canyon, CA • 94516 • (510) 845-4675
e-mail: alamedacreek@hotmail.com
web site: <http://www.alamedacreek.org>

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Alameda HCP
Land and Resources Management Section
S. F. Public Utilities Commission
1657 Rollins Road
Burlingame, CA 94010

Re: HCP Covered Species and Activities, Biological Inventory Report

These are comments of the Alameda Creek Alliance (ACA) on the proposed covered species and covered activities for the SFPUC's Alameda Creek watershed Habitat Conservation Plan (HCP) and the Biological Inventory Report prepared for the HCP by Jones and Stokes.

Covered Species

The SFPUC has proposed dropping the Berkeley kangaroo rat (*Dipodomys heermanni berkeleyensis*) and the Bay checkerspot butterfly (*Euphydryas editha bayensis*) from the list of covered species under the HCP, presuming they do not occur in the HCP study area. The SFPUC has not demonstrated conclusively that either species does not occur in the HCP study area and in fact acknowledges that suitable habitat for both species is available in the HCP study area.

Berkeley kangaroo rat

The Berkeley kangaroo rat was found in the 1940s in the vicinity of Calaveras Dam. There have been no confirmed occurrences of the kangaroo rat anywhere in the East Bay since the 1970s. However, biologist Gary Beeman, a local expert on the species, believes the kangaroo rat may still reside in areas around Calaveras Reservoir (Gary Beeman, pers. comm., 1999, 2003). Beeman believes the species has not been detected during other rodent trapping efforts because improper survey methods have been used, including not using the preferred foods of the kangaroo rat in traps (Beeman, pers. comm., 1999, 2003). If shown to still exist, the species would certainly be a candidate for emergency federal listing. Even though the kangaroo rat would, if re-discovered, likely be on the no-take list of species, the SFPUC should conduct comprehensive surveys to determine conclusively whether the species is absent from the HCP study area. If detected, the SFPUC should consider the impacts of covered activities on the Berkeley kangaroo rat. The Berkeley kangaroo rat should remain on the list of covered species so any potential remaining populations are not extirpated by management activities without ever knowing of their presence.

Bay checkerspot butterfly

The SFPUC proposes dropping the Bay checkerspot butterfly from the HCP based on surveys conducted this year by butterfly expert Dr. Richard Arnold. Dr. Arnold expressed his expert opinion, after surveying serpentine grassland habitats containing the checkerspot's larval and adult food plants, that the species is unlikely to occur within the HCP study area. However, it is unclear from Dr. Arnold's report of May 23, 2004 exactly how many days were spent searching for butterflies, how thorough the searches were, and exactly what dates the searches began and concluded. Dr. Arnold noted that "flight season for the Bay Checkerspot butterfly was already underway" when he started his surveys on an unspecified date in March. According to the species profile for the butterfly in the HCP, the flight season can begin in late February and is typically four to six weeks in length. Dr. Arnold acknowledges that flight season began early in 2004 due to unseasonably warm weather. Depending on when in March the surveys began, Dr. Arnold could have missed all or most of this year's flight season. Since individual adult butterflies live approximately ten days, Dr. Arnold could easily have missed butterflies that emerged early in the season.

The U. S. Fish and Wildlife Service considers any site with appropriate habitat within the vicinity of the butterfly's range to be potentially occupied (USFWS 1998). Given the fact that populations of the checkerspot historically occurred north of the HCP study area at Mt. Diablo and south of the HCP study area in Santa Clara County, and the acknowledgment by Dr. Arnold that there are patches of the checkerspot's primary larval food plant growing in association with adult food plants (albeit in low abundance), there is potential for undetected populations of the checkerspot to persist within the HCP study area. Since the species is so rare, with only two known populations in existence, the SFPUC has an obligation to presume the species may be present and protect the remaining patches of habitat, no matter how fragmented. The checkerspot butterfly should remain on the list of covered species.

Special status plants

There are a number of special status plant species that are known to occur or potentially occur within the HCP study area that should be included as covered species in the HCP. The East Bay Chapter of California Native Plant Society (CNPS) sent the SFPUC two comment letters in 2003 along with a list of both statewide and locally rare plant species that occur on SFPUC lands in Alameda County that should be protected under CEQA. This list was apparently not included in the covered species evaluations. The SFPUC should contact Dianne Lake, the Unusual Plants Coordinator for the East Bay Chapter of the CNPS, regarding recommendations for additional covered plant species. Diane Lake can be reached at (510) 741-8066 or <<diannelake@yahoo.com>>.

River lamprey

The SFPUC has proposed including the river lamprey as a covered species. We support inclusion of this species in the HCP. River lampreys are thought to exist in Alameda Creek (Moyle 2002:102) but none have been observed during the 1980s and 1990s. The last collection of river lamprey from Alameda Creek was by J. D. Hopkirk near Niles in 1966 (Leidy 1984). The California Department

of Fish and Game believed, perhaps erroneously, that lamprey killed by a SFPUC chlorine spill in Alameda Creek in the upper Sunol Valley in 2002 were river lamprey (CDFG 2002).

Covered Activities

The SFPUC has omitted coverage of some activities with the potential of causing take of species covered under the HCP, specifically gravel quarry operations and pesticide use.

Gravel quarrying

The SFPUC has proposed not covering quarrying activities in the Sunol Valley under the HCP, although these activities have potentially severe impacts on covered species within the study area. The SFPUC fact sheet on this issue asserts quarry activities do not meet the criteria for inclusion in the HCP. The *Covered Activities Working Draft*, Section 2.2, describes the criteria used for selection of covered activities in the HCP. Gravel quarrying activities clearly meet all five criteria and should be included in the HCP. The quarrying activities will occur within the HCP study area; current and proposed quarrying will occur between 2005 and 2035; quarrying has a reasonable likelihood of taking listed species, as discussed further below; the location and size of the quarrying activities can be defined, impacts can be evaluated, and conservation measures developed; and inclusion of the quarries would not require any undue delay.

The SFPUC fact sheet on the quarries notes that environmental review and permitting for quarrying was completed under a separate process. The Environmental Impact Reports (EIRs) for existing and proposed quarry leases in the Sunol Valley were completed in the 1980s and early 1990s, before listing of numerous endangered and threatened species in the area, and before the habitat requirements of these species were well known. Consequently, the EIRs do not adequately analyze the impacts of quarrying on numerous listed species and have absolutely no mitigation measures to offset impacts or potential illegal take of these species. The SFPUC's EIR for the Alameda Watershed Management Plan (AWMP) avoided or inadequately addressed issues of potential impacts to listed species (SFPUC 1999, 2000), despite numerous valid concerns about impacts to listed species raised by the Alameda Creek Alliance and Save Our Sunol (see ACA 2000). The AWMP EIR relied on environmental analysis conducted for the Mission Valley Rock Surface Mining Permit conducted in 1985, 1992, and 1994. It noted that several species had been listed as sensitive species since that time, and purported to restudy the environmental impacts on those species. However, the EIR left out analysis of impacts of gravel quarrying on numerous sensitive species, and the analysis for the species it did consider was completely inadequate.

Current and proposed gravel quarrying activities in the Sunol Valley have the potential to impact steelhead and rainbow trout, Pacific and river lamprey, California red-legged frog, California tiger salamander, callippe silverspot butterfly, and Alameda whipsnake. Quarrying activities impact ground water levels and surface flow in Alameda Creek due to the depth of quarry pits adjacent to the creek and the lack of cutoff walls protecting the creek from water capture by the quarry pits. This has potential effects on spawning, rearing, and breeding habitat for fish and amphibians in Alameda Creek within the Sunol Valley. Ongoing water quality violations and discharge of sediment-laden water may impact fish and amphibian populations downstream of the quarry pits in the lower Sunol Valley and Niles Canyon. The quarry pits are a potential population sink for amphibian populations in the Sunol Valley and also may increase local populations of invasive species that predate upon native fish and amphibians. The effects of noise, lights, roads, vehicles, and increased human

activity due to quarrying extend beyond the footprint of the quarrying sites and may render critical wildlife migration corridors through the Sunol Valley unusable, particularly for the Alameda whipsnake. Dust from quarrying has the potential to impact the callippe silverspot butterfly. The mitigation measures proposed in the AWMP (relocation) for mitigating impacts to California red-legged frog and California tiger salamander (SFPUC 1999) would constitute illegal take of the species.

The SFPUC's Draft EIR for the AWMP acknowledged that "historic and current gravel mining operations in Sunol Valley have...altered surface and ground water flow as well as ground water storage" (SFPUC 1999, page III.D-7). The DEIR claimed that bentonite in the quarry pits prevents inflow of shallow ground water (SFPUC 1999, page III.D-7), but inflow of shallow ground water appears to be visible at the site at various times of the year. A previous report prepared for the SFPUC contradicts the DEIR claim, noting that "gravel mining in this area has probably further increased the depth to water table since the pits created by such excavation tend to draw down the water table in their vicinity. There has been some attempt to isolate these draw down effects by requiring the construction of clay cutoff walls between the creek channel and the mining pits but this effort has been localized and incomplete" (Bookman-Edmonston 1995D). Sand and gravel mining have "left the lower portion of the watershed in a highly disturbed state with very little if any riparian vegetation cover" (Bookman-Edmonston 1995D). The final EIR for the AWMP contemplates installation of quarry cutoff walls, but until this actually occurs, the impacts on the water table and Alameda Creek surface flow have the potential to impact listed species.

Without installation of quarry cutoff walls, mining of the current quarry leases and the proposed quarrying north of Highway 680 has the potential to alter surface flows and ground water in a manner likely to be harmful to steelhead and rainbow trout as well as lamprey. The stream will dry out sooner in the spring and begin flowing later in the fall, impairing migration, rearing, and possibly spawning. These impacts are not limited to the footprint of the mines, as they have the potential to impact hydrology both upstream and downstream of the quarries. Discharge from the quarries contributes sediment to the creek (sometimes in excess of legal limits, as noted below), posing the risk of smothering or silting any trout or lamprey redds downstream. For further discussion of potential quarrying impacts on listed species, including species covered under the HCP, see ACA (2000), pages 12-16.

For all of these reasons, the HCP should cover gravel quarrying activities from the time of the completion of the HCP until such time as the quarry pits are converted to water storage uses.

Pesticide use

At the June 10, 2004 public meeting for the HCP the SFPUC indicated that pesticide use would not be covered under the HCP. The discussion of vegetation management, section 2.3.5, notes that the HCP does not cover application of herbicides and the discussion of covered activities for nurseries, section 2.6.2, does not indicate that pesticide application will be covered. The HCP absolutely needs to address pesticide use, including herbicides, rodenticides, and insecticides.

The nurseries on leased SFPUC land in the watershed use a number of harmful pesticides and insecticides adjacent to the creek, as revealed by a SFPUC survey (Bookman-Edmonston 1995D). Many of the pesticides currently used by nurseries in the Sunol Valley, such as diazinon, malathion, durzban, and Rice Mollinate are known to be toxic to amphibians and/or fish. The U. S. Fish and

Wildlife Service has noted a number of pesticides thought to be harmful to the California tiger salamander and California red-legged frog, including specific pesticides used by the nurseries (USFWS 2000, 2002b, 2003). Even small amounts of pesticide residues in water, sediment, and aquatic vegetation can harm amphibians in aquatic environments by delaying or altering larval development or by reducing breeding or feeding activity (Hall and Henry 1992, Berrill et al. 1993). The impacts of pesticide and insecticide runoff on macroinvertebrates in Alameda Creek which are the food base for fish and amphibians needs to be considered as well.

Fishing and environmental groups recently obtained a court order preventing the use of more than 30 harmful pesticides in no-spray buffers near salmon and steelhead streams in California, Oregon, and Washington, including Alameda Creek, and including some of the pesticides used by nurseries in the Sunol Valley. The SFPUC has not idea whether these pesticides are making their way into Alameda Creek. Both NOAA fisheries and the EPA have acknowledged that approved uses of numerous pesticides used in the Pacific Northwest are expected to have a negative impact on steelhead, including some of the pesticides used by nurseries in the Sunol Valley (NMFS 1999, USEPA 2004). Alameda Creek was declared an impaired water body in 1999 by the U. S. Environmental Protection Agency due to diazinon poisoning. The AWMP proposes to expand nursery use in the valley and expand the existing golf course, which potentially will increase diazinon and other pesticide runoff to the creek.

Any use of insecticides near callippe silverspot or Bay checkerspot habitat has the potential for take. Insecticides obviously have harmful effects on butterflies, which are insects, even in minute concentrations. The U. S. Fish and Wildlife Service has specifically noted that both butterfly species are threatened by pesticide use, and that silverspot butterfly larvae are extremely sensitive to pesticides and even the accumulation of runoff in the soil after spraying has proven lethal to the larvae of members of the genus *Speyeria*, the silverspots (USFWS 1997, 2001). Use of herbicides near listed plants obviously has the potential for take of those species.

It is unclear from the AWMP what level of ground squirrel control the SFPUC employs within the HCP study area and what types of rodenticides, if any, are used. It is known that the EBRPD currently broadcasts poisons in Sunol Preserve to prevent ground squirrel overpopulation (Freemire 2002). Poison grain pellets similar to Warfarin are apparently used near squirrel entrance burrows. Warfarin is an anti-coagulant that acts by thinning the blood and causing internal bleeding when ingested. Aside from impacts to ground squirrels, which supply burrows for estivation and nesting for numerous sensitive species, including species covered under the HCP, use of rodenticides can directly poison other covered species. Some studies have shown Warfarin and similar poisons can be moderately toxic to upland game birds and waterfowl; it is highly toxic to mammals and can secondarily poison carnivores that eat poisoned squirrels (Exttoxnet 2003). Magpies and jays in Sunol Preserve have been observed eating the poison pellets and catching poisoned squirrels, which are slowed down by the poison (Freemire 2002).

Further comments on covered activities:

2.3.1 Road maintenance

At the June 10, 2004 public meeting for the HCP, the SFPUC indicated that some level of analysis of existing roads had already been done. We request a copy of this report and that it also be posted to the SFPUC's HCP web page.

Before committing to any road maintenance program, the SFPUC should thoroughly inventory existing roads within the study area to determine whether all existing roads are needed and whether they are contributing to erosion and sedimentation due to poor design or drainage. The road inventory should also consider road densities, barriers to wildlife migration associated with roads (i.e. culverted stream crossings for trout, roadside berms for tiger salamanders), and road kill issues for sensitive species. The SFPUC should prioritize unnecessary roads for removal and improperly designed roads for remediation. Independent consultants with expertise in hydrology should conduct an assessment of sediment and erosion sources, and identify problem areas in the study area. Improperly drained roads and failing culverts should be identified and prioritized based on their impact on aquatic habitat. It is advised that the SFPUC consult the “Handbook for Forest and Ranch Roads” (PWA 1994) regarding planning, design, construction, maintenance, reconstruction, and closing of wildland roads.

Improperly designed and maintained roads are a major source of erosion and sedimentation on most managed ranch lands (PWA 1994). Compacted road surfaces increase the rate of runoff, and road cuts intercept and bring groundwater to the surface. Ditches concentrate storm runoff and can transport sediment to nearby stream channels. Culverted stream crossings can cause gullies or washouts that deliver additional sediment to streams. Excessive sedimentation is likely degrading fish and amphibian habitat in Alameda Creek and its tributaries within the study area.

2.3.2 Road construction

The road inventory and analysis should consider whether the proposed 30 miles of new roads in the HCP area are truly needed and whether existing roads could serve the same function. The discussion of 20 miles of roads for livestock water tanks needs to be linked to the discussion of livestock grazing, and should not presume current stocking levels will remain the same.

2.3.4 Fence maintenance and installation

The discussion of fencing similarly needs to be linked to the discussion of livestock grazing, and should not presume current stocking levels will remain the same.

2.3.5 Vegetation management

The discussion of vegetation management needs to include the application of herbicides if any of these poisons have the potential to impacts listed species covered under the HCP.

2.3.9 Recreation activities

Proposed new trails, parking lots, and camp sites need to consider potential impacts to endangered species habitat. The HCP should also contemplate some measures to reduce the increased potential for poaching of steelhead trout in Alameda Creek that new trail connections and creek access will provide.

2.4 Reservoir operations and maintenance

The most important factor the HCP should consider under reservoir operations and maintenance is the impact of the Calaveras and San Antonio Reservoirs and Alameda Diversion Dam impoundments on stream flows in Alameda and San Antonio Creeks. Stream flows obviously have

a huge impact on spawning, migration, and rearing habitat for steelhead and rainbow trout and lamprey species, and also on breeding habitat for covered amphibian species. The HCP needs to consider interim flow releases from Calaveras Dam before the Calaveras dam replacement/enlargement project is completed. The HCP also needs to consider the downstream impacts of dam operations on sediment and woody debris transport, riparian vegetation, scouring, water temperatures, and gene flow between trout populations. For further discussion of potential reservoir impacts on covered fish and amphibian species, see ACA (2000), pages 9-12.

Interim reservoir operations before the Calaveras dam replacement/enlargement project is completed need to protect steelhead/rainbow trout populations in San Antonio and Calaveras Reservoirs. The HCP should also discuss management of non-native predatory species in the reservoirs such as bass, and their impact on adfluvial trout populations.

2.4.6 Alameda Diversion Dam

The discussion of the Alameda Creek Diversion Dam (ADD) should include the same downstream impacts to stream habitat as noted above. The ADD also is a migration barrier to steelhead trout blocking access to the most important spawning and rearing habitat potentially accessible to Central California Coast steelhead (Gunter et al. 2000). The HCP should look at removal of the ADD.

2.6 Lease/Permitting and easement activities

The AWMP (SFPUC 1999, 2000) made clear that the SFPUC considers areas below the watershed catchments for their water supply reservoirs a sacrifice area, including areas of the Sunol Valley leased for gravel mining, livestock grazing, and nursery operations. SFPUC lease and permitting activities in the Sunol Valley have traditionally had no meaningful oversight by the SFPUC or any regulatory agency to ensure that endangered species are not harmed or that habitat is protected. Actions such as the ongoing violations of air quality and water quality permits by gravel quarry leaseholders (see ACA 2002), use of known harmful pesticides by nursery leaseholders, and illegal gravel dam construction and water diversion in Alameda Creek by the golf course leaseholder has been tolerated by the SFPUC and regulatory agencies have refused to take any enforcement action. The HCP needs to address these illegal activities and bring leaseholders into compliance with all environmental laws and permits and ensure that illegal take of listed species is not occurring.

2.6.1 Livestock Grazing

The discussion livestock grazing should note the potential negative impacts to many of the HCP covered species. razing mgmt. The analysis of grazing impacts and proposed mitigations (very few of which have actually yet been implemented) in the AWMP and the *Alameda Watershed Grazing Resources Management Element* are severely inadequate to prevent potential take and/or loss or degradation of habitat for many species covered under the HCP. See ACA (2000, pages 16-23) for further discussion of these inadequacies and potential impacts to listed species. Also see ACA et al. (2003, Appendix A) for a referenced discussion of the negative impacts of cattle grazing on fish and amphibians and documented site-specific impacts of cattle grazing on habitat for covered species in Alameda Creek.

2.6.2 Nurseries

As discussed above, the application of pesticides in Sunol Valley nurseries near Alameda Creek should be scrutinized for impacts to listed species. Use of known harmful pesticides should be banned and the current system of voluntary reporting should be changed.

2.7.4 and 2.7.5 Sunol Valley Water Treatment Plant

The discussion for the SVWTP should note that a review of SFPUC files reveals there have been several recent spills of chlorine and chlorinated water into Alameda Creek from the SVWTP (November 2003, April 2002, May 2002) and two incidents where significant amounts of sediment were discharged to the creek (March 2002 and May 2002). The April 2002 chlorine spill resulted in a major fish kill, including lampreys and frogs, and poisoning of all aquatic life at least 1,000 feet downstream of the SVWTP (CDFG 2002, Mullen 2002). Such spills and sediment discharges potentially could take species covered under the HCP that occur in the vicinity of the SVWTP, including steelhead and rainbow trout, lamprey, California tiger salamander and California red-legged frog. The HCP needs to require mechanisms and monitoring to ensure spills of this nature never occur again.

Biological Inventory Report

The following are specific comments on the Biological Inventory Report prepared by Jones & Stokes for the HCP.

Page 3-3

Two of the data sources relied upon for information about biological resources are of questionable scientific validity and the information within these reports should be used with caution. The *Sunol Valley Surface Flow Study Fall 2001* (Trihey and Associates 2003) was a study to characterize losses of surface water flow in Alameda Creek into alluvium in the Sunol Valley. The was conducted in fall of 2001 at the end of the dry season and after a series of dry weather years. For this reason, groundwater levels at monitoring wells were extremely low and most of the surface flow released for the study was lost to percolation into the alluvium and capture by a gravel quarry pit in the Sunol Valley. This study should not be used to characterize the quantity of flow releases required to maintain surface flow through the Sunol valley for out-migration of steelhead trout smolts. Smolt out-migration would occur during the late winter and spring, when ground water levels would be significantly higher and flow losses significantly lower than those in the study. Additionally, consideration should be given to the capture of water by the upstream-most quarry pit in the Sunol Valley. Within the time frame of the HCP, the SFPUC intends to fill these pits with water for storage, significantly raising the groundwater level and reducing the likelihood of stream flow capture by the pits. In the interim, the SFPUC has proposed installation of a cut-off wall to isolate the gravel pit from stream flows and shallow groundwater.

The *Aerial Survey of the Upper Alameda Creek Watershed to Assess the Potential Rearing Habitat for Steelhead* (Entrix 2003) was a creative yet crude approach to characterizing available spawning and rearing habitat, conducted via helicopter flyover. Needless to say, no scientific conclusions on the amount of available habitat should be inferred from this exercise. The Alameda Creek Fisheries

Restoration Workgroup unanimously agreed that this methodology likely grossly underestimates available habitat and that ground surveys using accepted protocols should be conducted.

Page 3-19

The discussion of sources of soil disturbance and likely vectors for exotic and invasive species is misleading, in that it does not mention the role of cattle grazing, an extremely significant disturbance factor and important vector for spread of invasive plants. The role of cattle grazing in spreading weeds is thoroughly discussed in *Livestock Grazing and Weed Invasions in the Arid West* (Belsky and Gelbard 2000), a summary of 189 peer-reviewed studies on livestock grazing's contribution to weed introductions. Belsky and Gelbard note that efforts intended to control the spread of weeds have been largely ineffective, due to a lack of attention to domestic livestock grazing, and that the contribution of livestock grazing to weed invasions has generally been downplayed while the effects of drought, historic overgrazing, fire, and seed introductions associated with outdoor recreation, roads, and wildlife have been emphasized. The scientific literature indicates that at the community scale, livestock may be the major factor causing these invasions. Most studies find that plant communities grazed by domestic livestock contain a greater density, frequency, or cover of invasive plants than ungrazed communities. A few studies document positive, but only temporary, reductions of weed numbers by sheep and goats, but most weedy species are avoided by cattle. Livestock contribute to alien weed invasions by: (1) transporting weed seeds into uninfested sites on their coats and feet and in their guts, (2) preferentially grazing native plant species over weed species, (3) creating patches of bare, disturbed soils that act as weed seedbeds, (4) destroying microbiotic crusts that stabilize soils and inhibit weed seed germination, (5) creating patches of nitrogen-rich soils, which favor nitrogen-loving weed species, (6) reducing concentrations of soil mycorrhizae required by most western native species, and (7) accelerating soil erosion that buries weed seeds and facilitates their germination.

Page 3-19

The discussion of ecosystem functions of non-native grassland habitats lists “fodder for grazing livestock” as one of the primary ecosystem functions. Is providing fodder for an introduced species a desirable ecosystem function? The report should include a discussion of how this function impacts native species, through competition for forage with native browsers such as elk, the continual removal of biomass and nutrients from ecosystems as cattle are sold to market, etc.

Page 3-21

The discussion of needlegrass grassland habitats suggests that appropriately timed cattle grazing is beneficial to bunchgrasses. The report lists seven studies contending that grazing is beneficial or has neutral impacts on bunchgrasses or needlegrasses and only two reports showing negative effects of grazing, suggesting that the weight of scientific literature shows positive impacts. This is not the case - there are numerous peer-reviewed studies demonstrating negative impacts of grazing on bunchgrasses, including Baker (1989), Archer and Smeins (1991), Doerr et al. (1994), Belnap (1995), Olson and Wallander (1997), and Jacobs and Sheley (1999). One of the cited studies, the non-peer-reviewed claims of Edwards (1992) that cattle merely fill an ecological niche replacing Pleistocene grazing animals and that native California grasses have evolved to tolerate such disturbance, have been largely discredited by the scientific community and specifically refuted by a renowned ecologist who is an expert on California native grasslands (Painter 1992). Is cattle

grazing within the HCP study area to be conducted with appropriate timing, duration, stocking levels, and monitoring to assert that it may be beneficial to native bunchgrasses?

Page 3-22

The discussion of serpentine grasslands needs to include additional information on the potential impacts of cattle grazing on serpentine habitats and species. There are documented negative impacts to several serpentine-soil dependent plants in the East Bay from improper livestock grazing (USFWS 1998).

Page 3-26

The discussion of sage scrub habitat should note that livestock grazing which significantly reduces or eliminates shrubs and grass cover (over-grazing) can be detrimental to the Alameda whipsnake. The species avoids such open areas because of the increased danger from predators and the lack of prey. Conversely, dense closed-canopy scrub habitat may be of limited habitat value for whipsnakes. Soil disturbance from grazing may replace native vegetation with non-native plants, potentially degrading the habitat and reducing the prey base for the whipsnake. Inappropriate grazing practices are cited as a specific threat to the Sunol-Cedar Mountain sub-population of the snake, which occurs partially within the HCP study area (USFWS 1992, 1997, 2002a).

Page 3-29

The discussion of evergreen forest/oak woodland habitats identifies livestock grazing as a potential mechanism negatively affecting regeneration of several native oak species. This discussion is also applied to blue oak woodland, valley oak woodland, coast live oak woodland and oak savannah habitats. It is widely acknowledged and study results show that grazing is a factor in the failure of several species of California oaks to reproduce and recruit new members, as noted by Mount Diablo State Park and the California Oak Foundation (CDPR 1989, COF 2001). The report implies that livestock grazing has not been definitively identified as a cause of the decline of oaks. On the contrary, for blue oaks, Sweicki and Bernhardt (1998) in *Understanding Blue Oak Regeneration*, assert that “long-term livestock grazing has more potential to adversely affect blue oak regeneration than any other factor.” They further note that “cattle eat acorns, reduce or eliminate the litter layer beneath trees, and compact the soil, thereby reducing the potential for initial seedling establishment. Surviving seedlings are repeatedly browsed and trampled, which shortens the life of individual seedlings and can deplete or eliminate the persistent seedling bank over time. Under even moderate stocking rates, livestock browsing severely inhibits sapling growth. Repeated cattle browsing reduces blue oak saplings to small shrubs sometimes survive as long as 80 to 100 years without growing above browse line. Thus livestock impact the establishment, survival, and release of blue oak advance regeneration.” Areas of Sunol and Ohlone Preserves within the HCP study area with heavy cattle grazing exhibit poor or no oak regeneration (Freemire 2002).

The report makes no mention of cattle grazing’s detrimental impacts on songbird habitat and raptor nesting habitat in oak woodlands (see CDFG 2000 for discussion of impacts). The report also does not discuss the effects of cattle grazing reducing duff and other organic matter so essential to invertebrates and amphibians, as discussed on page 3-28. Similar mention of cattle grazing impacts should be made for all oak woodland habitats.

Page 3-36

The discussion of sycamore alluvial woodland habitats makes no mention of the impacts of grazing and trampling by cattle on sycamore survival and recruitment.

Page 3-38

The section on willow riparian forest habitats needs a thorough discussion of the damage to such habitats by livestock grazing. For discussion of cattle grazing impacts to willows see Kovalchik and Elmore (1992), Shaw (1992), and Case and Kauffman (1997). A much more thorough discussion of cattle grazing damage to riparian ecosystems is needed. Negative impacts from livestock grazing are greatest in riparian and wetland habitats (see Armour et al. 1994; Behnke and Raleigh 1978; Belsky et al. 1999; Bryant 1985; Buckhouse et al. 1981, etc., etc.) Belsky et al. (1999), in their *Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States*, conducted a systematic literature review, surveying over 140 peer-reviewed studies on the biological and physical effects of livestock on western rivers, streams, and riparian areas. Livestock grazing was found to negatively affect water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone soils, instream and streambank vegetation, and aquatic and riparian wildlife. Belsky et al. (1999) specifically searched for peer-reviewed experimental studies showing positive environmental impacts of grazing on stream and riparian ecosystems, of which none could be found.

There is some site-specific information on grazing impacts to riparian habitat along Alameda Creek within the HCP study area that should be mentioned. In 1993 fisheries biologist Peter Moyle recommended excluding cattle from the riparian zone of Alameda Creek below Calaveras Dam to allow riparian plants to shade the stream and provide cover for native fish (Moyle 1993). Moyle noted that fencing the stream alone would likely increase trout populations because the water would be cooler in the summer.

In 1992, fisheries biologists with Bookman-Edmonston Engineering, Inc. walked the length of Alameda Creek from its confluence with Calaveras creek downstream to about Welch Creek, as part of a fisheries habitat survey for the SFPUC for the proposed Calaveras stream release project. Degradation of riparian habitat, erosion, and siltation resulting from cattle grazing and trampling was noted (Bookman-Edmonston 1995, 1995C). The lower reach had a “lack of deep-water habitat for adults [trout] and some degradation of the riparian community because of grazing in certain areas” (3-22), and the biologists observed that “cattle access to the streambed adversely affected riparian vegetation which could impact the fisheries” (7-2). They recommended restricting cattle access to the streambed and riparian zone.

An Alameda Creek re-vegetation and restoration report in 1993 reached the same conclusions (Bookman-Edmonston 1995D). The report stated “cattle grazing has denuded many areas of vegetation cover along the creek causing increased siltation detrimental to trout spawning and also resulting in higher water temperatures due to lack of vegetation cover” (p. 3). Significant damage was also documented in the stream reach from Calaveras Dam to the Sunol Water Treatment Plant; “There are no barriers preventing cattle grazing on the lease areas west of the creek from crossing the creek and entering onto the wilderness areas to the east...Grazing practices on the western side of the creek have created continuing degradation of riparian vegetation in all areas of this reach where cattle can reach the creek edges. As a result most areas of riparian vegetation found through

this reach show either less than 50 percent canopy cover or disturbance...Cattle grazing has continuously degraded vegetation along the edges of the creek and in some sections has done damage to the bank structure. Complete removal of grazing from this reach is recommended...Grazing along the creek has denuded banks in many areas and degraded stream bank profiles...The extensive beds of cattails and thick algal mats found in this reach are probably the result of lowered water flows resulting in sedimentation and stagnant water conditions combined with higher water temperatures brought on by lack of vegetation cover due to grazing.”

Page 3-40

Incredibly, the discussion of freshwater marsh and seep habitats does not mention damage by cattle grazing from trampling, but does discuss similar damage by feral pigs. Domestic livestock are more abundant in the HCP study area and cause greater impacts than feral pigs. This non-native wildlife species (cattle) impacts wetland habitat by trampling the soil and “destroys native vegetation and causes erosion, thereby reducing wetland habitat value for native wildlife” to a much greater degree than feral pigs. See Skolvin (1984) and U. S. Department of the Interior (1994) for impacts of cattle grazing on wetlands.

Page 3-43

The discussion of adult ocean-run steelhead trout documented recently in lower Alameda Creek notes that “hatchery steelhead have also been sighted at the BART weir.” Hatchery fish are likely a small percentage of the wild fish that enter the stream. There have been reliable observations of an estimated 80–120 adult steelhead at the BART weir from December 1997 through February 2004. About 30 of these fish were captured, handled, transported, or had fin clips taken, and only two of these fish were thought to have been of hatchery origin.

Page 3-44

The discussion of lamprey erroneously reports that adult lamprey have not been observed recently in or above Niles Canyon. Joanne Freemire, a former Naturalist with the East Bay Regional Park District at Sunol Wilderness reported in 1999 that adult lamprey had been seen in the last few years in Sunol Regional Wilderness (J. Freemire, pers. comm., 1999). Also, a SFPUC chlorine spill into upper Alameda Creek from the Sunol Valley Water Treatment Plant in the Sunol Valley in April 2002 killed at least 24-36 lampreys (CDFG 2002, M. Mullen, pers. comm. 2002). The California Department of Fish and Game believed, perhaps erroneously, that these were river lamprey (CDFG 2002).

Page 3-48

Regarding the discussion of fish habitat in the Sunol Valley reach, the upper portion of this reach may have suitable spawning and rearing habitat for fall run chinook salmon, based on repeated informal creek assessments of this reach by the Alameda Creek Alliance. There have not been formal habitat surveys of Alameda Creek below the Sunol Valley Water Treatment Plant. The habitat discussion should also note that California red-legged frog, California tiger salamander, and western pond turtle have all been documented recently in the upper portion of this reach (California Natural Diversity Database, Trihey and Associates 1999, 2001, Alameda Creek Alliance personal observations).

Page 3-51

The value of the aerial survey of the upper Alameda Creek reach in estimating available trout rearing habitat is questionable, as discussed in the comments above.

Page 3-51

In addition to numerous foothill yellow-legged frogs, a small number of California red-legged frogs have been observed in upper Alameda Creek between Little Yosemite and the Alameda Diversion Dam from 1999-2002, based on repeated informal creek assessments done by the Alameda Creek Alliance and reported to the California Natural Diversity Database.

Page 3-51

The discussion of livestock grazing in the San Antonio Reservoir reach implies that riparian fencing has reduced the potential impacts of livestock on the stream and on riparian cover in Indian and LaCosta Creeks. Reports from frequent SFPUC fisheries monitoring of these streams and personal observations by Alameda Creek Alliance and other fisheries volunteers indicate that cows still have access to important spawning and rearing areas in these creek, are literally trampling trout redds, and are impacting riparian cover, damaging streambanks, and adding pollutants to the streams.

Pages 3-52 through 3-54

The discussions of adfluvial steelhead trout above San Antonio and Calaveras Reservoirs notes that these populations are not protected under the federal listing of Central California Coast steelhead. This information should be updated to reflect that adfluvial trout in these reservoirs were proposed for inclusion in the listed CCC steelhead population by NOAA Fisheries in June 2004.

Page 3-55

The discussion of coho sightings in the Alameda Creek watershed says that there are no records of coho sightings since the late 1930s. This is not true - the Alameda Creek Alliance has statements from local fishermen who caught coho salmon in Alameda Creek regularly in the 1950s and 1960s at Mission Boulevard and in lower Niles Canyon (ACA 2003). In fact, there are photos of some of these salmon, the latest being from 1964 (ACA 2004). There also was an unexplained isolated run of dozens of coho salmon in lower Alameda Creek at the BART weir documented (including photos) in January 1984 (ACA 2003).

Page 3-59

The discussion of wildlife species use of quarry ponds should note that these ponds are potential population sinks for sensitive species such as California red-legged frog, California tiger salamander, and western pond turtle.

Comments on Appendix D - Species Profiles:

Alameda whipsnake

This profile needs more discussion of grazing impacts, as noted in the comments on page 3-26 above, and should mention that cattle grazing was causal factor in the federal listing of the whipsnake and that the listing specifically mentions overgrazing as a threat to the Sunol-Cedar Mountain population (USFWS 1997). There should also be a discussion of the potential impacts of future quarrying operations (including noise, human activity, vehicle traffic, etc.) on the functionality of essential whipsnake migration corridors through the Sunol Valley. As the profile notes, Alameda Creek under Highway 680 may be the only viable migration corridor connecting the

Sunol-Cedar Mountain and Pleasanton Ridge whipsnake populations - this corridor is immediately adjacent to proposed future quarrying activities.

Bay checkerspot butterfly

This profile briefly mentions that overgrazing coupled with drought has been implicated as a possible cause of extirpation of some populations of the checkerspot. Invasion by exotic plants, an indirect impact of livestock grazing, has also greatly reduced checkerspot numbers (Murphy and Weiss 1988). Grazing can adversely affect plant species of serpentine grasslands which are food plants for the checkerspot (USFWS 1987). According to the Fish and Wildlife Service, instances of cattle crushing Bay checkerspots have been documented (USFWS 1998) and research has shown that a substantial fraction of eggs, larvae and pupae could be lost to crushing in areas that are heavily grazed (White 1986).

The profile also needs to discuss the potential impacts to checkerspots of dust from quarrying and poisoning from the use of pesticides in the threats section.

California red-legged frog

This profile should note that critical habitat was re-proposed for the red-legged frog by the Fish and Wildlife Service in 2004. The proposed critical habitat is nearly identical to the remanded version.

Occurrences within the study area - the profile should note that sightings were made in 1998 in upper Alameda Creek at two locations below Little Yosemite and near the confluence with Welch Creek (Trihey & Associates, Inc. 1999) and frogs were also seen in this area in 1999 (Tom Taylor, Entrix, Inc., pers. comm., 1999). The species was also seen at several sites along upper Alameda Creek in 1999 during electro shocking surveys by EBRPD personnel (Pete Alexander, EBRPD, pers. comm., 1999). This creek habitat is subject to impacts from cattle grazing.

The discussion of threats adequately covers some of the impacts of livestock grazing. Additional impacts, according to the Fish and Wildlife Service, include: potential trampling and eating of emergent vegetation, upon which the frogs deposit their egg masses; causing sedimentation that smothers eggs and fills in deep pools necessary for escape cover; loss of undercut banks and reduction of water levels, reducing or eliminating critical refuge plunge pool habitat; the risk of direct trampling by cattle, especially in the egg and early larval stages; trampling of rodent burrows required for estivation; and creation of conditions favorable to colonization by bullfrogs (USFWS 1996).

The profile should mention the potential impacts of pesticide and insecticide use by the nursery and golf course leaseholders. The Fish and Wildlife Service has concluded that exposure to wind-borne agrochemicals may be an important factor in the decline of the red-legged frog (USFWS 1996) A SFPUC survey revealed that the nurseries adjacent to Alameda Creek use many pesticides known to be toxic to frogs, including diazinon, malathion, durzban, Rice Mollinate, and other pesticides (Bookman-Edmonston 1995D). The Fish and Wildlife Service has identified 25 chemicals of particular concern which should not be used near red-legged frogs, including acephate, azinphos-methyl, carbaryl, chlorpyrifos, diazinon, difocol, disulfoton, endosulfan, esfenvalerate, fenamiphos, glyphosate, malathion, mancozeb, methamidophos, methoprene, naled, paraquat, permethrin, phosmet, pyrethrins, strychnine, triclopyr, and trifluralin (USFWS 2002b). Pesticide contamination

may result in deformities, abnormal immune system functions, diseases, injury, and death of red-legged frogs (USFWS 1996). Tadpoles are likely to be killed or paralyzed by some herbicides such as triclopyr, and insecticides such as fenitrothion (Berrill et al. 1993). Pesticide residues in water, sediment, and aquatic vegetation can harm amphibians in aquatic environments by delaying or altering larval development or by reducing breeding or feeding activity (Hall and Henry 1992, Berrill et al. 1993). Pesticide and insecticide runoff in Alameda Creek can affect macroinvertebrates, which are the food base for amphibians.

The profile should note that the timing and duration of water releases from reservoirs can render a stream unsuitable for California red-legged frog reproduction and maintain populations of exotic predators in downstream areas (USFWS 1996).

California tiger salamander

The profile needs a more thorough discussion of the potential impacts of livestock grazing on tiger salamander habitat. Light grazing does appear to be compatible with the persistence of California tiger salamander populations, lands used for grazing constitute some of the largest remaining areas of habitat for the species, and in the absence of native ungulates, light grazing crops vegetation, improving habitat for ground squirrels. Moreover, destruction of native vernal pool habitat has resulted in tiger salamanders utilizing stock ponds. Relatively healthy populations of tiger salamanders appear able to withstand mortality sustained due to trampling of individuals and burrows by livestock.

However, intensive livestock grazing can alter natural vernal pool habitat through alteration of natural hydrological patterns by extensively terracing hillsides, compacting the soil and stripping the vegetative cover. Soil disturbance in naturally occurring vernal pools could increase percolation rates and shorten the duration of pool life enough so that tiger salamanders could no longer metamorphose successfully in those pools. (Jennings and Hayes 1994). Cattle can drink large quantities of water, sometimes causing temporary pools to dry faster than they otherwise would and possibly causing breeding pools to dry too quickly for salamanders to be able to metamorphose (USFWS 2000). California tiger salamanders have been found to be either absent or found in low numbers in portions of pools that were heavily trampled by cattle (USFWS 2000). Continued trampling of a pond's edge by cattle can increase the surface area of a pond and may increase water temperature, accelerate the rate of evaporation, and thus reduce the amount of time the pond contains water (USFWS 2000). The reduction in water quality caused by cattle excrement may negatively affect salamanders, mainly by increasing potentially detrimental nitrogen levels. High nitrogen levels have been associated with blooms of deadly bacteria, and silt has been associated with fatal fungal infections (USFWS 2000). WorthyLake and Hovingh (1989) reported on repeated die-offs of tiger salamanders in Utah due to bacteria infection associated with increasing nitrogen levels partially as a result of sheep grazing in the watershed.

The potential impacts of cattle grazing on tiger salamanders are complex - for a thorough discussion see pages 88-91 in *Petition to the State of California Fish and Game Commission and Supporting Information for the California Tiger Salamander* (CBD 2004).

The profile should discuss the vulnerability of slow-moving amphibians such as the tiger salamander to being killed on roads during migration between breeding and upland habitats. Large numbers of California tiger salamanders, up to 15 to 20 per mile of road, can be killed as they cross roads on

breeding migrations (Hansen and Tremper 1993, USFWS 2000). The profile should also discuss the vulnerability of tiger salamanders to pesticides (USFWS 2000, 2003; CBD 2004), specifically some of the pesticides used by nurseries in the Sunol Valley.

Callippe silverspot butterfly

The profile notes that overgrazing impacts on the callippe silverspot need more study. The Fish and Wildlife Service has noted that excessive livestock grazing is a threat to the species, because of the risks of trampling, cattle eating food and host plants, and creating disturbed soil conditions that favor the spread of invasive weedy plants at the expense of native species necessary for the survival of the butterfly (USFWS 1997).

The impacts of dust from quarrying operations should be considered a potential threat to the callippe silverspot, as adult and early larval stages of the silverspot are prone to mortality from dust because their respiratory apparatus (spiracles) are easily clogged (USFWS 1997).

According to the Fish and Wildlife Service, the use of insecticides would threaten the callippe silverspot if use occurred in proximity to occupied habitat. Silverspot butterfly larvae are extremely sensitive to pesticides, and even the accumulation of runoff in the soil after spraying has proven lethal to larvae of butterflies of the genus *Speyeria* (USFWS 1997).

Steelhead trout

The steelhead trout profile cover page should be updated to reflect the proposed federal listing of resident and landlocked trout. Also, the California Department of Fish and Game discontinued stocking hatchery trout in Niles Canyon in 2001.

The profile should also note the potential impacts of livestock grazing impacts, pesticide use, and dam operations on trout.

Foothill yellow-legged frog

The profile should discuss the potential impacts of cattle grazing on stream habitat for the yellow-legged frog and the threat of trampling of eggs, larvae, or subadults in the threats section.

All stream habitat in Alameda Creek below the Alameda Diversion Dam downstream through Little Yosemite should be considered core habitat for the foothill yellow-legged frog. Significant breeding populations of the species have been observed annually in this reach since 2000 during informal Alameda Creek Alliance stream surveys, and reported to the Natural Diversity Database.

Pacific lamprey

The profile for the lamprey should include the potential for chemical spills in Alameda Creek as a threat to the species, based on the 2002 chlorine spill from the Sunol Valley Water Treatment Plant which killed at least 24-36 lamprey (CDFG 2002, M. Mullen, pers. comm. 2002). Lampreys are particularly vulnerable to chemical spills because populations in a basin may concentrate in one stream (see Kostow 2002:42). Since lamprey ammocoetes take up to six years before

metamorphosing, six years of production are lost during a chemical poisoning. If all or a substantial amount of the stream's ammocoetes are killed, adult lamprey may not be drawn to it to spawn, resulting in local extinction.

Livestock grazing is also a potential threat to lamprey habitat. High stream temperatures resulting from the destruction of riparian vegetation are likely a limiting factor for lamprey because the species prefers temperatures below 20 degrees C (BioAnalysts 2000:25).

Western burrowing owl

The profile reports burrowing owls at two locations near San Antonio Reservoir, but does not mention whether these observations were of breeding birds or during the breeding season, or were winter observations of migrating owls. A search of the Natural Diversity Database and an exhaustive literature search show no known records of confirmed or probable breeding of burrowing owls within the HCP study area (CBD 2003). Any remaining breeding owl populations within the HCP study area would be significant.

Presidio clarkia

According to the California Department of Fish and Game and the Fish and Wildlife Service, the serpentine habitat of Presidio clarkia is threatened by livestock grazing (CDFG 1992, USFWS 1995).

Tiburon Indian paintbrush

According to the California Native Plant Society and the Fish and Wildlife Service, livestock grazing threatens Tiburon Indian paintbrush (USFWS 1995, CNPS 2004).

Sincerely,

Jeff Miller
Director, ACA

cc: U. S. Fish and Wildlife Service
National Marine Fisheries Service
California Department of Fish and Game

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