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For Uploading to: *http://parkplanning.nps.gov/seki*
And Via Email to: *nancy_hendricks@nps.gov*

Attention:
Superintendent Woody Smeck
Sequoia and Kings Canyon National Parks
Attn: Aquatic Ecosystems Plan
47050 Generals Highway
Three Rivers, CA 93271

Re: Restoration of Native Species in High Elevation Aquatic Ecosystems Plan and Draft EIS – Sequoia and Kings Canyon National Parks (September 2013)

Comments from Californians for Alternatives to Toxics, Wilderness Watch, High Sierra Hikers Association, And Other Concerned Groups and Citizens

Dear Superintendent Smeck:

I. Introduction

Californians for Alternatives to Toxics, Wilderness Watch, High Sierra Hikers Association, as well as other concerned groups and citizens (collectively the "Commenters") support the goal the National Park Service ("NPS") is attempting to achieve, the elimination of nonnative fish from high altitude wilderness

waterbodies, and appreciate the issuance of the Draft Environmental Impact Statement ("DEIS") for public comment on this significant federal action. However, the Commenters have pushed federal and state agencies for many years to eliminate nonnative fish populations through means other than poisons. The Commenters' position on NPS's proposed "Restoration of Native Species in High Elevation Aquatic Ecosystems Plan and Draft EIS – Sequoia and Kings Canyon National Parks (September 2013)" is not any different. In fact, in this Sequoia and Kings Canyon ("SEKI") project, the Commenters believe that had NPS performed a thorough analysis of the impacts and the effects of the proposed project on the human environment, the agency would conclude that Preferred Alternative B does not satisfy its obligations under the National Environmental Policy Act, 42 U.S.C. § 4332 et seq. ("NEPA"), and the project cannot go forward if it involves the use of poisons. NPS's Preferred Alternative B's proposed (1) nonnative fish eradication methods, (2) mountain yellow-legged frog ("MYLF") fungus treatment, and (3) justifications for the SEKI Project, namely the MYLFs restoration effort and climate change, are not supported by the agency's DEIS. Moreover, the Commenters indicate other federal and state laws NPS may violate if it implements the DEIS. Lastly, as an overarching point, the Commenters note that while NPS justifies its proposed use of poisons to address the "urgent" matter of potential MYLF extinction (DEIS at 15, 232), NPS's proposal to use rotenone[1] spans nearly four decades. The Commenters request that NPS withdraw the DEIS, conduct a more thorough analysis of the impacts and effects of the proposed project, conduct a consultation with U.S. Fish & Wildlife Service before issuing a final EIS, and fully integrate public comments into its analysis. The Commenters also integrate the materials filed simultaneously these comments to support their positions on this matter.

II. Commenters

Californians for Alternatives to Toxics is a non-profit organization dedicated to promoting alternatives to the use of pesticides and toxic chemicals in order to keep such chemicals out of the environment and prevent harmful results to people, animals, water and the land.

Wilderness Watch is a non-profit organization dedicated solely to protecting the lands and waters in the 110 million-acre National Wilderness Preservation System. Wilderness Watch strives for proper stewardship of these remarkable Wilderness

[1] Unless specified otherwise, "rotenone" is used generically in these comments and includes CT Legumine, rotenone, rotenone "other ingredients", "active ingredients".

reserves through citizen oversight, education, and continual monitoring of federal management activities.

High Sierra Hikers Association ("HSHA") is a nonprofit public-benefit organization that educates its members, public officials, and the public-at-large about issues affecting hikers and the Sierra Nevada, and that advocates for the protection of park values and preservation of wilderness character in the Sierra for the public benefit. HSHA represents thousands of citizens living throughout the United States who use and enjoy the designated wilderness areas within Sequoia and Kings Canyon National Parks for hiking, backpacking, climbing, mountaineering, cross-country skiing, wildlife viewing, photography, and other recreational pursuits, as well as to seek solitude, quietude, and spiritual refreshment.

III. National Environmental Policy Act

42 U.S.C. § 4332 et seq., Council on Environmental Quality Regulations, 40 C.F.R. § 1500 et seq., and California Environmental Quality Act, Cal. Public Res. Code 21000-21177 and CEQA Guidelines, 14 CCR § 15000-15387

A. DEIS Preparation Process is Incomplete

1. Preparation of Joint EIS

The DEIS was prepared by NPS, but clearly contemplates use of California state agency resources and collaboration with California and Nevada agencies. (e.g., DEIS at 19, 69, 74, 97, 111, 112). As California Department of Fish & Game ("CDFW") has been involved in removing nonnative fish projects since at least 1999 (DEIS at 24), NPS should have prepared the DEIS in conjunction with state agencies. Other nonnative fish poisoning matters have undergone joint federal and state environmental analysis (e.g. Paiute Cutthroat Trout EIS, 2010). CDFW also oversaw stocking of fish for many years until 1988. In order for any of NPS's proposals to remove nonnative fish and apply antifungals to MYLFs to work, including the rejected alternatives, NPS must prepare a joint EIS with California and Nevada state agencies.

2. Duty to Consult

The NPS's proposed justification for the project is to protect the Mountain yellow-legged frog (*R. Mucosa*) (DEIS at 3). NPS's proposed "Restoration

Plan/DEIS" is "closely tied" to the Endangered Species Act, 16 U.S.C. § 1531 et seq., and NPS is obligated to consult with the U.S. Fish & Wildlife Service ("FWS") under NEPA 42 U.S.C. § 4332(1)(C) for species that are listed as threatened or endangered. Here, the MYLF is expected to be federally listed very soon and NPS acknowledges that FWS "is expected to issue a decision in 2014 regarding the proposed listing" for MYLF species *R. Mucosa* and *R. Sierrae*. (DEIS at 6). In 2012, the CDFW Commission unanimously voted to list MYLF *R. Mucosa* as endangered and *R. Sierrae* as threatened under California's ESA. (DEIS at 7). Why NPS elected to issue its DEIS on a project that has at its core the protection of MYLFs just months before the species is to be listed federally, and already listed in California as endangered and threatened, which NPS is fully aware of, when normally NPS would be legally obligated to conduct a formal ESA Section 7 consultation, is disingenuous, seems to purposefully avoid its NEPA obligations, and is an arbitrary and capricious action. NPS must begin the consultation process so that if and when it issues a final environmental impact statement, it will have conducted and concluded a thorough consultation process prior to that time. If NPS's true purpose in this 25-35 year plan is to promote and rehabilitate the MYLF, and it knows that MYLF is imminently to be listed, NPS should not be permitted to enter into a SEKI-wide poisoning campaign without integrating a Section 7 consultation, or at a minimum, conducting a joint DEIS with FWS. The fact that NPS is currently engaged in collaborating with FWS, the U.S. Forest Service and California Department of Fish & Game (DEIS at 6-7) on a Conservation Assessment for the MYLF does not meet the muster that a species so imperiled requires, and would receive, under a Section 7 consultation. A Section 7 consultation would insure that NPS's proposed project "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species." 16 U.S.C. § 1536(a)(2). Prior to issuing a Final EIS, if MYLF becomes federally listed NPS must consult with FWS. If MYLF does not become federally listed prior to the issuance of a Final EIS, due to the MYLF's status NPS must take a hard look at its MYLF analysis.

B. Purpose and Need

1. Core Problems

The DEIS fails to provide a sufficient explanation and rationale for how the removal of nonnative fish from high-elevation water bodies, with toxins, will guarantee the MYFL population will survive, combat the chytrid fungus, achieve better defenses against climate change, and develop networks throughout the park.

Some of the core problems with NPS's proposed Purpose and Need for the project include:

- NPS has not identified where MYLF populations currently exist.
- NPS has not disclosed information on how MYLFs disperse from one water body to another and how a viable metapopulation or set of metapopulations will be achieved.
- If the current MYLF populations are isolated, and MYLF potential habitats are likewise isolated, how connectivity among populations will be achieved to produce a functioning metapopulation?
- NPS has not demonstrated that the proposed network of fishless areas will result in a persistent population of frogs, or why population persistence could not be achieved with fewer or different treatment areas.
- NPS does not clearly indicate how "restored" landscapes and water bodies, after poisoning, would support MYLF habitat.
- NPS does not provide evidence as to how eliminating nonnative fish with poison will allow and encourage invertebrates to thrive.
- NPS's justifications for using rotenone based on waterbody size, complexity of waterbody, habitat, or crew safety are not supported by the data presented.
- The DEIS is a single-species focused proposal, and a plan with such broad-reaching effects throughout the ecosystem must be a more integrated plan.

Again, the Commenters do not oppose the elimination of nonnative fish, or increased MYLF resistance to chytrid fungus, or the concept of finding better ways for native amphibians to withstand climate change. They do oppose the means NPS is proposing under Alternative B.

2. History of Failed Poisoning and Transplant Projects

The extensive history of failed nonnative fish poisoning projects, and MYLF transplant projects seriously calls into question the NPS's proposal. Past poisoning projects are not 100% successful, and they do not provide a high rate of success for MYLF populations (existing or transplanted). The history indicates that NPS's goal of establishing thriving MYLF communities is unlikely to be met by its proposed method.

- *Sixty Lakes Basin* – NPS attempted to transplant frogs from one of the healthiest MYLF populations in SEKI, where there are fish in the lakes, to fishless lakes in Sequoia National Park. The transplant was unsuccessful;

and the Sixty Lakes Basin MYLF population has actually persisted. This failed experiment suggests that other factors harmed the transplanted population, most likely chytrid fungus.

- *Bonita Creek* - The U.S. Bureau of Reclamation completed in 2010 "Proposed Reapplication of Rotenone in Bonita Creek: Supplement to the Environmental Assessment on Native Fish Restoration in Bonita Creek, Gila Box Riparian National Conservation Area, Graham County, Arizona". The supplement was so the Bureau could poison Bonita Creek again after the first attempt at fish eradication failed. The Supplement gave a table (Appendix B, List of Stream Renovation Projects in the Lower Colorado River Basin) of other projects in the region. There were 21 projects listed of which 19 had results of the poisoning on fish eradication "success". Of these 19 projects, the average number of poisonings (i.e., number of times the poisoning failed and was repeated) was 1.9 poisonings per stream. Four of the 19 stream projects were poisoned up to 3 times in hopes of eradication. In only 6 cases (32%) was one poisoning considered sufficient for eradication of all fish.

- *Lake Davis, California* - The only reported data for monitoring of CFT Legumine in California comes from the CDFW for the Lake Davis 2007 poisoning. Key data in a report for that project (McMillin and Finlayson 2008) showed that this agency, with extensive experience in application of rotenone formulations in California, greatly exceeded their target (maximum EPA label values) concentrations in the 3 feeder streams to Lake Davis, in some cases by amounts in excess of 2,000%. They applied CFT to the 3 streams by drip station and backpack sprayer (as proposed in the DEIS for SEKI). The monitoring data also showed that rotenone persisted in the 3 streams up to 2 weeks after the first poisoning (when a second application was made and monitoring ended). At that time the concentration of rotenone averaged 19.6 μg/L and rotenolone averaged 59.8 μg/L—values that exceed acute toxicity for many aquatic organisms. Further, the report by McMillin and Finlayson (2008) found in Lake Davis that "Rotenone persisted in [lake] sediment for up to six months." (See also McMillin, S. and B.J. Finlayson. 2008. Chemical residues in water and sediment following rotenone application to Lake Davis, California 2007. California Department of Fish and Game, Pesticide Investigations Unit, OSPR Administrative Report 08-01, Rancho Cordova, California).

Moreover, without strict limitations on private citizens' impermissible attempts at fish stocking, rotenone treatments to eliminate nonnative fish will not be successful. Throughout all proceedings leading to the final EIS for the Silver King Creek project the state and federal agencies (CDFW, US Fish and Wildlife Service, USDA Forest Service) argued that poisoning to remove all non-native fish from throughout the large basin was a necessity because "rogue anglers" would move fish to areas already free of non-native fish. Without strict limitations, nonnative fish eradication will not be successful, and agencies like NPS will continue to douse waterbodies with toxins every few years so that the use of these poisons becomes a management style, not a silver bullet to solve the nonnative fish problem and declining frog population problem.

C. Site-Specific Analysis is Missing

The DEIS proposes using rotenone on 6 lakes, 28 ponds, 4 marshes, 27 miles of streams over 11 different basins. (DEIS at 44). The Commenters believe that this may in fact be the largest rotenone project the NPS, or any federal or state agency, has proposed to undertake in the region. NPS also seems to imply that in addition to the above, it may use rotenone on connected fish-containing habitat "as necessary" and it may change the total acreage for the project "slightly" based on site-specific survey information (See DEIS at 5, 51). The Commenters state that should NPS proceed with this project, and with Alternative B, that it issue site-specific environmental impact statements prior to beginning the use of rotenone in each proposed restoration area, and that these site-specific EIS documents be made available to the public and subject to public comment. The DEIS Alternative B indicates that a detailed plan of action will be developed for each restoration area following surveys (DEIS at 51), but there is currently no provision for these detailed plans to be disclosed to the public or open to public comment.

The vastness of the proposed project means that there is highly unlikely to be homogeneity in the ecosystems and environmental characteristics of the lakes, ponds, marshes and streams that would be subjected to toxicant treatment, or in the MYLF communities that would be subjected to anti-fungal treatment. Failure to provide site-specific analysis, or even ecosystem analysis, for any of the waterbodies NPS proposes to poison, is a violation of NEPA. Under Alternative B NPS proposes to gather information prior to developing treatment plans (DEIS at 51), but currently NPS does not have this information and thus the public cannot provide meaningful comments on site-specific applications of rotenone. The information NPS anticipates gathering includes "precise information on the distribution of fish and amphibians, potential need for and proposed location fish

barriers, invertebrate surveys, habitat characteristics (open water, aquatic and riparian vegetation), and basin characteristics (stream flow/gradients, lake size/depth, channel characteristics, connectivity between sites, and unique aquatic environments." (DEIS at 51). Without this information already in its hands, how can NPS possibly propose which waterbodies to treat?

NPS has not adequately identified invertebrate species, or where. NPS does not know if species are new, rare, or at-risk, yet proposes to proceed with poisoning these areas. The potential permanent loss of genetic material is an irreversible loss.

Because the DEIS does not have the necessary information to justify its goal of creating a sustainable MYLF population, its selection of specific basins and waters to target for treatment under Alternative B is inadequate. This is particularly true given the pristine, untrammeled resources of a high-altitude wilderness setting.

The DEIS also fails to examine the effects of rotenone use and antifungal use on species within certain ecosystems. NPS proposes that, once the DEIS is implemented, it will conduct studies, but provides no further information on what kind of studies, for how long, or on what populations. (e.g., DEIS at 5, 7-8, 15, 31, 50, 51). This is precisely the kind of due diligence NPS must do to conduct an EIS in the first place. NPS has had plenty of time to conduct such foundational studies, and received guidance from the public in the form of comments on how to do, yet NPS has opted to ignore this basic step. Neither has NPS identified or inventoried the invertebrate species (aquatic and terrestrial) in the hundreds of proposed project areas, so NPS has no baseline to which it can compare short-term or long-term effects of rotenone and its ingredients on invertebrates. NPS does not provide meaningful information to conclude that some invertebrates are resistant enough to withstand rotenone, and in fact implies that for creatures (MYLFs) that NPS does not move from the treatment area, some creatures will simply "hop away", burrow, or create protective air bubbles from a known toxin that is colorless and odorless. (e.g. DEIS at 124 ("because frogs breathe primarily through their skin they can leave the water", 165).

One of the many troubling parts of this DEIS is its lack of description of the "marshes" NPS proposes to poison. There is no public record of EISs or EAs that document or describe how a marsh would be poisoned. The DEIS merely states NPS may use a boat or raft; in other words, it sounds like NPS proposes to treat a marsh as if it were a lake or pond. But marshes in SEKI likely have no currents

and would be unlikely to be able to flush out or distribute the poison. There is also no consideration for the sediment deposits of rotenone in marshes, or the uptake of rotenone by the marsh vegetation. As such, how would rotenone be distributed through the fish areas in a marsh? How much reliance on uncalibrated spaying would there be to compensate for the difficulties of eliminating nonnative fish in marshes? If NPS intends to base application rates in other habitats (as stated in the DEIS) according to aquatic BOD (biochemical oxygen demand), how would NPS ever stay within FIFRA label requirements given what must be very high BOD naturally in marshes? And what is the species composition of life in these marshes? None of NPS aquatic "inventories" mention marsh surveys of anything.

D. Failure to Adequately Consider All Reasonable Alternatives

The alternatives analysis of NEPA is the heart of the DEIS, and the agency must consider all reasonable alternatives. 40 C.F.R. § 1502.14. Many alternatives previously presented to the NPS by the Commenters were not considered and thus NPS impermissibly limited the scope of its analysis discussion. For example, submitting a joint EIS, proposing an integrated species control plan, relying more heavily on non-poisonous fish removal methods, looking at creative ways to use non-poisonous options, increasing restrictions on recreational anglers, limiting or controlling other activities in order to protect these aquatic ecosystems and MYLF in particular, including ceasing pesticide use in SEKI, controlling stock use to avoid adverse impacts, protecting riparian areas and wet meadows from adverse human impacts, limiting the spread of the chytrid fungus and working with other federal and state agencies to prevent pesticide use and drift in the High Sierra. For the Commenters' proposed alternatives that were discussed in the DEIS, they were inadequately considered and NPS did not take a hard look at why the preferred alternative should be selected. NPS did not "rigorously explore" alternatives, it did not "objectively evaluate" alternatives, and it did not adequately explain why proposed alternatives were eliminated. 40 C.F.R. § 1502.14(a).

NPS proposed three courses of actions, and rejected six alternatives. (DEIS at 72-75. Of the rejected alternatives, the Commenters believe NPS did not objectively evaluate the options of (1) treating MYFLs for fungus without nonnative fish removal, and (2) addressing other known stressors to MYLF and their habitat. If NPS had fully considered specific issues raised by the public during the scoping process, Commenters believe NPS would have proposed different and modified alternatives, would have reached a different Preferred Alternative than Alternative B. For example, NPS should have considered the following issues more carefully:

- Prepare a complete map of all lakes, streams, and springs that the NPS plans to poison.
- Provide a list of all aquatic species in these habitats, including all invertebrates.
- Present the schedule of poisoning by year and specify frequency of poisoning each habitat per year.
- List exact formulations of poisons to be used, including all active and inactive ingredients by amount and percentage, and include composition of neutralization chemicals.
- Describe methods of application of poisons.
- Analyze the food web effects of poisoning on terrestrial as well as aquatic communities. Include birds, amphibians, reptiles, mammals, and terrestrial invertebrates that depend on emerging insects for food as well as those that depend on aquatic invertebrate forms for food.
- Explain how the NPS will assess possible cumulative effects of chemicals in the aquatic pesticides in the food chain.
- Explain how drifting stream invertebrates that have absorbed rotenone and moved out of the project area will remain out of the food chain in areas not to be poisoned.
- Review the evidence that the prevailing cause of mountain yellow-legged frog decline is due only to exotic fish and chytrid fungus.
- Discuss chytrid fungus effects on MYL frogs in systems with native fish.
- Analyze the historic role that rotenone formulations and antimycin have played in causing the declines of MYLF in California over the 60 or 70 years these poisons have been used by CDFG without public review or knowledge and by other entities.
- Discuss how the use of aquatic poisons will affect the MYLF, a species that remains in the water as a tadpole for up to four years and is aquatic as an adult.
- Discuss sources for re-introduction of the MYLF after the frogs are extirpated by the poisoning (e.g., DEIS at 46).
- Discuss evidence for current and historic pesticide residue in SEKI aquatic systems including annual increments from wind blown particles onto snow and in rain. Discuss how these residues interact

with chytrid fungus or other disease agents that are linked to frog declines.

- Review the possible toxic interaction of various rotenone formulations with residues of other pesticides on aquatic life. Review the evidence that pesticide residue, including PCB residue, multiplies or adds to the toxicity of rotenone (or other aquatic poisons) to aquatic life.
- Discuss how the NPS can insure that non-target organisms will be protected from toxicological interactions between aquatic pesticides and air born pesticides already in the water.
- Discuss how the NPS plans to determine what species of invertebrates are sensitive to rotenone and other active ingredients in rotenone formulations (or antimycin formulas) and to interactions between rotenone and other chemicals already in the environment.
- Describe re-education program to prevent the general public from making future introductions of non-native species into the project areas.
- Describe how the NPS will prevent transfer of fish from the 85%–95% of other waters in the park to streams and lakes where fish will be/have been removed.
- Give more detailed information on how the dead fish will be dealt with (the DEIS notes they will be sunk to the bottom of water bodies or buried, but this does not adequately identify or assess the risks of this proposal).
- Provide specific data showing evidence that chytrid resistance is emerging in sites that had large populations of MYLF prior to infection, as referred to in the Scoping Notice.
- Provide location data and details on CDFG program "restoring" about a dozen lakes, as referred to in the Scoping Notice.
- Provide data on food habit studies of MYLF in SEKI National Parks.
- Provide all other locations of MYLF in California.

Under Alternative B, the rationale for the proposed sites for rotenone treatment is not adequately described. Alternative B contemplates using rotenone in "complex" habitats where physical removal methods cannot achieve 100% nonnative fish removal. (e.g., DEIS at 22, Table 7 at 42). However, due to the complexity of certain habitats, even with a rotenone application, NPS is unlikely to

achieve a 100% removal rate, and thus several repeated applications would have to occur in complex locations. In complex habitats aquatic macrophytes and emergent vegetation that typify wetlands and some stream and lake margins, rotenone quickly adsorbs to plants and sediments, effectively lowering the dissolved concentrations in water. Thus, concentrations prescribed on the label may be inadequate to kill fish, and repeated or extra-label concentrations would likely to be necessary to achieve eradication of nonnative fish. The Commenters cannot support the use of toxicants like rotenone, and certainly cannot support repeated applications, and applications over the label requirements.

There is some indication that even waterbodies that had been previously stocked with nonnative fish no longer have fish populations and have become fishless. The DEIS does not adequately identify waterbodies that have become fishless, and does not adequately consider whether waterbodies may become fishless within the 25-35 year timeframe proposed for the project, which would in large part obviate the need for the project.

E. Direct and Indirect Environmental Effects Analyses is Inadequate

The fact that the proposed SEKI project is to occur over more than three decades, over the entire acreage of the national park, makes a true analysis of "direct" environmental effects impossible. "Direct" environmental effects are those which are caused by the action and occur at the same time and place. 40 C.F.R. § 1508.8(a). Neither does the DEIS adequately identify or analyze the indirect environmental effects of the proposal, which are later in time or farther removed in distance, but are still reasonably foreseeable. 40 C.F.R. § 1508.8(b)

The DEIS does not adequately identify, or analyze, changes in the environment that may be caused by its 25-35 year long poisoning campaign. Nor does the DEIS identify or evaluate aggregated environmental impacts from its proposed project. As this proposed project reaches so far into the future, and extends over such a large area, it must evaluate the potential effects of the project on water, species, ecosystems, food webs, and public use of the SEKI. *See* 40 C.F.R. § 1508.8(a). While NPS only has to conduct the indirect environmental effects analysis for "reasonably foreseeable" environmental effects that may be caused by its action, it still must evaluate the effects of its action, *and non-federal actions*.

As Commenters have previously pointed out, NPS analysis on this proposed project has ignored scientific studies and thus NPS conducted an incomplete

analysis on rotenone, its use as a nonnative fish poison, its effects on species and water quality, and its long-term effects on ecosystems and species communities. NPS also has not adequately reviewed and made inquiries into its proposed antifungal treatment for thousands of MYLFs in the SEKI.

As discussed above, NPS failed to conduct a site-specific analysis. As a result, the DEIS cannot provide any meaningful information as to the direct environmental effects on the water bodies subject to the proposed action, on the species that would be impacted in any way by the rotenone use or the antifungal treatment, the ecosystems surrounding the water bodies and downstream from them, the impact of rotenone application crews on the target sites, or the effect of the proposed project on the species living in, near, or migrating through the treatment areas.

- Rotenone duration – NPS estimates that applications of rotenone to streams will take 4-6 hours (DEIS at 59), rotenone will only remain in applied waters a "short amount of time" because it "breaks down and loses its toxicity within hours in flowing water." (DEIS at 59), The DEIS does acknowledge that rotenone has half-life of 20 days in cold water. (DEIS at 217), that it "completely degrades" within 1-8 weeks (DEIS at 217) and has half-life of 7.8 to 15 days (Id.). Twenty days' duration where the poison is still exposing wildlife, humans, and environmental resources to a toxicant is not a "short amount of time". NPS also does not indicate whether it will enter sediments. The DEIS does not adequately evaluate the duration of rotenone in cold-water environments where the duration of rotenone, and its other ingredients, will likely be longer than NPS's estimates. As a result of longer duration of rotenone, species, and humans, are likely to be more at risk of being affected by the poison than NPS estimates in its current DEIS.

- Rotenone is a hormone disruptor - The neutralizing agent NPS proposes to use may neutralize the effect of a rotenone application, but it may not stop the effect the poison, and its residues, will continue to have post-application on species' hormonal systems. Only once does the DEIS address reproductive dysfunction and rotenone (DEIS at 217) ("General research conducted on the potential effects of rotenone on public health has concluded that rotenone does not cause birth defects, reproductive dysfunction, gene mutations, or cancer.") The Commenters believe NPS's assessment of this point has not evaluated all of the evidence it needs to in order to reach this conclusion. The fact that research is not conclusive on reproductive problems in humans from rotenone use in the environment does

not mean NPS should not be adding poisons and hormone disruptors to wilderness areas. (A critical enzyme in the synthesis of estrogens from androgens is aromatase and a recent study tested a suite of natural and synthetic compounds for their effect on aromatase. "The natural flavonoid derivative rotenone (IC50 0.3μM) was the most potent aromatase inhibtor tested." (Sanderson, J. T., J. Hordijk, M. S. Denison, M. F. Springsteel, M. H. Nantz, and M. van den Berg. 2004. Induction and inhibition of aromatase (CYP19) activity by natural and synthetic flavonoid compounds in H295R human adrenocortical carcinoma cells. Toxicological Sciences 82:70-79.) The DEIS fails to adequately analyze this direct consequence of rotenone applications, and the impact such an effect can have on pristine high-elevation wilderness.

- Rotenone "resistance" argument is unfounded - The CFT Label says the piscicide "May be fatal if inhaled. Do not breath[e] the vapors or spray mists. May be fatal if swallowed. Causes moderate eye irritation. Harmful if absorbed through skin. Do not get in eyes or on skin or clothing." CFT Label at 4. The EIS claims that rotenone is more toxic to gilled organisms, namely fish and certain aquatic invertebrates and zooplankton vertebrates, but that many of these species are "generally more tolerant" of rotenone than trout, (EIS at 160), yet "acute invertebrate mortality is still expected from a typical rotenone application." (EIS at 162). To protect the MYLF, NPS proposes to capture, and then move, the frogs and tadpoles from each of the treatment areas. NPS acknowledges that any tadpoles not captured would be affected by the treatment because they are gilled and cannot leave the water. (EIS at 124). Many would be killed; but some would survive. The NPS does not evaluate what kind of condition the treated tadpoles would be in, or their effect on the community, or the potential to harm the genetic make-up of the community of the species. According to NPS, adult MYLFs would not be harmed because "frogs primarily breathe through skin and they can leave the water." (EIS at 124). What will the adult frogs do? Hop away from a colorless and odorless toxin that kills species within hours? Also, the label says CFT is "harmful if absorbed through skin". Frogs breathe through their skin, so the NPS's argument that only gilled species will be harmed by the piscicide applications is incorrect. The EIS does not make adequate provisions to protect non-target species from their exposure to rotenone applications.

- Alteration of Ecosystems - Rotenone treatment of the proposed water bodies will fundamentally alter aquatic ecosystems. NPS asserts that gill-breathing

vertebrates and invertebrates will only suffer from short-term effects, and that they will not suffer loss of endemic populations. (e.g., DEIS Table 9 at 24, , 159, 162). NPS's position is incorrect, some examples of which are presented below:

- The great majority of aquatic invertebrates have one-year life cycles. A three-year project eliminates many invertebrates from the stream and riparian area for as long as four years and longer. Many terrestrial animals are dependent on the food source of emerging stream insects, amphibians, and fish and are put at risk from these projects because a major part of their food supply is eliminated for several years. This cascading effect in food webs is a major ecological disturbance.

- The impacts of rotenone on aquatic invertebrates are well known, have been studied for many years and continue to be studied (e.g. Almquist 1959, Binns 1967, Meadows 1973, Helfrich 1978, Engstrom-Heg et al. 1978, Chandler 1982, Dudgeon 1990, Mangum and Madrigal 1999, Cerreto et al. 2003). The impacts are variable depending on the sensitivity of each species to rotenone. Some species may be eliminated or greatly reduced while more resistant species are increased after rotenone poisoning. Cosmopolitan or "weedy" colonizer species, relatively insensitive to rotenone, tend to replace more sensitive species and the overall species diversity decreases.

- A 5-year study on a river in Utah (Mangum and Madrigal 1999) found that:

  "up to 100% of Ephemeroptera, Plecoptera, and Trichoptera [mayflies, stoneflies and caddis flies] were missing after the second rotenone application. Forty-six percent of the taxa recovered within one year, but 21% of the taxa were still missing after five years. At least 19 species were still missing five years after the rotenone treatments."

  (*See, e.g.,* Comments of Nancy Erman and Don Erman, submitted to U.S. EPA (Docket ID No. OPP-EPA-HQ-2005-0494) April 10, 2006 and submitted herewith).

- The DEIS also fails to acknowledge that most of the aquatic invertebrate studies have been short-term.

- NPS failed to adequately identify and analyze the direct effects of rotenone on aquatic ecosystems.

- Species Loss - Aquatic poisons have a high probability of eliminating rare and endemic aquatic invertebrate species. Some species are highly specialized and restricted to narrow, localized habitats. The aquatic habitats in wilderness areas and national parks are likely to contain such species. Once removed by poisoning, such species may never recover. The statements that no sensitive aquatic invertebrate species occur in the areas to be poisoned are nonsense. As the DEIS shows, most of the aquatic invertebrates have not been identified to the species level. The Sierra Nevada is known to have a high number of rare, endemic invertebrate species found only in the Sierra Nevada (Erman 1996). It is highly unlikely that none of them occur in SEKI. We notice genera in the lists shown on p. 99-101 that contain species on the California Natural Diversity Database (CNDDB) Special Animals list. Until and unless adult specimens are collected and identified there is no way to know whether or not these species occur in SEKI.

- Rotenone has negative impacts on frogs - The EPA has made a further finding that rotenone has a negative impact on the California red-legged frog ("CRLF") because of its direct and indirect effects on the aquatic environment. The same would be true for the MYLF, yet the DEIS ignores the direct effect the use of rotenone would have on MYLF populations:

> "Our assessment resulted in a determination that the use of pesticides containing rotenone is likely to adversely affect (LAA) the aquatic-phases of CRLF only and will have no effect on individual terrestrial-phase CRLFs. The LAA determination is based on rotenone's potential to directly affect the species in aquatic environments and to indirectly affect the species in aquatic environments as a result of loss of vertebrate and invertebrate aquatic forage items. Further, we have determined that the registered use of rotenone has the potential to modify aquatic primary constituent elements of CRLF designated critical habitat."

(Letter from A. B. Williams, U.S. EPA to Bryan Arroyo, US Fish and Wildlife Service. October 17, 2008).

- Rotenone has negative impacts on aquatic invertebrates - The EPA acknowledges the impacts of rotenone formulations on aquatic invertebrates in the following statement from their website in their most recent review of rotenone (Draft Environmental Fate and Risk Assessment chapter for rotenone): "The ecological risk assessment of rotenone states that rotenone is very highly toxic to fish and invertebrates on an acute exposure basis with median lethal concentration (LC50) values less than 10 μg/L and that the use of rotenone for fishery management at maximum application rates would likely eliminate both aquatic vertebrates and invertebrates in the treatment area. The chapter states that although the lowest toxicity value for freshwater invertebrates (48-hr EC50=3.7 μg/L) was chosen for risk assessment purposes, it is likely that more sensitive invertebrates could be found in the wild. In this case, at maximum application rates, acute mortality of aquatic invertebrates would be expected. Despite the fact that invertebrates are less conspicuous members of the aquatic community, they are a major component of aquatic ecosystems and food webs. Any significant effects on invertebrates would most likely influence other components of the ecosystem. Effects may not be limited to merely a change in total biomass as a result of widespread mortality but any changes associated with differential sensitivity could bring about significant changes in the community structure, which could alter system function."

- MYLF Network – Because the NPS has either conducted site-specific surveys or failed to disclose the results of any surveys that have been conducted, it is unclear how the areas where NPS proposes to use rotenone will help achieve the goal of establishing a refuge network for MYLFs and other species. The DEIS does not explain how the waterbodies selected for rotenone treatment relate to establishing MYLF populations that can withstand climate change or fungal infections.

- Species Recovery - Misleading conclusions have been made on the long-term impacts of rotenone on invertebrate abundance and diversity on p. 162 (DEIS). Impacts on invertebrates from poisoning in the Trumbo et al. studies (2000a, 2000b) were significant and long-term in both abundance and composition — up to three years following the last poisoning and poisoning lasted for three years, so a total of up to six years of impacts (Erman 2012). These impacts were eventually acknowledged by the Agencies in the Final

EIS/EIR on Silver King Creek. And impacts as long as five years later were found in the Mangum and Madrigal (1999) study with many groups still missing five years after the poisoning. Most invertebrate monitoring studies are not conducted long enough to detect long-term impacts; thereby, leading to highly questionable conclusions. During the scoping period some commenters previously gave SEKI information (e.g., Exhibit A, Erman and Erman, EPA Comments 2006) on these three long-term studies in a report written for the EPA during their review of rotenone. The DEIS has ignored that report and instead substituted the misinformation found on p. 162.

NPS has assumed that upstream species will re-colonize downstream areas after poisoning events or that species will fly upstream. While this may be true for some species, it will not be true for all or even most species. Macroinvertebrate species, as most animal species, occupy specific habitats. Some species have narrow habitat requirements and are locally distributed along a stream gradient. Other species are generalists and can live in a broader diversity of habitats.

- Crew impacts - Both physical and toxicant methods of nonnative fish removal will require substantial crew support to implement. The crew will include people, stock, helicopters (e.g., DEIS at 41, 44-45). The impacts that these crews, stock and helicopters will have direct and indirect environmental impacts on the application sites, and the DEIS has not adequately considered these impacts. (e.g. crews will leave their gear onsite over the winter months, DEIS at 45).

* Public - The visiting public will be direct affected by nonnative fish removal under Alternative B. It appears that rotenone applications would be conducted during warmer months (DEIS at 124, 143), which is typically when the public accesses high-elevation areas. There are two kind of protections the public would need from this proposed project, and NPS seems to recognize one but not the other. NPS seems to focus on protecting the public from the *sight* of purple-tinted rotenone neutralizer in water bodes, the *sight* of hundreds of dead fish, or the crews (DEIS at 107, 50, 45 (crews will wear camouflage). Other protections from exposure to rotenone and its ingredients, however, are not well-identified or analyzed. Thus the protections for the public provided in the DEIS do not appear well-developed and the direct effects of applying rotenone are not adequately analyzed.

- Parkinson's Disease - The DEIS cursorily dismisses the link between rotenone use and Parkinson's Disease. The DEIS implies that one study that found a causal connection had administered rotenone chronically and intravenously, yet in piscicide treatments any rotenone exposure through piscicide use would occur orally, so there would be no connection between rotenone use in the SEKI project and Parkinson's Disease. (DEIS at 217). There have now been hundreds of studies linking Parkinson's and rotenone in the peer-reviewed literature. Nevertheless, definitive proof of the link between rotenone and Parkinson's is difficult to establish since human clinical exposure with blind controls in not an available methodology. A recent review (Levin, K. "Paths from pesticides to Parkinsons's" Science 341:722-723 (Aug. 2013)) of the evidence from epidemiological studies and Parkinson's disease said:

  > "The strong evidence from these epidemiological studies of paraquat and rotenone is particularly important because animal models have shown that chronic, low-dose exposure of adult animals to either pesticide results in many features of PD."

  It should also be noted that testing procedures for animal administration of rotenone now include intragastric injection and through food, thus the NPS rationale that Parkinson's is not a risk through oral administrations of rotenone must be re-evalutated.

  Additionally, state departments of public health have noted the connection between rotenone and Parkinson's Disease. The New Mexico Department of Health recently observed that the majority of evidence suggests an association between Parkinson's Disease and exposure to pesticides.

- The DEIS points out several ongoing and in-development federal and state programs, parks, projects and studies involving nonnative fish populations and MYLF antifungal treatment. These include U.S. Forest Service's *Sierra Nevada Mountain Yellow-legged Frog Conservation Assessment* (DEIS at 6-7), U.S. Forest Service, NPS, FWS, and CDFW *Mountain Yellow-legged Frog Complex Conservation Strategy* (DEIS at 7), *NPS Management Policies 2006* (DEIS at 10), and collaborations with other national parks (DEIS at 39). Such programs have a reasonably close causal connection with NPS's proposed SEKI project, and cannot be ignored. Some of these programs involve NPS, and over which they may exercise some control. As NPS is fully aware that these projects and plans are either in development or

in implementation, to comply with NEPA NPS's DEIS must evaluate the environmental effects of these actions on the proposed SEKI project.

- The DEIS implies that while not all members of the public will enjoy seeing stock in the wilderness that are involved in supporting the nonnative fish removal project, some might. (e.g. DEIS at 193). NPS is mistaken to conclude that the public seeing pack animals at high elevation wilderness trails is a "benefit".

- These findings of actual performance of CFT and agency personnel flies in the face of assumptions in the DEIS for SEKI. These assumptions include: (1) rotenone will break down within hours in flowing waters (DEIS at 59) and, (2) an entire stream poisoning event will last no more than 10 days (DEIA at 58). The DEIS states that the proposed use of CFT Legumine will be at the maximum EPA label-allowable concentration. (DEIS at 59, 71). The DEIS provides no analysis or explanation of how their use of CFT Legumine will prevent problems similar to those at Lake Davis (referenced above). Thus, the alternatives using rotenone poison will likely violate the label requirements (by exceeding application rates) and be in violation of various laws of the state and the Clean Water Act.

F. Cumulative Environmental Effects Analysis is Inadequate

NPS's DEIS fails to conduct an analysis of the cumulative environmental effects. As pointed out above, there are numerous ongoing, planned, and concluded projects in the SEKI and the SEKI area that involve rotenone use and / or MYLF antifungal treatment projects. The DEIS is not compliant with NEPA for its failure to evaluate the cumulative effects of these projects. Some of these significant cumulative impacts issues include:

- The DEIS underestimates the true impacts of rotenone on aquatic life because it does not account for preexisting toxins, which work synergistically or cumulatively with rotenone to weaken the natural defense systems of organisms. The rotenone risk assessment and other literature discuss these effects.
- The cumulative impacts section of the DEIS does not discuss what those cumulative impacts would be for those projects combined with the proposed action. Courts have repeatedly held that a list does not make an adequate cumulative impacts analysis

- The DEIS should consider the cumulative and synergistic effects of toxins in the aquatic ecosystem and their effect on all wilderness species and functioning. Amphibians and invertebrates generally have been highly effected by pesticides.
- The DEIS should disclose the cumulative impacts of stream and lake poisoning in SEKI and in the Sierra Nevada and how many stream systems have been impacted by poisoning and will no longer provide baseline conditions for study and protection of watersheds.
- Further, the DEIS does not adequately assess the on-the-ground impacts from past poisoning within this watershed. It should disclose everything that has been lost already by poisoning, both in terms of documented impacts and presumed impacts where data collection and study are lacking, but based upon relevant scientific understanding. All of the past spills, mistakes, etc. should be disclosed in the DEIS so that the public can understand the true impacts of these kinds of projects.
- The DEIS' conclusions that there are no known rare or endemic macroinvertebrate species in the project area (for the unstated reason that no one has looked for them) and that there will be significant adverse effects and possible significant cumulative effects to such rare and endemic species does not comport with NEPA or CEQA's mandates that agencies take a hard look at the impacts of a project and provide sufficient disclosure and analysis to the public and to allow for truly informed decision-making.

Moreover, as the NPS's proposed SEKI project involves the use of rotenone on more than 6 lakes, 28 ponds, 4 marshes, 27 miles of streams over 11 different basins, and other connected fish-containing habitat "as necessary" over the course of 25-35 years, NPS must conduct an analysis on (1) its own proposed project's cumulative impacts, and (2) the cumulative impact of its proposed project as it relates to the past, present, and reasonably foreseeable projects in the area.

One of the most evident cumulative impacts problem posed by NPS's proposal is the fact that single rotenone treatments are rarely, if ever, 100% effective in eliminating nonnative fish populations from waterbodies. Frequently, repeated applications are needed to eliminate fish populations, and are performed over several years. The Commenters have raised this issue many times (see, e.g., examples cited *supra*). Failure to acknowledge this problem, and analyze the cumulative impacts of repeated rotenone applications, and the effects of the repeated applications on the environment and human health, is impermissible under NEPA.

G. Mitigation Measures Proposed are Inadequate

The DEIS does not adequately discuss adverse environmental effects which cannot be avoided. 42 U.S.C. § 4332(1)(C)(ii); 40 C.F.R. § 1502.14(f). Any significant action NPS takes that may affect the environment must be: designed to avoid or minimize environmental impacts; "rectify" the impact by repairing, restoring, or rehabilitating the environment, and reducing or eliminating the impact of time; and compensating for the impact by providing substitute resources. 40 C.F.R. § 1508.20. The adverse effects of using a toxic chemical like rotenone can be avoided, namely by NPS re-evaluating the targeted waterbodies and re-assessing whether in fact physical removal can be used instead. NPS could have identified mitigation measures by perhaps submitting a joint EIS, proposing an integrated species control plan, relying more heavily on non-poisonous fish removal methods, looking at creative ways to use non-poisonous options, increasing restrictions on recreational anglers, limiting or controlling other activities in order to protect these aquatic ecosystems and MYLF in particular, including ceasing pesticide use in SEKI, controlling stock use to avoid adverse impacts, protecting riparian areas and wet meadows from adverse human impacts, limiting the spread of the chytrid fungus and working with other federal and state agencies to prevent pesticide use and drift in the High Sierra.

IV. Clean Water Act

33 U.S.C. § 1251 et seq., Antidegradation Policy, 40 C.F.R. 131.12, Porter Cologne Water Quality Control Act, Cal. Water Code Div. 7 §13000-16104 and Water Quality Control Plan for the Lahontan Region

The DEIS recognizes, in passing, that if it pursues blasting under Alternative C, it may need to obtain federal and state permits before modifying any streams. (DEIS at 70). However, the DEIS does not recognize that federal National Discharge Pollution Elimination System ("NPDES") permits may be required for the use of rotenone in waters of the United States, and for the adding of biological pollutants (dead fish and other species) to waters of the United States. 33 U.S.C. §§ 1342 (no discharge without a permit) and 1362 (defining "pollutants").

The DEIS also fails to recognize that under California's Porter-Cologne Water Quality Act ("PCWQA"), the public has a primary interest in the conservation, control, and utilization of water resources of the state of California, and that the quality of all the waters of the state shall be protected for use and enjoyment by people of the state. The PCWQA seeks to protect, *inter alia*, the preservation and enhancement of fish, wildlife, and other aquatic resources or

preserves from degradation. Cal. Water Code § 13050(f). NPS has not adequately considered the PCWQA's goals in its DEIS.

The antidegradation policy of the Clean Water Act requires that water quality and beneficial uses be protected and maintained. 40 C.F.R. § 131.12. The antidegradation policy has a specific clause that notes the particular importance of high quality waters that constitute and "outstanding" National resource "such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance." 40 C.F.R. § 131.12(a)(3). The antidegradation policy requires protection of existing uses, and it is highly likely that many of the waters targeted by this proposed project qualify as "Outstanding National Resource Waters." The high elevation SEKI waters targeted by NPS in the DEIS are amongst the most pristine waters in SEKI, and in the United States. While the DEIS anecdotally refers to the "outstanding beauty" of the SEKI waters, and does so in reference to the Wild and Scenic Rivers Act (16 U.S.C. § 1271 et seq.) (DEIS at 29, 102, 178, 179, 182) nowhere does the DEIS refer to this important protection provision in the Clean Water Act context.

Under both the CWA and the PCWQA, use of rotenone and the addition of dead fish to the SEKI environments and ecosystems will greatly harm water quality. Water quality standards include "designated uses" and "water quality criteria." The DEIS is not site-specific; it does not indicate, discuss, or analyze the designated beneficial uses for all of the miles of streams and lakes other water bodies for the multiple habitats affected by this proposed project, and wholly ignores the federal antidegradation policy and water quality standards. The beneficial use must include the protection of all aquatic life, including invertebrate communities. The DEIS generally discusses water quality for NPS's Preferred Alternative B (DEIS at 188-189), and concludes that the water quality effects and the cumulative effects of the rotenone treatments would "result in short minor adverse impacts on water quality." (DEIS at 189). Furthermore, the DEIS justifies NPS's proposed use of rotenone through it rationale that "degradation may be allowed for certain pollutants as long as it is temporary and short-term." (DEIS at 183). The Commenters question the science behind NPS's assertion of the break-down of rotenone and other ingredients ("several days to several weeks", (DEIS at 188), the duration of rotenone in cold waters of 10,000 – 12,000 feet in altitude, and the specifics of the use of rotenone in these environments. The DEIS discusses dissolved oxygen, turbidity, acidity, and dissolved ions for the "project area", but does not provide any specifics as to (1) distinctions between the different kinds of water bodies subject to the project or (2) rotenone use in the proposed project areas, and is speculative as to the effects rotenone may have on water quality.

This project does not protect, but adversely affects the cold-water habitats, the beneficial uses of the waters, and this project would violate the no discharge without a NPDES permit requirements of Clean Water Act and the Porter-Cologne Water Quality Act.

V. Resource Conservation and Recovery Act

42 U.S.C. § 6901 et seq., 40 C.F.R. § 239-259, California Public Resources Code 40000 et seq. and 50000 et seq. and accompanying regulations 14 C.C.R. § 17200-18831

RCRA prohibits the past or present generation or transportation of solid waste, or the contribution to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent an substantial endangerment to health or the environment. 42 USC § 6972. The DEIS Alternative B proposes disposal of killed fish by transporting rotenone and neutralizer-laden fish away from the water body, and disposing of the dead fish by scattering and burying them in nearby terrestrial areas away from trails and campsites. DEIS at 59. The Commenters believe that the dead fish, and the poison remaining in their carcasses, are "solid waste" within the meaning of RCRA, that the NPS's action of burying and scattering would constitute "disposal" as fish and the poison in them may enter the environment, and that leaving fish with poison in them may constitute and imminent and substantial endangerment to health, or to the environment. The DEIS observes, in fact, that "[d]isposal of removed nonnative fish could slightly benefit the bald eagle which feeds on fish carcasses. If the selected alternative results in the use of piscicides, studies have shown that animals can feed on these carcasses with minimal effects." (DEIS at 31). The DEIS does not adequately identify the impacts or environmental effects of scattering and burying dead fish containing rotenone on the high-altitude environment, on the species that live nearby or that may feed on the poisoned fish carcasses, the claimed breakdown of rotenone and the toxicant's other ingredients in the particular and varied environments in SEKI where NPS proposes to conduct the activities, and the DEIS does not adequately analyze the effects and impacts. Failure to do so violates the agency's obligations under NEPA, and the APA, 5 U.S.C. § 551 et seq.

VI. Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 136 et seq.

Past uses of rotenone as a piscicide at the EPA label maximum allowable concentrations have demonstrated that not all nonnative fish are killed during these applications. Not only is the application of the poison mismanaged, but so is the neutralizing agent applied to limit the effects of rotenone.

For example, failure by the CDFG to achieve complete neutralization and to cause fish kills from the potassium permanganate itself is documented in California Regional Water Quality Control Board ("RWQCB") files. Commenters have read reports from the Lahontan RWQCB files and from CDFG files. During rotenone poisoning of Silver King Creek, Mono County, 1992, approximately 1,000 fish were killed downstream of the project area from the application of potassium permanganate (Lahontan RWQCB files). The following year, 1993, during a repeat poisoning of the same area, detoxification of the rotenone was chemically incomplete (Flint et al. 1998). The record shows that agencies have had difficulty managing the performance of potassium permanganate and detoxifying the rotenone.

Additionally, higher amounts of rotenone have been used than are recommended because of accidents (e.g., Flint et al. 1998). In Silver King Creek non-native fish in live cars (used to monitor effectiveness of the poison) escaped into the stream section being poisoned, not once but twice (Flint et al. 1998). As a result, "the creek was heavily doused with rotenone from backpack sprayers so that total concentrations peaked at 40 µg/l at detox, about twice (sic) expected." Not all the escaped fish were found (Flint et al. 1998). Thus, even as the agency conducting the application (CDFG) was attempting to get rid of fish, they were accidentally introducing them.

Rotenone formulations usually cannot kill all the unwanted fish. An attempted fish eradication project in a reservoir, Lake Davis, California, in the mid-1990s failed to eradicate the northern pike, poisoned a water supply for the town of Portola, and cost the state $15 million, some paid in reparations to the local community (Braxton-Little, Sacramento Bee, March 1, 2005). Components of the rotenone formulation, including piperonyl butoxide, persisted in the reservoir long after the poisoning was conducted. Portola has not used water from the reservoir since that time. The pike have been thriving in the intervening years, probably partly due to elimination of predators and competitors. The reservoir had been stocked with many non-native fish, but the northern pike was an illegal

stocking, that is, a species not stocked by the agency (CDFG) at the time. Note that Lake Davis was re-poisoned in 2007.

Moreover, while potassium permanganate is proposed for use to neutralize rotenone, potassium permanganate does NOT neutralize other ingredients in rotenone-formulations, which continue to flow downstream of project areas and/or persist in lakes where it is applied. Thus, the FIFRA label does not provide the NPS with the degree of instructions necessary to protect the environment in NPS's proposed poison application scenario. Further analysis must be performed by NPS.

Applications of stream and lake poisons are difficult to control, often have unforeseen consequences, too often cause accidents, and produce residues outside of the project boundaries and/or over a longer time than anticipated, as public comments have previously documented by noting California agency files and reports. The NPS has misrepresented the data and results of monitoring impacts on non-target species as a consequence of rotenone poisoning.

The DEIS fails to list the active, and fails to list any inert, ingredients of rotenone or CFT Legumine. All of the active ingredients, inactive ingredients, and inert ingredients of these toxicants must be identified, disclosed to the public, and analyzed as part of the EIS.

EPA's current CFT Legumine label shows that in addition to 5% rotenone, the formulation contains 5% "other resins". (See http://www.epa.gov/pesticides/chem_search/ppls/000655-00899-20131202.pdf) Previous research has shown the "other resins" are largely made up of deguelin not rotenolone. Deguelin is another rotenoid substance derived from the same plants as rotenone, is toxic to aquatic and terrestrial life, has effects similar to rotenone on cellular mitochondria and Parkinson's Disease and is subject to the same regulatory strictures as rotenone. The breakdown product of deguelin is not rotenolone. Therefore, SEKI water quality monitoring for rotenone and rotenolone will not detect the constituents of half of the active poison ingredients in CFT Legumine.

CFT Legumine is also comprised of 90% "other ingredients", which the EPA label simply describes as "contains petroleum distillates". As part of the warning, the label states "Contains petroleum distillate. Vomiting may cause aspiration pneumonia. Symptoms of exposure include numbness, lethargy & incoordination. Decontamination, symptomatic and supportive treatment is recommended." CFT Label at 3.

Additionally, NPS proposes to use liquid rotenone CFT Legumine as it is currently the only proposed piscicide treatment allowed for use in California. CFT Legumine is undiluted rotenone, and more concentrated and more toxic than other forms of rotenone. (DEIS at 218). The DEIS states however that "[i]f another piscicide becomes available for use in California, NPS staff would assess the appropriateness of its use in SEKI to accomplish the purpose, goals, and objectives of this plan." (DEIS at 58). As NPS's plan anticipates spanning more than three decades, the DEIS proposes allowing the use of later available piscicides and that it will comply with the law, but the NPS does not commit to submitting other piscicide use to the rigorous environmental and human health analysis required by NEPA.

The success rate of using a toxicant to eliminate all nonnative fish is therefore over-stated by NPS in the DEIS. Thus to effectively carry out the goal of the DEIS Alternative B, NPS would actually have to exceed the FIFRA label application limits in its applications. Additionally, FIFRA labels do not contemplate the repeated uses of specific waterbodies, or the continued use of the toxicant within an ecosystem, or within the geographic areas NPS is proposing to apply rotenone, over a 25-35 year period.

VII. California Safe Drinking Water and Toxic Enforcement Act of 1986 ("Prop 65")

Cal. Health & Safety Code, 25249.5 - .13

The proposed discharges into SEKI waters of chemicals contained in the rotenone formulations violates California's Proposition 65 because such chemicals are known to cause cancer or reproductive toxicity. The federal or state agencies involved in this project may be exempt, but their contractors may not be. The DEIS must explain how their proposed actions do not violate Prop. 65.

Additionally, poisons containing antimycin should not be considered in the range of alternatives because of their toxicity and nonregistration for use in California. The DEIS leaves open the option that it may use antimycin if it is approved in California following health and safety and quality concerns with the chemical. (DEIS at 23, 58). In fact, just this year NPS reissued publications of "A field manual for the use of Antimycin A for restoration of native fish populations" (Natural Resource Report NPS/NRPC/NRR-2008/033).

Antimycin, rotenone, and their active and inactive and inert ingredients have

not been fully identified or analyzed for use in this proposed project. Failure of NPS to consider the potential implications of Prop. 65 is also a failure to consider the effects of this project on health and the environment under NEPA.

VIII. Wild & Scenic River Act

16 U.S.C. § 1271-87

Wild and Scenic Rivers *and their immediate environments* possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. 16 U.S.C. § 1271. Many of the proposed treatment areas are Wild and Scenic Rivers, or adjoin tributaries that feed into Wild and Scenic Rivers. (DEIS at 178-180). The DEIS claims that under Preferred Alternative B, the proposed treatment locations "are far from designated wild and scenic rivers or river segments." (DEIS at 182). However, "[t]he furthest downstream points in the two streams proposed for piscicide treatments are approximately 650 feet and 820 feet… upstream of the wild and scenic river boundary." (DEIS at 182). NPS does not make adequate provisions to prevent rotenone from entering wild and scenic areas.

NPS asserts that the "outstanding remarkable values" will continue in the parks' wild and scenic rivers after a temporary degradation of fish, wildlife, and recreational opportunities "but in the long-term there would be beneficial effects to the values related to recreation and wildlife as restoration is achieved." (DEIS at 182).

IX. Conclusion

The Commenters support efforts to eliminate nonnative trout from the pristine high-altitude ecosystems of the Sequoia and Kings Canyon National Parks. The current DEIS, however, does not propose a viable solution to the nonnative fish problem, and NPS has not complied with the procedural requirements of NEPA in putting the document together. NPS must withdraw the DEIS and prepare an environmental analysis consistent with NEPA, the Administrative Procedures Act (5 U.S.C. § 552 et seq.), and which does not propose effectuating the project while violating other important environmental laws.

Respectfully submitted,

Californians for Alternatives to Toxics, Wilderness Watch, High Sierra Hikers Association, and Other Concerned Groups and Citizens

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Enclosures:
Attachments for consideration by NPS, the content of which is incorporated herein by reference:

Don C. Erman, Comment Rotenone Toxicity to Rainbow Trout and Several Mountain Stream Insects. North American Journal of Fisheries Management, 32:1, 53-59 (Feb. 21, 2012).

David B. Herbst et al., "The influence of introduced trout on the benthic communities of paired headwater streams in the Sierra Nevada of California", Freshwater Biology 54, 1324-1342 (2009).

Stephanie Yue, Ph.D., "An HSUS Report: Fish and Pain Perception". (undated)

Stephanie Yue, Ph.D., "An HSUS Report: The Welfare of Farmed Fish at Slaughter". (undated)

Comments of Don Erman and Nancy Erman, EPA Docket ID No. OPP-EPA-HQ-2005-0494 Pesticide Registration of Rotenone (April 10, 2006).

Comments of Don Erman and Nancy Erman, Submitted to Sequoia and Kings Canyon National Parks Re: Restoration of mountain yellow-legged frog by

poisoning of high elevation lakes and streams in Sequoia-Kings Canyon Wilderness Areas and elsewhere in the park. (Feb. 5, 2007).

Comments of Anne McCampbell, Submitted to Sequoia and Kings Canyon National Parks, California, Restoration of mountain yellow-legged frog and high elevation lakes and streams, environmental assessment. (Feb. 6, 2007).

Comments of Californians for Alternatives to Toxics, Wilderness Watch, and High Sierra Hikers Association, as well as other concerned groups and citizens, submitted by the Western Environmental Law Center re: Restoration of Mountain Yellow-legged Frogs and High Elevation Lakes and Streams Environmental Analysis (Oct. 28, 2008).

Comments of Californians for Alternatives to Toxics and Wilderness Watch, submitted to U.S. Fish & Wildlife Service Nevada Fish & Wildlife Office and California Fish & Game re: Draft Environmental Impact Statement/Report (DEIS/DEIR) for the Paiute Cutthroat Trout Restoration Project, Carson-Iceberg Wilderness, Humboldt-Toiyabe National Forest, Alpine County, CA; Rotenone poisoning in the Silver King Creek watershed (May 4, 2009).

Supplemental Comments of Californians for Alternatives to Toxics, Wilderness Watch, and High Sierra Hikers Association re: Supplemental Scoping Comments on Restoring Native Species to High Elevation Aquatic Ecosystems EIS (Nov. 19, 2009).

Letter to Sequoia and Kings Canyon National Parks re: FAQ document on "Restoring Native Species to High Elevation Aquatic Ecosystems EIS" From Wild Earth Advocates, P.C. (Dec. 3, 2009).

Comments of Don Erman and Nancy Erman to Nevada Fish and Wildlife Office U.S. Fish and Wildlife Service "Comments/ Draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) for the Paiute Cutthroat Trout Restoration Project, Carson-Iceberg Wilderness, Humboldt-Toiyabe National Forest, Alpine County, CA. Rotenone poisoning in the Silver King Creek watershed." (April 29, 2009).