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Sent Via Certified Mail to the Planning Department on 1/21/09
and Via E-mail to the E-mail Addresses Above on 1/22/09

Re: Alameda Creek Alliance Scoping Comments on Case No. 2004.1279E – Alameda Watershed Habitat Conservation Plan

On behalf of the 1,700 members of the Alameda Creek Alliance, please accept these scoping comments for the draft Environmental Impact Report/Environmental Impacts Statement (EIR/EIS) for the San Francisco Public Utilities Commission (SFPUC) Alameda Watershed Habitat Conservation Plan (HCP) being prepared as a condition of the application for a Section 10 Permit.

The Alameda Creek Alliance (ACA) is a non-profit watershed protection group that works to protect and restore the natural ecosystems of the Alameda Creek watershed. The ACA has been working to restore steelhead trout and salmon to Alameda Creek and to protect endangered species in the Alameda Creek watershed since 1997.

These comments are also submitted on behalf of ten other conservation groups with an interest in the Alameda Creek watershed: American Rivers, Center for Biological Diversity, Clean Water Action, Friends of the Arroyos, Mission Peak Fly Anglers, Salmon Protection And Watershed Network, San Francisco Bay Chapter of the Sierra Club, San Francisquito Watershed Project, Tri-City Ecology Center, and Tuolumne River Trust.

According to the December 22, 2008 Federal Register scoping notice (73 FR 78292), the SFPUC is seeking a 30-year Incidental Take Permit (ITP) from the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) for take of 5 federally listed species and 12 unlisted species that may become listed during the term of the permits, for SFPUC operation and maintenance activities within the Alameda Creek watershed.

Extension of Comment Period Requested

We formally request an extension on the deadline for comments on the scope and focus of the EIR/EIS.

The San Francisco Planning Department's Notice of Preparation for the Alameda Watershed HCP appears to be premature. It is not clear whether the SFPUC has yet applied for an ITP from NMFS or USFWS. Currently, neither federal agency knows the definite scope of the permit, the anticipated impacts, nor what mitigation actions the SFPUC will take.

The SFPUC has not yet released the final impacts analysis for the HCP, there is considerable controversy over omission of key species within the list of covered species for the HCP, and the SFPUC has not released the conservation strategy for the HCP. It is impossible to provide meaningful comments without this information from the SFPUC. The public is also not able to submit informed scoping comments without having a draft ITP to review. The public is unreasonably constrained in suggesting analysis of specific alternatives without knowing the full nature and extent of the proposed project, the impacts analysis methodology, and the approach to mitigations. The SFPUC currently does not have complete information about the HCP posted on its web site.

The Notice of Preparation should be reissued and the comment period should be kept open for scoping comments until such time as a draft ITP is available for public review. The Alameda Creek Alliance reserves the right to supplement these scoping comments, if needed, based on the actual ITP.

Importance of the EIR/EIS

The EIR/EIS is the only document that serves to independently verify, for the public and agency decision makers, the analysis and conclusions in the ITP. The EIR/EIS is the only document that must analyze *all* of the environmental effects of the ITP, including cumulative effects, not just effects on species and habitat (USFWS and NMFS 1996).

EIR/EIS Requirements

The Habitat Conservation Planning Handbook adopted by USFWS and NMFS (1996) is clear on the requirements that must be met by an EIR/EIS for an HCP. The EIR/EIS must analyze the impacts of an issuance of the Incidental Take Permit, Habitat Conservation Plan, and any Implementing Agreement. An EIR/EIS that simply paraphrases or otherwise reiterates the discussion in the ITP, or is artificially constrained by the assumptions and conclusions in the ITP, will be insufficient to meet the agencies' obligations under NEPA and CEQA. The HCP Handbook (USFWS and NMFS 1999) emphasizes that, unlike the impact analysis in the ITP or related HCP, the impact analysis in an EIS must evaluate *all* significant effects on the environment, such as air quality, water quality, cultural resources, and land use patterns, in addition to impacts to species.

Further, the EIR/EIS must describe and analyze the impacts of the SFPUC operation and maintenance activities on <u>all</u> wildlife and plant life (not just the covered species) within the permit area. This analysis must account for all past, present and reasonably foreseeable future impacts on covered SFPUC Alameda Creek watershed lands as well as throughout the range of the covered species. A full range of alternatives must be discussed and species specific mitigations must be evaluated.

The EIR/EIS must also, among other requirements: analyze whether the HCP and the ITP meet the regulatory requirements for HCPs as detailed in the HCP Handbook; adequately analyze and identify potentially harmful direct, indirect, and cumulative effects of the proposed action on covered species; identify ways to avoid, minimize, and mitigate any adverse impacts of the project on covered species; consider a full range of alternatives for the project; and consider cumulative impacts. A more thorough discussion of the requirements of the EIR/EIS is attached as Appendix A.

Inclusion of Information about Native Fish

We request that the EIR/EIS incorporate and discuss the information about steelhead trout, rainbow trout, chinook salmon, and Pacific lamprey and suitable anadromous fish habitat in the Alameda Creek watershed that is contained in the following documents and publications, all of which are in possession of the SFPUC or available on the web:

ACA (2000) Comments on the Draft EIR for the Alameda Watershed Management Plan.
ACA (2003) Documentation of Steelhead and Salmon in Alameda Creek.
ACA et al. (2003) Land Use Plan, Sunol and Ohlone Wilderness Regional Preserves.
Bookman-Edmonston (1995) Alameda Creek Water Resources Study.
Bookman-Edmonston (1995) Alameda Creek Riparian Vegetation Baseline Assessment.
Bookman-Edmonston (1995) Alameda Creek Revegetation/Restoration Report
CEMAR (2002) Draft Steelhead Restoration Action Plan for the Alameda Creek Watershed.
Entrix (2002) Preliminary Report on Alameda Creek Watershed Fish Trapping, 2002.
Entrix (2003) Fish Trapping Study Data Summary for San Antonio Creek and Arroyo Hondo.
Gunther et al. (2000) An Assessment of the Potential for Restoring a Viable Steelhead Trout Population in the Alameda Creek Watershed.
Hanson (2002) Air and Water Temperature Monitoring Within Alameda Creek.
McBain & Trush (2008) Alameda Creek Population Recovery Strategies and Instream Flow Assessment for Steelhead Trout.
NMFS (2003) Preliminary Conclusions Regarding the Updated Status of Listed ESUs of West Coast Salmon and Steelhead.
NMFS (2004) Proposed Listing Determinations for 27 ESUs of West Coast Salmonids; Proposed Rule.
NMFS (2005) Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead.
Nielsen (2003) Population Genetic Structure of Alameda Creek Rainbow/Steelhead Trout.
Nielsen and Fountain (1999) Microsatellite Analyses of Alameda Creek Rainbow/Steelhead Trout.
SFPUC (2000-2007) Alameda Creek Aquatic Resource Monitoring Reports 1998-2005
SFPUC (2003) Fish Trapping Study Data Summary for San Antonio Creek, Indian Creek, and Arroyo Hondo 2002-2003.
SFPUC (2003) Predation of Rainbow Trout by Largemouth Bass in San Antonio Reservoir.
SFPUC (200) Population Size Estimates for Adult Rainbow Trout (*Oncorhynchus mykiss*) in San Antonio and Calaveras Reservoirs.
SFPUC (2008) Final Program Environmental Impact Report for the SFPUC Water System Improvement Program.

Any relevant documents in the annotated bibliography of Alameda Creek maintained by CEMAR at www.cemar.org

Overview of SFPUC Dam Operation Impacts

The SFPUC owns and operates three major dams in the Alameda Creek watershed (Calaveras Dam, San Antonio Dam, and Alameda Diversion Dam), which significantly interrupt ecosystem function, disrupt the natural flow of Alameda Creek and its tributaries, influence water temperatures downstream of the dams, and significantly alter

suitable habitat for native fish and other aquatic wildlife.

The three SFPUC dams block anadromous fish from reaching most of the suitable and high quality spawning and rearing habitat for cold water fish in the Alameda Creek watershed. The operations of these dams contributed to the past extirpation of anadromous fish from the watershed. Calaveras and San Antonio Dams block the upstream and downstream movements of both resident and migratory fishes, including steelhead trout (SFPUC 2005). The reservoir trout populations appear to be descended from native steelhead populations isolated behind the dam (Nielsen 2003). Calaveras Dam blocks steelhead access to the upper Calaveras watershed including its tributaries Arroyo Hondo, Smith, and Isabel Creeks, likely the best historical steelhead spawning and rearing habitat in the entire Alameda Creek watershed. San Antonio Dam blocks steelhead access to San Antonio and Indian Creeks. These dams prevent gene flow between trout populations above and below the reservoirs, and may be affecting the long-term genetic viability of reservoir and stream populations. *We request that the EIR/EIS quantify the suitable spawning and rearing habitat for cold water anadromous fish that is blocked by the SFPUC dams. We request that the EIR/EIS analyze the impact of the dams on genetic fitness and long-term viability of the reservoir trout populations.*

The SFPUC diverts 86% of the natural stream flow of the upper Alameda Creek basin, significantly affecting downstream flows and water temperatures, reducing habitat available for native fish populations. *We request that the EIR/EIS quantify the impacts of the SFPUC dams and water diversions on downstream fish habitat.*

The SFPUC does not currently release any water from any of these dams to benefit fish and wildlife habitat or native vegetation downstream of the dams. *We request that the EIR/EIS analyze fish habitat improvements that would result from a range of additional instream flow releases from SFPUC dams.*

The current water diversions and impoundments behind the SFPUC dams leave inadequate flow in Alameda Creek and the San Antonio and Calaveras Creek tributaries below the dams to maintain resident trout populations in good condition. The SFPUC has conducted annual monitoring since 1998 of Alameda Creek fisheries in a study reach including Calaveras Creek below Calaveras Dam, and Alameda Creek from the confluence with Calaveras Creek downstream to the Sunol Valley Water Treatment Plant. SFPUC monitoring data from 1998-2004 shows that observations of resident rainbow trout in this study reach have declined dramatically: 55 trout were observed in 1998; 5 trout in 1999; 5 trout in 2000; 3 trout in 2001; 1 trout in 2002; 2 trout in 2003; and 0 trout in 2004. This trout population is severely constrained by lack of rearing habitat and high summer temperatures (Hanson 2002) due to lack of minimum flow releases from Calaveras Reservoir. Flow releases are required to keep these fish populations in good condition.

The SFPUC's dams and diversions are operated in violation of California Fish and Game Code §5937, which requires dam owners to release enough water to keep downstream fish populations in good condition, and §5901, which makes it illegal to maintain any

device which prevents or impedes the passing of fish up and down stream.

Through its Water System Improvement Program (WSIP), the SFPUC has proposed an additional diversion along Alameda Creek in the lower Sunol Valley as part of the Alameda Creek Fishery Enhancement Project. The Final Programmatic EIR for the WSIP proposes operations of Calaveras Dam, the Alameda Diversion Dam, and the Alameda Creek Fishery Enhancement Project recapture facility that will have further detrimental impacts on the native fish and wildlife of Alameda Creek, will impede restoration of steelhead trout, and will commit the SFPUC to continue to operate their dams in violation of state and federal wildlife protection laws.

The Alameda Watershed HCP should substantially improve conditions for anadromous fish in Alameda Creek. To minimize and mitigate the adverse impacts of dam operations and water diversions on covered species, the Alameda Watershed HCP must include significant restoration of habitat that has been degraded by operation of SFPUC dams and reservoirs.

Covered Species

The following additional species meet the SFPUC's criteria for inclusion in the HCP (Jones & Stokes 2003a) and should be included as covered species:

Rainbow Trout (*Oncorhynchus mykiss*)

Resident rainbow trout populations in the Alameda Creek mainstem and its tributaries below the major dams, as well as adfluvial (landlocked) steelhead trout above Calaveras and San Antonio Reservoirs should be included as covered species, since they are indistinguishable from listed Central California Coast ESU steelhead trout, are an important genetic component of the native Alameda Creek steelhead trout population, and are essential to the survival and recovery of the Alameda Creek watershed population of steelhead trout.

The best available scientific information (Nielsen and Fountain 1999, Gunther et al. 2000, Nielsen 2003) shows that resident rainbow trout populations in upper Alameda Creek and its tributaries and landlocked steelhead trout populations in Calaveras and San Antonio Reservoirs and their tributaries are genetically related to listed Central California Coast ESU steelhead trout. Nielsen (2003) examined mitochondrial DNA and microsatellite DNA of fish from four subbasins of Alameda Creek and found that three of the subpopulations were most similar to each other and were more similar to populations from other creeks within the ESU (Lagunitas and San Francisquito creeks) than they were to populations outside the ESU. The studies analyzed fin clips from adult steelhead captured at the Fremont BART weir in recent years by ACA volunteers, rainbow trout populations in upper Alameda Creek and its tributaries collected by Alameda County in 1999, and landlocked reservoir trout from surveys conducted by the SFPUC. Landlocked trout behind the two SFPUC reservoirs are thought to be the descendants of the original migratory steelhead run in Alameda Creek and represent the best native gene pool for

restoring steelhead below the dams.

The best available scientific information shows that landlocked steelhead trout populations in Calaveras and San Antonio Reservoirs and their tributaries exhibit anadromous steelhead behavior, including downstream migrant juveniles documented in smolt condition (Entrix 2002, SFPUC 2003, 2004). Ecologically and genetically, these resident trout are part of the same ESU as adult steelhead trout in the Central California Coast.

The best available scientific information shows that resident rainbow trout and landlocked steelhead trout in the Alameda Creek watershed (particularly those populations in lower Alameda Creek, upper Alameda Creek, Stonybrook Creek, Pirate Creek, Welch Creek, Indian Joe Creek, W-Tree Creek, San Antonio Reservoir, San Antonio Creek , Indian Creek, La Costa Creek, Calaveras Reservoir, and Arroyo Hondo Creek) represent "significant genetic components of the native, wild *Oncorhynchus mykiss* resource" in Central California (Nielsen and Fountain 1999, Gunther et al. 2000, Nielsen 2003).

Steelhead begin their lives as rainbow trout and are often indistinguishable from resident rainbow trout as juveniles, and they have the same behavior, diet, morphology, and habitat needs (69 Fed. Reg. 33102, 33113). The SFPUC proposes to exclude *O. mykiss* that have not actually smolted or successfully migrated and returned from the ocean (including juvenile steelhead) from the HCP. The HCP cannot adequately protect steelhead without protecting resident offspring and the non-anadromous portion of the population.

Comments submitted by EDC, CBD and CalTrout on the proposed NMFS listing in 2005 thoroughly discuss the best available science on the relationship between resident and anadromous forms of *O. mykiss* (see http://www.alamedacreek.org/Alerts/Trout%20listing/EDC-CBD-CalTrout%20Comment%20re%20Proposed%20Steelhead%20DPSs.pdf).

NMFS concluded that native resident *O. mykiss* populations above dams on Alameda Creek are genetically part of the Central California Coast *O. mykiss* ESU (NMFS 2004, 2005), and proposed in June of 2005 to include resident trout and some landlocked steelhead, including those in Alameda Creek, as part of the Central California Coast steelhead population. Due to SFPUC political lobbying against listing Alameda Creek trout, the final NMFS listing determination in December 2005 excluded resident and reservoir fish in Alameda Creek from the listed population and excluded Alameda Creek from designated critical habitat for Central Coast steelhead.

However, the Alameda Creek Alliance intends to petition for federal listing of the Alameda Creek resident and adfluvial rainbow trout population and may also bring a legal challenge to the NMFS final listing decision. It is highly likely that adfluvial and/or resident rainbow trout in Alameda Creek will be listed under the federal ESA during the term of the HCP.

Resident rainbow trout below the major SFPUC dams persist only in low population numbers and may be in danger of extirpation. The SFPUC has conducted annual monitoring since 1998 of Alameda Creek fisheries in a study reach including Calaveras Creek below Calaveras Dam, and Alameda Creek from the confluence with Calaveras Creek downstream to the Sunol Valley Water Treatment Plant (SFPUC 2000-2007). SFPUC monitoring data from 1998-2004 shows that observations of resident rainbow trout in this study reach have declined dramatically: 55 trout were observed in 1998; 5 trout in 1999; 5 trout in 2000; 3 trout in 2001; 1 trout in 2002; 2 trout in 2003; 0 trout in 2004; and 2 trout in 2005. No more than 20 trout have been observed by the SFPUC in Little Yosemite during monitoring from 2002-2005.

Sacramento Perch (*Archoplites interruptus*)

We concur with the comments of the East Bay Regional Park District (EBRPD) that Sacramento perch should be included as a covered species.

Sacramento perch persist in very few localities within their original range in the Sacramento-San Joaquin Valley, Pajaro and Salinas River systems, Clear Lake, and Bay Area watersheds. Sacramento perch in their native range are restricted to Clear Lake, plus a few disjunct localities consisting primarily of reservoirs and farm ponds into which they were introduced. The recent rediscovery of Sacramento perch in the SFPUC's Calaveras Reservoir is significant because the Alameda Creek basin is one of the few watersheds in which Sacramento perch were native and still persist. Virtually all remaining populations of Sacramento perch occur in reservoirs or ponds in which extinction can occur quickly. The population in Calaveras Reservoir may be genetically distinct from other populations, such as in Clear Lake, and future management should take into account the maintenance of the genetic diversity of this species (Moyle et al. 1995). Sacramento perch are threatened by competition with and predation by introduced fish such as largemouth bass.

Hardhead (*Mylopharodon conocephalus*)

We concur with the comments of the EBRPD that hardhead should be included as a covered species.

According to the EBRPD, hardhead have been documented in Alameda Creek in recent years (comments of Doug Bell at HCP scoping meeting on 1/13/09). A small hardhead population in the Napa River may be the only other Bay Area occurrence of the hardhead (Moyle et al. 1995). Hardhead require large to medium-sized, cool to warm-water streams with natural flow regimes for their long-term survival. They are also threatened by predation by introduced bass.

Raptors

We concur with the comments of the EBRPD that special-status grassland raptors,

including the golden eagle, bald eagle, prairie falcon and American kestrel should be included as covered species. The SFPUC's Alameda watershed holdings contain significant habitat for all of these are rare and declining species.

Rare Plant Species

We concur with the comments of the California Native Plant Society (CNPS) on 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 CNPS sent the SFPUC two comment letters in 2003 and 2004 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 not included in the covered species evaluations. CNPS provided information on 12 plant species for which the only known occurrence in the East Bay is on SFPUC Alameda watershed lands – these should be covered species in the HCP.

Impacts Analysis Methodology

The draft HCP contemplates assessing direct impacts quantitatively and indirect impacts qualitatively. Direct impacts should also be assessed qualitatively, and should consider effects on covered species survival and recovery, as well as population level impacts within the watershed. Impact estimates for covered species should consider population trends within the watershed as well as impacts to suitable habitat.

The definition of a permanent impact in the draft HCP (Section 4.1.2) should include disruption of ecosystem function, such as that which results from operation of dams and water diversions.

Habitat Modeling

Impacts to covered species should not be assessed exclusively based on habitat modeling, as is proposed in the draft HCP (Section 4.2). Impacts assessments should be based as least partly upon thorough surveys of special status species and population trends within the watershed. The draft HCP claims that "basing estimates of take on the numbers of individuals or populations requires extensive survey data that are unavailable for this HCP." However, the ACA has been requesting that the SFPUC conduct surveys of special-status species within the watershed for almost a decade, since comments began on the Alameda Watershed Management Plan in 1999. There is no reason the SFPUC cannot conduct surveys to determine the population status for the covered species within the watershed, to supplement the habitat modeling.

The draft HCP states that estimates of incidental take will be based on species-habitat models developed for covered species. It is not clear what modeling the SFPUC is proposing to use, but SFPUC consultants Jones & Stokes have given a public presentation on the use of the Ecosystem Diagnosis and Treatment model (EDT) for the HCP. We have concerns about the use of EDT - whether it is an appropriate model and

whether the modeling will be based upon sound science. The use of the EDT model for an Instream Flow Assessment Pilot Project in Puget Sound generated considerable scientific controversy, because of lack of peer review and questionable assumptions used in the model (see http://www.sharedsalmonstrategy.org/resources.htm).

A peer review of the Puget Sound project (Booth et al. 2005) concluded that the EDT model as used in that project had "many questionable assumptions, of which almost none have been subjected to careful, unbiased scrutiny. Until that has occurred, it will be easy (and appropriate) to cast doubt on any management actions that have been guided by EDT results…complete peer review of the EDT model would be essential to evaluate the quality of this study. We strongly recommend against further application of this model until such a peer review has been completed. EDT may or may not provide useful, credible outputs, but it does not pass even the lowest standards for a scientific peer-reviewed framework, and it does not meet the standards for "Best Available Science.""

We request that the EIR/EIS evaluate the scientific credibility of the EDT model, if used, and provide for peer review of any modeling.

Modeling of Habitat Above Dams

Modeling should include a quantitative and qualitative assessment of anadromous fish habitat that is blocked by Calaveras, San Antonio and Alameda Diversion Dams, including the amount of spawning and rearing habitat available above the dams and the productivity that would result from anadromous fish access to that habitat.

The City of Portland's Bull Run HCP is an example of an HCP that modeled habitat areas that have been lost to anadromous fish because they are blocked by dams (see http://www.portlandonline.com/water/index.cfm?c=46157&). The Bull Run HCP compensates for lost habitat by implementing habitat restoration measures elsewhere in the watershed.

Critical Habitat

The impacts analysis must include any potential impacts to designated critical habitat within the watershed for federally listed species. Critical habitat for the Alameda whipsnake was re-designated and finalized in 2006. Unit 5 of Alameda whipsnake critical habitat may be within the HCP area (71 Federal Register 58176, October 2, 2006). A revised critical habitat designation was proposed for the California red-legged frog in 2008. Unit ALA-2 of the proposed red-legged frog critical habitat is within the HCP area (73 Federal Register 53492, September 16, 2008). The draft HCP (section 4.2.5) should be updated to reflect these changes to critical habitat.

Neither NMFS nor USFWS can authorize destruction or adverse modification of designated critical habitat. The EIR/EIS should analyze whether any destruction or adverse modification of critical habitat will result from the SFPUC operations and maintenance activities or the implementation of the HCP.

Consider Past Comments

The EIR/EIS should include and evaluate past comments by the ACA and other organizations and agencies on SFPUC operations and proposed projects within the watershed. In order to fully assess potential impacts, the EIR/EIS should not merely rely on information provided by the SFPUC. The ACA and CNPS, as well as the California Department of Fish and Game (CDFG), have submitted extensive scientifically based comments on impacts of SFPUC management plans and projects, which have been mostly ignored by the SFPUC. The USFWS and NMFS should ensure that this information is considered in the EIR/EIS for the HCP. We hereby incorporate into our scoping comments previously submitted scoping comments by ACA on the Alameda Watershed HCP (ACA letters of 2/19/04, 6/30/04, and 3/16/05); ACA, CDFG, ACWD, and CNPS comments on the Program Environmental Impact Report for the SFPUC Water System Improvement Program (ACA letters of 10/12/05, 11/10/05, 10/1/07, and 10/28/08; CNPS letters of 9/25/07 and 10/30/08; CDFG letter of 10/1/07; ACWD letter of 9/26/07); ACA, CDFG and CNPS scoping comments on the Calaveras Dam Replacement Project (ACA comment letters of 11/8/05, 12/20/05, 6/24/08 and 1/9/09; CDFG letter of 11/22/05); and ACA and CDFG comments on the EIR for the Alameda Watershed Management Plan (ACA letters of 1/28/00 and 2/16/00; CDFG letter of 1/31/00). All of these comment letters are available at www.alamedacreek.org.

Biological Inventory Report Inadequate

The Biological Inventory Report prepared for the HCP by consultants Jones & Stokes is inadequate and omits critical information about special-status species and habitats. The Species Profiles prepared by Jones & Stokes for this report do not have adequate discussion of potential impacts to covered species and their habitat, particularly with regards to cattle grazing. The inadequacies were detailed in our June 30, 3004 letter to the SFPUC. The relevant information is attached as Appendix B.

We request that the EIR/EIS consider all relevant biological information that was omitted from the biological inventory report and species profiles. We request that any information produced by the SFPUC for the EIR/EIS be subject to credible peer review and be revised and updated to incorporate information submitted by the ACA and other groups and agencies.

Peer Review

HCPs and related documents must be subject to independent scientific and legal review. HCPs must minimize and mitigate take, and ensure survival and consistency with the recovery of covered species, among other ESA section 10 and 7 mandates. Yet HCPs often fall short of these and other legal standards because they are prepared by a consulting firm and attorneys in the employ of take permit applicants that may lack the expertise or political independence necessary to craft a complex and sound conservation plan.

The SFPUC has a history of using non-peer reviewed reports by their consultants to reach scientifically questionable conclusions and to bias and influence decision making. For example, for the Programmatic EIR for the SFPUC Water System Improvement Program, the SFPUC used unpublished reports (that the public had no opportunity to view) by their consultants to reach questionable conclusions about the impacts of the WSIP on steelhead trout habitat; in comments opposing NMFS inclusion of resident trout in Alameda Creek as part of the threatened Central CA Coast ESU of steelhead, the SFPUC used an anonymous report by a consultant (also not available to the public until after the decision) to make dubious assertions about the validity of genetic studies on Alameda Creek trout. The SFPUC and their consultants should not be allowed to control or bias the biological information used in the Alameda Watershed HCP in this manner.

As part of the EIR/EIS, the SFPUC should be required to fund independent scientific and legal review of important HCP documents, such as those addressing biological goals and objectives, biological inventory report, impacts analysis, adaptive management of covered species, the draft biological opinion, Section 10 findings, and implementing agreement, among others. Independent scientific and legal review of the HCP is likely to contribute significantly to the building of public trust and support by ensuring the program has followed a rigorous scientific and legal process and will accomplish stated goals. The results of the independent scientific and legal review should be provided as part of the public review package of the draft HCP and related documents.

Proposed Mitigation Measures

In our estimation, the most significant biological impacts of the SFPUC's operations are from reservoir and dam operations, followed by impacts from cattle grazing, road construction and maintenance, and other lease activities.

The mitigations considered in the EIR/EIS for the SFPUC reservoir and dam operations must be meaningful, and on a scale commensurate with the effects of the facilities and operations. The mitigations should tip toward the recovery end of the spectrum for covered species, not just consist of token protection of scraps of habitat. We encourage NMFS, USFWS and the SFPUC to "think outside the box" in coming up with mitigations for significant impacts and to take an ecosystem approach.

Some of the mitigation measures that should be included in the HCP and considered in the EIR/EIS include (but are not limited to):

<u>Mitigations for Reservoir and Dam Operations</u>

Provide Fish Passage at Major Dams

The EIR/EIS should consider fish passage at Calaveras and San Antonio Dams as one of the main mitigation measures for covered fish species.

The EIR/EIS should consider all feasible fish passage provisions for anadromous fish to migrate upstream and downstream past Calaveras and San Antonio Dams. Calaveras and San Antonio Dams block the potential for upstream and downstream movement of both resident and migratory fishes, including steelhead trout (SFPUC 2005). Calaveras Dam blocks steelhead access to the upper Calaveras watershed including its tributaries Arroyo Hondo, Smith, and Isabel Creeks, likely the best historical steelhead spawning and rearing habitat in the entire Alameda Creek watershed. San Antonio Dam blocks steelhead access to San Antonio and Indian Creeks. These dams prevent gene flow between trout populations above and below the reservoirs, and may be affecting the long-term genetic viability of both reservoir and stream populations.

We recognize that constructing fish ladders at these dams may be expensive and may be technically challenging. However, the long term viability of anadromous fish populations in the Alameda Creek watershed would be best served by providing access to some of the higher quality habitat above these reservoirs. If unrestricted fish passage at these dams is not feasible, partial mitigation for the impacts of the dams should include an annual trap and haul program. Such a program would move some adult upstream steelhead migrants around Calaveras and San Antonio Dams, as well as rescue stranded smolts and fry during summer months in drying tributaries above Calaveras and San Antonio Reservoirs – moving rescued fry and smolts downstream of the dams will help restore the steelhead population below the dams.

Remove the Alameda Diversion Dam

The EIR/EIS should consider removal of the Alameda Diversion Dam as one of the main mitigation measures for covered fish and amphibian species, especially if unrestricted fish passage at Calaveras and San Antonio is not feasible.

The Alameda Diversion Dam has had and will have significant impacts on native fish and amphibians downstream, including steelhead/rainbow trout, chinook salmon, Pacific lamprey, California red-legged frog, foothill yellow-legged frog, hardhead, and western pond turtle.

Under their approved Water System Improvement Program, the SFPUC proposes to operate the Alameda Diversion Dam in a manner that will violate California Fish and Game Code §5937, diverting almost the entirety of late fall through spring flows from upper Alameda Creek. These operations will not keep fish populations downstream of the diversion dam in good condition. These operations will also impede fish passage downstream of the dam, which also violates California Fish and Game Code §5901 (which makes it illegal to maintain any device which prevents or impedes the passing of fish up and down stream).

The proposed operation of the Diversion Dam would nearly eliminate low and moderate (1 to 650 cfs) flows in Alameda Creek downstream of the diversion, and substantially reduce many higher (greater than 650 cfs) flows. Diverting the entire stream flow (except 1 cfs) and cutting the frequency of peak flows during December through May will clearly

affect downstream fish passage, fish rearing, amphibian populations, and stream temperatures. The SFPUC has bypassed most flows past the diversion dam since 2002, and resident trout and aquatic resources below the diversion dam are dependent upon these natural stream flows.

The diversion dam blocks the upstream and downstream movements of both resident and migratory fishes, including resident rainbow trout. Once fish passage projects in lower Alameda Creek are completed, the diversion dam will block upstream and downstream migration of steelhead trout. Operation of the diversion dam not only affects fish migration past the diversion dam, but also potential fish passage through Little Yosemite and even further downstream, by diverting the majority of the annual flow of upper Alameda Creek. Reducing the frequency of high flow periods downstream of the diversion dam reduces fish passage opportunities through Little Yosemite (Gunther et al. 2000; Bain & Trush 2008).

Removal of the diversion dam will restore the natural hydrograph of mainstem Alameda Creek and, in concert with fish passage projects planned or already underway downstream, will allow anadromous fish potential access to the entirety of the mainstem of Alameda Creek. The highest quality spawning and rearing habitat for anadromous fish in the Alameda Creek watershed that is not blocked by major dams is upstream of the Alameda Diversion Dam (Gunther et al. 2000).

Provide Instream Flows for Anadromous Fish Below Dams

The EIR/EIS should consider, and the HCP must include, instream flow releases from Calaveras and San Antonio Reservoirs adequate for migration, spawning and rearing of all covered anadromous fish species below the dams.

The SFPUC has proposed operations of Calaveras and San Antonio Reservoirs under the WSIP that are inadequate to keep resident fish populations downstream of these dams in good condition.

The HCP should include a flow release schedule from Calaveras Reservoir, and if needed, from San Antonio Reservoir, adequate to maintain self-sustaining populations of steelhead trout, chinook salmon, Pacific lamprey, western pond turtle and foothill yellow-legged frog below the dams. The flow schedule should consider in-migration and spawning flows for adult fish, out-migration flows for smolts, and rearing flows for fry. Flows releases must comply with Fish and Game Code §5937.

Flow releases should be calibrated for wet through dry year water types and should follow the natural hydrograph of unimpaired flow above the dams, with the goal of mimicking natural stream flow conditions as much as possible below the dams. Flow releases should be timed to avoid catastrophic impacts to breeding amphibians.

The flow releases should have an adaptive management element, so that they can be refined based on monitoring and the ongoing Alameda Creek Fisheries Workgroup flows

studies.

Enhance Salmonid Habitat Below the Dams

Dam operations have significant downstream impacts on sediment and woody debris transport, health of riparian vegetation, and channel formation through flood scouring. Habitat for cold water fish and amphibians in mainstem Alameda Creek below the major dams should be enhanced as much as possible through periodic scouring releases, anchoring of woody debris and/or boulders in suitable locations, and re-vegetation of stream reaches below the dams. Moyle et al. (2008) discuss the benefits of future installation of large woody debris and habitat restoration for steelhead trout.

Eradicate Predatory Bass

An intensive bass eradication program should be initiated to remove introduced bass from Calaveras and San Antonio Reservoirs. Bass predate upon trout in the reservoirs.

Protect Reservoir Fish

The EIR/EIS should require reservoir operations at Calaveras and San Antonio reservoirs consistent with maintaining the adfluvial trout populations in these reservoirs in good condition. Calaveras Reservoir should never be lowered to below 690 feet in elevation, to maintain minimum reservoir habitat for adfluvial trout. All reservoir adits should be adequately screened to prevent entrainment of juvenile trout, per CDFG criteria. Oxygenation systems should be required in Calaveras and San Antonio reservoirs that maximize optimal reservoir conditions for adfluvial trout.

Remove Cattle from Reservoir Spawning Areas

The SFPUC should be required to fence cattle out of all trout spawning areas above Calaveras and San Antonio Reservoirs to protect spawning and rearing habitat for adfluvial trout. The SFPUC has verbally committed to fencing cattle out of Arroyo Hondo above Calaveras Reservoir. Cattle should be excluded from all stream reaches tributary to Calaveras Reservoir that provide known or potential spawning or rearing habitat for adfluvial steelhead trout. Cattle should also be excluded from stream reaches in the San Antonio Creek sub-watershed that provide known or potential trout spawning or rearing habitat, including San Antonio Creek above the reservoir, Indian Creek, La Costa Creek, and potentially Apperson Creek. Cattle in these stream reaches are damaging trout spawning and rearing habitat and have been documented trampling trout redds. NMFS has indicated that cattle should be excluded from these stream reaches.

Spill Response and Mitigation Fund

There have been several recent spills of chlorine and chlorinated water into Alameda Creek from the Sunol Valley Water Treatment Plant (SVWTP): November 2003, April 2002, and 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 was not required by CDFG or the Regional Water Quality Control Board to pay any fines or conduct any restoration as a result of these spills.

The SFPUC is planning a 40-million-gallon-per-day expansion to the SVWTP plant as part of the WSIP. The HCP should include adequate mechanisms and monitoring to ensure spills of this nature never occur again at the SVWTP. The HCP should include a fine system for any future spills that directs funding to remediation and restoration in the event of a spill.

Mitigations for Cattle Grazing Leases

Impacts of Cattle Grazing on Riparian and Aquatic Habitat

The SFPUC maintains cattle grazing leases on the majority of its Alameda Creek watershed lands. Habitat degradation due to grazing has potentially significant impacts on covered species within the watershed such as steelhead/rainbow trout, Pacific lamprey, foothill yellow-legged, California red-legged frog, California tiger salamanders, and western pond turtle. Cattle grazing in riparian corridors has well-documented negative effects on riparian and aquatic ecosystems. Cattle can eat and trample riparian vegetation, erode streambanks, increase sediment loads, alter stream channel morphology, add excessive nutrients and pollutants to creeks, and alter hydrology, with cumulatively significant impacts that negatively affect riparian and aquatic wildlife. The negative aquatic and hydrologic impacts of grazing should be analyzed in the EIR/EIS.

Ecologist A. J. Belsky (1999) conducted a systematic literature review of peer-reviewed experimental studies on the effects of livestock grazing on stream and riparian ecosystems in the west. 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. These impacts obviously have significant cumulative negative effects for aquatic and riparian special-status species. No positive environmental impacts were found.

The following assertions by Belsky (1999) about grazing impacts are based on verifiable scientific data, and have been published in peer-reviewed technical and scientific journals. The negative influences of cattle grazing on riparian and aquatic ecosystems can be summarized as follows:

- *Water quality*

Cattle grazing increases nutrient concentrations and bacteria and protozoa. Sediment load and turbidity are increased, as well as water temperature. Dissolved oxygen levels possibly decline.

- *Stream channel morphology*

Channel width increases, and water depth decreases with cattle grazing. Gravels in the channel bed tend to be lost in the erosional environment and fine sediments increased in the depositional environment. Streambank stability is reduced, streambank undercuts are reduced in quality and quantity, and pools decrease in number and quality.

- *Hydrology (stream flow patterns)*

With cattle grazing, overland flow from runoff increases, and peak flow and flood water velocity also increase. Summer and late-season flows decrease, and the water table is lowered.

- *Riparian zone soils*

Grazing increases erosion, the amount of bare ground, and soil compaction. Infiltration of water decreases. Litter layer decreases and soil fertility declines.

- *Instream vegetation*

Algae growth increases with grazing, but higher plants (submerged and emergent) often decline in abundance.

- *Streambank vegetation*

Herbaceous cover, biomass, productivity, and native plant diversity decline due to grazing. Overhanging vegetation and tree and shrub biomass and cover decline. Plant species composition is altered and plant structure (horizontal and vertical) is simplified. Plant age structure becomes even-aged and plant succession is impeded.

Although these are generalizations, these effects are well-documented in the scientific literature, and most of these effects can be found to occur in the Alameda watershed where there is cattle grazing. Cumulatively, these impacts can be devastating to aquatic and riparian species.

Site-Specific Grazing Impacts in Alameda Creek

Site-specific damage of this nature has been documented in several surveys in Alameda Creek and brought to the attention of SFPUC. In 1993 fisheries biologist Peter Moyle recommended excluding cattle from the riparian zone 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 due to cattle grazing was noted (Bookman-Edmonston 1995). The lower reach surveyed had a "lack of deep-water habitat for adults 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. Cattails were observed to be numerous in Sunol Regional Park which may hinder fish movement and occupy habitat that would otherwise be suitable for fish. The report recommended increased riparian vegetation to help exclude cattails from the stream.

In 1992 a riparian vegetation assessment along Alameda Creek from the confluence with Calaveras Creek downstream to Hwy. 680 in the Sunol Valley noted severe impacts to riparian vegetation at the downstream end of the study (Bookman-Edmonston 1995C), a "result from cattle grazing and trampling." The assessment noted that "Cattle browse the herbaceous plants and tree saplings which initiate the re-vegetation of open portions of the creek. They also trample the vegetation and creek banks causing erosion and siltation...The greatest level of disturbance attributable to cattle activity appears to be from the western property boundary of the Sunol Regional Park downstream to the Rosedale Bridge. Cattle activity in some areas has severely reduced vegetative cover and has greatly disturbed the creek banks and bottom."

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 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."

A stream inventory study of Alameda Creek conducted by the California Department of Fish and Game in 1995 documented damage to stream banks, erosion and sedimentation, and water pollution caused by cattle (Murphy and Sidhom 1996). CDFG biologists

walked Alameda Creek from upstream of Calaveras Creek to the confluence with Welch Creek. The report stated “large areas of bank erosion were noted which were actively depositing sediment in the stream, especially in the lower reaches...the result of the presence of cattle in and near the stream. Numerous stream banks have been broken down as the direct result of cattle entering the stream.” The report expressed concern that if cattle were not excluded from the stream, then spawning areas could become significantly embedded by fine sediment and useable spawning habitat limited. The report noted large amounts of cow manure in the stream median, leaching pollutants into the stream.

Inadequacy of Alameda Watershed Management Plan in Addressing Grazing Impacts

The EIR for the SFPUC Alameda Watershed Management Plan (AWMP) asserts that implementation of the *Grazing Resources Management Element* of the AWMP, which sets requirements for implementing current and future grazing, “would reduce the potential physical effects from overgrazing by livestock to a less than significant level” (page III.E-35), and concludes that “mitigation measures are not required” for grazing impacts. The EIR has deferred mitigation for grazing impacts, in an attempted shell game with mitigation measures. The *Grazing Resources Management Element* does not even mention, let alone analyze or mitigate for any impacts to special-status wildlife species, nor does it address or mitigate for any of the significant grazing impacts.

All of the proposed mitigations for grazing (listed in Table II-1 of the EIR as grazing 1 - grazing 14) are also qualified by the statement that “Inclusion does not ensure that funding, staff, or equipment will be made available to implement these actions, nor does it obligate the SFPUC to implement actions it chooses not to,” essential rendering the mitigations meaningless.

The only mitigations offered in the *Grazing Resources Management Element* which could possibly begin to reduce impacts to special-status species (although not to a less than significant level) are the proposed structural protection measures, primarily stream and reservoir buffers restricting all cattle access, and development of off-stream water improvements. Figure 2 in this element shows the creek areas which would be fenced, which appears to be along all of Alameda Creek proper within cattle grazing allotments on SFPUC lands, from above the Upper Alameda Diversion Dam downstream to approximately the confluence with Welch Creek. The portions of Alameda Creek through Sunol Valley or in Niles Canyon do not appear to be proposed for these stream buffers, although there are grazing leases adjacent to the stream in these areas. Nor do any tributaries to Alameda Creek within the Calaveras watershed appear to be proposed for stream buffers.

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. The ACA also submitted scoping comments on grazing issues for the Alameda Watershed HCP to the SFPUC on March 16, 2005 (see http://www.alamedacreek.org/Alerts/SFPUC%20HCP/3-16-05%20grazing%20comments.pdf).

Information on Grazing Leases

The EIR/EIS should provide the following information and address the following questions which were submitted to the SFPUC in February 2005 following a meeting regarding grazing issues for the Alameda Watershed HCP. These questions have not yet been answered by the SFPUC.

The SFPUC should provide a written report for the EIR/EIS on the Grazing Management Element of the Alameda Watershed Management Plan; specifically which promised actions and mitigations have been completed, which actions are pending, and a time-line for completion. The SFPUC should provide information on what fencing currently exists within the HCP area, and how old and in what condition that fencing is.

The EIR/EIS should provide specific responses to comments regarding grazing that the ACA raised in our HCP comment letter of 6-30-04 to the SFPUC.

The USFWS, NMFS, and CDFG should provide comments on the potential impacts of grazing on covered species within the HCP area..

The EIR/EIS should include information and copies of any studies or data on grazing impacts to listed species or their habitat that are within or adjacent to the HCP area, such as California red-legged frog and California tiger salamander data and surveys by the East Bay Regional Park District and the Contra Costa Water District. The EIR/EIS should include information on grazing developed by the California Department of Parks and Recreation for nearby Mount Diablo State park, including *Long-term Vegetational Responses Documented in Grazed and Ungrazed Sites at Mt. Diablo State Park - Information Paper III* (CDPR 1989).

In the absence of specific information on grazing impacts to listed species on SFPUC, CDPR, EBRPD and CCWD lands, the EIR/EIS should rely upon published peer-reviewed literature and the best scientific information collected by the USFWS and NMFS to determine presumed grazing impacts for the HCP.

Fence Cattle Out of Alameda Creek

The HCP should require fencing cattle out of the entirety of Alameda Creek from the upstream end of Camp Ohlone downstream to the Sunol Valley, to protect potential salmonid spawning and rearing habitat and prevent impacts to stream dependent herpetofauna. The fencing should be aligned to include the lower reaches of all tributary

streams to Alameda Creek in the Sunol Valley that are known to support rainbow trout, thus excluding cattle from known or potential trout habitat in the lower reaches of Pirate Creek, Leyden Creek, Welch Creek, Indian Joe Creek, and W-Tree Creek.

The SFPUC and EBRPD have committed to developing 18 off-stream water sources for cattle in conjunction with fencing Alameda Creek. These water projects should not destroy or de-water natural wetlands features such as springs or seeps. Fencing for cattle exclusion in the HCP area should not interfere with movement of native wildlife such as deer or elk.

Create Livestock Free Reserve

The HCP should include experimental removal of livestock grazing from a significant portion of the SFPUC watershed lands and implementation of alternative vegetation management for the permit duration, or 30 years. Such a preserve would allow monitoring and study of populations of covered species in the absence of livestock grazing. High priority areas for the reserve should include the home range for the Sunol tule elk herd and streams supporting spawning of adfluvial steelhead trout south of San Antonio Reservoir; areas with special-status plants identified by the CA Native Plant Society, CDFG, or USFWS as at-risk from cattle grazing; areas with serpentine soils; and potential habitat for callippe silverspot butterflies. A significant acreage of reserve should be designed (we recommend 20% of SFPUC holdings in the watershed) and exclusionary fencing installed to capture as much of these habitats as possible while minimizing the total amount of fencing. The long-term management of the reserve after 30 years should be determined through the results of a monitoring program.

Adaptive Management

Any grazing monitoring program developed as part of the HCP should be based on monitoring ecological values, rather than range management values (i.e. monitor quantity and quality of habitat for listed species, health of listed plant populations, etc., rather than monitoring available forage for cattle, residual dry matter, etc.).

Mitigations for Other Lease Activities

Nurseries

The SFPUC leases over 130 acres of land in the Sunol Valley to five commercial nurseries. The SFPUC has a “system” of voluntary reporting of pesticide use by these nurseries. We are aware of only one hand written survey, not completed by all nursery lease holders, of the pesticide use by these nurseries.

These nurseries 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 have 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 (see http://www.alamedacreek.org/Alerts/Pesticides/Pesticides.htm). The SFPUC does no monitoring and has no idea whether these pesticides are making their way into Alameda Creek from the nurseries. 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).

A recent NMFS Biological Opinion on the organophosphate pesticides chlorpyrifos, diazinon, and malathion concluded that the Environmental protection Agency's registration of these pesticides jeopardizes the existence of 27 species of listed Pacific salmonids, including Central California Coast steelhead trout (NMFS 2008).

Alameda Creek was declared an impaired water body in 1999 by the U. S. Environmental Protection Agency due to diazinon poisoning.

The SFPUC's AWMP proposes to expand nursery use in the valley, which potentially will increase diazinon and other pesticide runoff to the creek.

The draft HCP (section 2.6.2) notes that the nursery leases will most likely be renewed over the term of the HCP, and that at that point, new restrictions on setbacks from the creek and chemical and fertilizer storage are "likely" to be imposed.

Although the HCP will not provide coverage for pesticide use, there is no reason that the HCP cannot include restrictions on pesticide use at the nurseries as mitigation for impacts to covered species. The application of pesticides in Sunol Valley nurseries near Alameda Creek should be scrutinized for any potential impacts to covered species. Use of known harmful pesticides should be banned and the current system of voluntary reporting should be changed.

The HCP should also include mandatory creeks setbacks of 100 feet from Alameda Creek for all nurseries in the Sunol Valley and restoration of native riparian vegetation within this zone, to create a viable wildlife migration corridor along the creek.

Golf Course

The SFPUC leases approximately 215 acres adjacent to Alameda Creek to the Sunol Valley Golf Course. According to the draft HCP, the golf course is mowed regularly, and fertilizers, pesticides, and herbicides are applied for maintenance. The SFPUC's AWMP proposes to expand the existing golf course, which potentially will increase diazinon and other pesticide runoff to the creek.

Although the HCP will not provide coverage for pesticide use, again there is no reason that the HCP cannot include restrictions on pesticide use at the golf course as mitigation for impacts to covered species. The application of pesticides at the golf course should be scrutinized for any potential impacts to covered species. Use of known harmful pesticides should be banned and fertilizer input into Alameda Creek should be prohibited.

Mitigations for Road Construction and Maintenance

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 HCP area. At a June 10, 2004 public meeting for the HCP, the SFPUC indicated that some level of analysis of existing roads had already been done.

The EIR/EIS should include an inventory of all roads within the HCP covered area and an assessment of their sediment input in Alameda Creek and its tributaries. The inventory should determine whether all existing and planned 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 HCP should include a program to close 25% of all roads within the HCP area, and repair and retrofit all remaining roads and culverts. The HCP 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.

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.

Consistency with Recovery Plans

The EIR/EIS should ensure that the HCP is consistent with, and furthers the goals of, federal recovery plans for covered species that are federally listed, and state conservation strategies for state species of concern.

A draft recovery plan was published by the USFWS for the Alameda whipsnake in 2003, as part of the Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California. The plan is available at http://ecos.fws.gov/docs/recovery_plan/030407.pdf.

A recovery plan for the California red-legged frog was published by the USFWS in 2002. The plan is available at http://ecos.fws.gov/docs/recovery_plan/020528.pdf.

NMFS is preparing a recovery plan for Central California Coast steelhead trout. A Federal Recovery Outline for CCC steelhead recovery was released in 2007 (NMFS 2007). NMFS and the SFPUC should consult with the recovery team to ensure the SFPUC operations and the HCP are consistent with recovery actions contemplated for this species.

CDFG is reportedly working on Conservation Strategies for two of the covered bird species that are state species of concern: the western burrowing owl and the tricolored blackbird.

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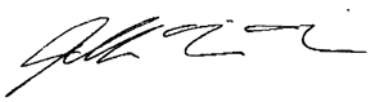
Thank you for the opportunity to provide scoping comments on EIR/EIS for the Alameda Watershed HCP. We anticipate submitting further comments when the Incidental Take permit is released.

Sincerely,



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APPENDIX A
EIR/EIS Requirements

Regulatory Requirements of HCPs

The regulatory requirements for HCPs provide that an HCP must:

- minimize and mitigate take of covered species to the maximum extent practicable;
- ensure survival of and contribute to recovery of covered species;
- include detailed, measurable biological goals and objectives for all covered species;
- provide a higher standard of conservation for the rarest covered species than more common, wider ranging species;
- include a conservation management and monitoring program;
- ensure take of covered species is commensurate with implementation of promised conservation;
- provide contingency funding and management planning;
- not credit existing preserve lands towards HCP conservation goals absent improved conservation management;
- free HCP preserve lands from all harmful land use;
- provide for independent scientific and legal review of HCP and supporting documents;
- release draft biological opinions, Section 10 findings, and implementing agreements for public review and comment;
- assure HCP implementation funding;
- specify any harmful effects of permitted take;
- monitor HCP compliance so that the take permit can be revoked in the event of non-compliance; and
- ensure the permitted activities are incidental to otherwise lawful activities.

Avoidance, Minimization and Mitigation

The EIR/EIS must analyze all potentially harmful direct, indirect, and cumulative effects of the proposed action on covered species, and identify ways to avoid, minimize, and mitigate any adverse impacts of the project on covered species. Pursuant to Section 10 of the Endangered Species Act, the HCP must identify steps to avoid or minimize take of covered species and avoid adverse modification of designated critical habitat, as well as fully mitigate for any incidental take. The first step in minimizing impact is to identify and analyze alternatives that will avoid take of covered species and adverse modification of any designated critical habitat. If impacts cannot be avoided, additional steps to minimize impacts must be identified and analyzed. Minimization measures should reflect ways in which the project will be altered to accommodate the covered species and refrain from take (including harassment and other harmful activity) and avoid adverse modification of critical habitat.

Analyze Impacts to All Wildlife and Plant Species

The EIR/EIS must include a detailed biological analysis of the impacts of all SFPUC operation and maintenance activities within the Alameda Creek watershed undertaken directly or indirectly as a result of issuance of the ITP on *each* covered wildlife and plant species (whether listed or unlisted) and all designated critical habitat areas (HCP Handbook).

The EIR/EIS must analyze the impact of activities on all species "occurring or potentially occurring" on all SFPUC lands subject to the ITP, regardless of whether they will be "covered" by the ITP. If any wildlife or plant species occurring or potentially occurring on lands subject to the ITP will *not* be "covered" by the plan, the EIR/EIS must analyze the impacts of the ITP on these species, why they are not "covered," and include mitigation measures for any significant impacts identified.

For each species, the impact analysis must: (1) specifically indicate how the ITP will affect each species' survival *and* recovery prospects; (2) describe activities that may result in take of covered species; and (3) *quantify* the anticipated level of take resulting from all activities authorized under the ITP - i.e. the number of each species "taken" not simply acres affected (HCP Handbook). The EIS must indicate whether the impacts of the ITP on each of these species will be significant. The EIS must further indicate how a determination of impacts of the project will be reached in the absence of recovery plans for each species.

The analysis in the EIR/EIS must be supported by accurate and adequate baseline data (including field surveys), scientific studies, population viability analyses, and other information which provides a scientifically justifiable basis for the environmental document's conclusions. In order to reflect the best available scientific information baseline data should take into consideration significant periodic fluctuations in population and include adequate margins for uncertainty. Specifically, the EIR/EIS must include comprehensive biological assessments for each covered species (particularly listed species), and their associated habitats. The biological assessments should address such issues as species abundance and distribution, habitat requirements, biologically important symbiotic relationships with other species, life history and population trends, both range-wide and within the plan area. In order to properly assess whether the permit issuance provides for recovery of the covered species, the EIR/EIS should include specific recovery goals for each species which are both range-wide and in the immediate area of the project.

These studies should include surveys of potentially suitable habitat that have not yet been surveyed. The studies also should be peer-reviewed by academic experts to ensure that the best available scientific evidence is being applied in the ITP, as required by the Endangered Species Act. Criticisms and suggestions of the reviewing peers should be incorporated into the biological studies.

The EIR/EIS should fully analyze the entirety of the proposed project. The EIR/EIS cannot defer NEPA analysis to allow for changes to the ITP subsequent to permit approval. Instead, any significant changes to the ITP as a result of adaptive management is subject to additional federal agency evaluation and analysis pursuant to NEPA and ESA, including subsequent public notice and comment.

The EIS should fully analyze the impacts of both foreseeable and unforeseeable changed circumstances on the assumptions, conclusions and mitigation measures contained in the ITP, and how these changed circumstances will affect species survival and recovery, population trends, habitat quality and quantity, water quality, and other environmental factors.

The EIS also must specifically evaluate the relative species and habitat value of lands set aside or subjected to restricted activities, and the effect of loss of biologically valuable occupied habitat over the life of the ITP and whether this will be offset by the mitigation measures proposed in the ITP.

Analyze Mitigations for all Significant Impacts

If any impact is determined to be significant, the EIR/EIS must include *species specific* mitigation measures and management actions for *each* significant impact identified. Generalized habitat based mitigation measures that do not account for individual species needs are unacceptable.

The EIR/EIS must objectively and independently evaluate any assertions by the ITP applicant that certain mitigation measures are "impracticable" or "infeasible." Such assertions must be supported by reliable and specific documentation of impracticability or infeasibility (HCP Handbook).

The EIR/EIS likewise must objectively analyze the likely short-term *and* long-term effectiveness of each of the ITP's proposed measures to minimize and mitigate incidental take of covered species and provide a scientifically justifiable reason why and how these measures will mitigate any significant adverse impacts to species to a level of insignificance (HCP Handbook).

The EIR/EIS must analyze whether compliance with existing federal and state laws will be sufficient to mitigate significant adverse impacts to species and habitat.

Full Range of Alternatives

The EIR/EIS must analyze in detail, and evaluate the comparative merits of, a range of several different alternatives for the project. All alternatives selected for detailed analysis must *avoid or substantially reduce* the significant environmental impacts of the proposed project (40 C.F.R. § 1502.14; 14 Cal. Code Regs. § 15126(d). The alternatives analysis also should not be constrained by what the applicant deems "practicable" or "feasible" and each alternative should be analyzed for its compliance with all applicable state and federal laws (HCP Handbook).

The "no action" alternative must accurately describe baseline conditions and assume full compliance with and enforcement of existing federal and state laws. A no action alternative that assumes minimal or no compliance with the ESA or enforcement of the ESA, and therefore seriously overestimates the purported "benefits" of the ITP & ESP's mitigation program, is not acceptable. The no action alternative must account for the likelihood that currently imperiled species will be listed in the future and subject to full ESA restrictions.

OVERVIEW OF NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENTS FOR A LEGALLY SUFFICIENT EIS

I. PURPOSE OF NEPA.

The fundamental purpose of NEPA is to foster informed public participation and informed decisionmaking. To that end, NEPA regulations state that:

NEPA procedures must insure that environmental information is available to public officials and citizens *before* decisions are made and *before* actions are taken. The information must be of *high quality*. *Accurate* scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. . . . NEPA's purpose is not to generate paperwork . . . but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental policy. (40 C.F.R. § 1500.1(b) (emphasis added).)

In addition, NEPA requires all federal agencies to "use all practicable means . . . to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions on the quality of the human environment." (40 C.F.R. § 1500.2(f).)

II. GENERAL REQUIREMENTS FOR AN EIS.

The primary purpose of an EIS "is to serve as an action-forcing device" to insure that the policies and goals of NEPA "are infused into the ongoing programs and actions of the Federal Government." (40 C.F.R. § 1502.1.) NEPA regulations also require an EIS to be supported "by evidence that the agencies have made the necessary environmental analysis." (40 C.F.R. § 1500.2(b).)

A. Project Description.

NEPA requires an EIS to specify the "purpose and need" to which the agency is responding in proposing the federal action and alternatives to that action. (40 C.F.R. § 1502.12.) The project description must include actions that are connected to the proposed federal agency action. NEPA regulations define "connected actions" as those that: (1) will automatically trigger other actions which may require EISs; (2) cannot or will not proceed unless other actions are taken previously or simultaneously; or (3) are interdependent parts of a larger action and depend on the larger action for their justification. (40 C.F.R. § 1508.25(a)(1).)

B. Description of Environmental Setting.

NEPA requires an EIS to "describe the environment of the area(s) to be affected or created by the alternatives under consideration." The depth of the discussion must be commensurate with the importance of the impacts of the alternatives on various aspects of the environment. (40 C.F.R. § 1502.15.) "Environment" is interpreted comprehensively to include both the natural and physical environment as well as the relationship of humans to the environment. (40 C.F.R. § 1508.14.)

C. EIS Alternatives Analysis.

NEPA regulations require an EIS to "rigorously explore and objectively evaluate all reasonable alternatives," and to explain why alternatives not analyzed were eliminated from detailed consideration. (40 C.F.R. § 1502.14(a).) Consideration of alternatives is the "heart" of an EIS. (40 C.F.R. § 1502.14.) An EIS must evaluate a "reasonable range" of alternatives. The range is dictated by "nature and scope of the proposed action," and must be sufficient to permit the agency to make a "reasoned choice." (Alaska Wilderness Recreation and Tourism v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995).)

The EIS must "devote substantial treatment to each alternative considered in detail so that

reviewers may evaluate their comparative merits." (40 C.F.R. § 1502.14(b).) It also must explain how each alternative will or will not achieve the policies of NEPA and other relevant environmental laws and policies. (40 C.F.R. § 1502.2(d).) The analysis must include the alternative of no action, as well as alternatives not within the federal lead agency's jurisdiction. (40 C.F.R. § 1502.14(c), (d).) Finally, the analysis must identify the agency's preferred alternative and include appropriate mitigation measures for each alternative analyzed in detail. (40 C.F.R. § 1502.14(e), (f).)

D. EIS Impact Analysis.

1. Cumulative impacts.

An EIS must analyze "cumulative actions, which when viewed together have cumulatively significant impacts." (40 C.F.R. § 1508.25(a)(2).) Thus, "[w]here several foreseeable similar projects in a geographical region have a cumulative impact, they should be evaluated in a single EIS." (Resources Ltd. v. Robertson, 35 F.3d 1300, 1306 (9th Cir. 1993); *see also* 40 C.F.R. § 1508.25(a)(3).) "Cumulative impact" is defined in the NEPA regulations as the impact on the environment that results from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." (40 C.F.R. § 1508.7.) The EIS must include "reasonable options" for avoiding or mitigating to insignificance any significant cumulative effects identified. (40 C.F.R. § 1508.25.)

2. Discussion of impacts in general.

NEPA regulations require an EIS to "provide a full and fair discussion of significant environmental impacts"[1/] of the proposed action, as well as each alternative. (40 C.F.R. §§ 1502.1, 1502.14, 1502.16(d).) In addition to cumulative impacts, this discussion must address the direct and indirect impacts of the project. (40 C.F.R. § 1502.16(a), (b).) "Direct effects" are those which are immediately caused by the action; indirect effects are those which will be caused by the action at a later time, but which are nevertheless reasonably foreseeable. (40 C.F.R. § 1508.8.) The discussion must also include an analysis of possible conflict between the proposed action and federal, state, regional and local land use plans and policies. (40 C.F.R. § 1502.16(c).)

E. Mitigation Measures.

NEPA requires an EIS to include measures to avoid or minimize *each* significant impact identified, including the impacts of alternatives. (40 C.F.R. § 1502.16(h), 1502.14(f).) This discussion must distinguish between measures proposed by the project proponent to be included in the project and others that are not included but could reduce adverse impacts if included as conditions of project approval. If several measures are identified to mitigate an impact, the EIS must discuss the basis for selecting a particular measure, if that is done.

F. Miscellaneous NEPA Requirements.

1. Growth inducing impacts.

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[1] Environmental impacts, or effects, include ecological, aesthetic, historic, cultural, economic, social, and health effects, whether direct, indirect, or cumulative in nature. (40 C.F.R. § 1508.8.) NEPA requirements for evaluating the significance of environmental effects are found at 40 C.F.R. § 1508.27.

NEPA requires a discussion of growth-inducing impacts as part of its analysis of indirect environmental effects of the proposed action. (40 C.F.R. § 1508.8(b).) A project may have a growth-inducing impact if it may directly remove an obstacle to growth, or if it may encourage other activities that would significantly affect the environment, individually or cumulatively.

2. Unavoidable significant effects and irreversible and irretrievable commitments of resources.

Finally, NEPA requires an EIS to include a discussion of significant adverse effects which cannot be avoided if the proposal is implemented (40 C.F.R. § 1502.16), and to discuss any irreversible or irretrievable commitments of resources which would be made if the proposal is implemented (40 C.F.R. § 1502.16).

Appendix B
ACA Comments on Biological Inventory Report

The following are specific comments by the Alameda Creek Alliance 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 3-44

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 La Costa 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.

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).

Comments on Appendix D - Species Profiles:

Steelhead trout

Due to the impacts of grazing on aquatic and riparian habitat, cattle grazing decreases steelhead/rainbow trout abundance and productivity. Higher water temperatures increase salmonid mortality (by breaking down physiological regulation of vital processes such as respiration and circulation), and negatively affect fish spawning, rearing, and passage. Greater water turbidity, increased siltation bacterial counts, lower summer flows, and low dissolved oxygen in the water column and intragravel environment reduce fish survival. Sedimentation and actual trampling damage spawning beds. There is less protective plant cover, and fewer insects and other food items. Streambank damage and filled in pools due to sedimentation decreases the hiding cover for steelhead.

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). Livestock grazing that significantly reduces or eliminates shrubs and grass cover can be detrimental to the whipsnake. The species avoids such open areas because of the increased danger from predators and the lack of prey (McGinnis 1992). Soil disturbance from grazing may replace native vegetation with non-native plants, potentially degrading the habitat and reducing the prey base.

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 2008.

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 alters 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 decrease in leaf litter and woody debris in heavily grazed areas also reduces habitat for the salamander, as does trampling of rodent burrows required for estivation.

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 to15 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 Callippe silverspot requires *Viola* (a native wildflower) as its host plant. Overgrazing and the resultant soil erosion (plus loss of the soil seed bank and the mycorrhizal layer) has reduced or extirpated this species

from much of the watershed. This plant should be common in the watershed. Cattle both eat this host plant and create disturbed soil conditions which favor invasive species, and eliminate the native wildflowers.

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.

There is recent research on the impacts of dam operations and flow releases on foothill yellow-legged frog populations. Yellow-legged frog egg masses are negatively affected by pulsed flows via scouring, if flows occur during or after oviposition, and desiccation, if oviposition occurs during high flows and subsequently drops (Mount et al. 2006).

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.

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