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January 22, 2007

Department of Conservation, Development and Planning
County of Napa
1195 Third Street, Suite 210
94599-3092
Attn: Mary Doyle

Re: Upper Range/Rodgers Vineyard Conversion Project, Erosion Control Plan # 02-454; Draft Environmental Impact Report

Dear Ms. Doyle:

This office represents Earth Defense for the Environment Now ("EDEN") with respect to the Upper Range/Rodgers Vineyard Conversion Project, Erosion Control Plan # 02-454, and Draft Environmental Impact Report ("DEIR"). I write today to submit the following comments on EDEN's behalf. EDEN objects to the approval of this project and its Erosion Control Plan.

A. THE DEIR FAILS TO DISCLOSE POTENTIALLY SIGNIFICANT IMPACTS ON WATER QUALITY FROM SEDIMENT.

1. The Project Will Exacerbate Existing Cumulatively Significant Sediment Impacts.

a. Legal framework for assessing the significance of cumulative impacts.

It is well settled that where a project will exacerbate existing significant impacts, the project's cumulative impacts must be recognized as significant for purposes of requiring preparation of an EIR. Thus, in a case involving air pollution in the Central Valley, the Court of Appeal ruled the EIR prepared for a co-generation plant was inadequate because it failed to judge the significance of project impacts as a function of the project's small incremental impact <u>in combination with</u> existing significant impacts, stating:

> Appellants contend under the theory advanced in the EIR whenever an agency determines impacts specific to a particular project are not significant, corresponding cumulative impacts cannot be considered significant because the "incremental effects" of the individual project cannot be "considerable." They contend in assessing significance the EIR focuses upon the ratio between the project's impacts and the overall problem, contrary to the intent of CEQA. GWF contends the cumulative

> impacts analysis properly focuses upon the individual project's effects rather than the combined effects. According to GWF, the standard is defined by the use of the word "incremental," which means the analysis measures the amount by which the individual project adds to air quality problems, and since the project's emissions are relatively minor when compared with other sources, the EIR properly concluded the project would have no significant impact on air quality.
>
> We must interpret the Guidelines to afford the fullest possible protection to the environment. (*Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 259-260 [104 Cal.Rptr. 761, 502 P.2d 1049].) One commentator has addressed the purpose of the cumulative impacts analysis: "One of the most important environmental lessons evident from past experience is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant, assuming threatening dimensions only when considered in light of the other sources with which they interact. ...
>
> "CEQA has responded to this problem of incremental environmental degradation by requiring analysis of cumulative impacts. Because of the critical nature of this concern, courts have been receptive to claims that environmental documents paid insufficient attention to cumulative impacts. ...
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> "This judicial concern often is reinforced by the results of cumulative environmental analysis; the outcome may appear startling once the nature of the cumulative impact problem has been grasped." (Selmi, *The Judicial Development of the California Environmental Quality Act* (1984) 18 U.C. Davis L. Rev. 197, 244, fn. omitted.)
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> We agree with the foregoing assessment of a cumulative impacts analysis. We find the analysis used in the EIR and urged by GWF avoids analyzing the severity of the problem and allows the approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling. Under GWF's "ratio" theory, the greater the over-all problem, the less significance a project has in a cumulative impacts analysis. We conclude the standard for a cumulative impacts analysis is defined by the use of the term "collectively significant" in Guidelines section 15355 and the analysis must assess the collective or combined effect of energy development. The EIR improperly focused upon the individual project's relative effects and omitted facts relevant to an analysis of the collective effect this and other sources will have upon air quality.

Kings County Farm Bureau v. City of Hanford (1990) 221 Cal. App. 3d 692, 720-721 (Cal. Ct. App. 1990).

A more recent decision has reaffirmed this standard for assessing the significance of cumulative impacts. In *Communities for a Better Environment v. California Resources Agency* ("*Communities* ") (2002) 103 Cal. App. 4th 98, the Court of Appeal held invalid a new CEQA Guidelines providing that "An EIR may determine that a project's contribution to a significant cumulative impact is *de minimis* and thus is not significant." The Court explained that the Guideline "would turn cumulative impact analysis on its head by diminishing the need to do a cumulative impact analysis as the cumulative impact problem worsens" because "the *de minimis* approach ...compares the incremental effect of the proposed project against the collective cumulative impact of all relevant projects." *Id*. at 118.

The Court in *Communities* also noted that:

> "[T]he relevant question"... is not how the effect of the project at issue compares to the preexisting cumulative effect, but whether "any additional amount" of effect should be considered significant in the context of the existing cumulative effect. [footnote omitted] This does not mean, however, that *any* additional effect in a nonattainment area for that effect *necessarily* creates a significant cumulative impact; the "one [additional] molecule rule" is not the law. [footnote omitted] Moreover, the basic approach set forth in Guidelines section 15064, subdivision (i)(1) seems sound--that is, in assessing whether a cumulative effect requires an EIR, the lead agency shall consider whether the cumulative impact is significant and whether the proposed project's incremental effects are cumulatively considerable.... In the end, the greater the existing environmental problems are, the lower the threshold should be for treating a project's contribution to cumulative impacts as significant. [footnote omitted]

Communities for a Better Environment v. California Resources Agency (2002) 103 Cal. App. 4th 98, 120.[1]

While the Courts have not explained exactly how many "molecules" are required for an addition to an existing significant effect to be considered "cumulatively considerable," they have stressed the importance of determining significance in the context of the specific environmental

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[1]CEQA Guidelines § 15064(i)(1) provides: "When assessing whether a cumulative effect requires an EIR, the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable. An EIR must be prepared if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when *viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects*." (emphasis added); *see also* CEQA Guidelines § 15065(c) regarding mandatory finding of significance for "environmental effects which are individually limited but cumulatively considerable".

setting of the project. *Kings County Farm Bureau v. City of Hanford*, *supra*, 221 Cal. App. 3d at 718 ("The significance of an activity depends upon the setting.")[2]

Indeed, as described in more detail below, the Napa River watershed is "impaired" due to excessive sediment loading, its anadromous fish species are either extirpated (coho) or federally threatened (steelhead), and the Regional Water Quality Control Board has recommended that no new sediment sources be created. In the context of this setting, CEQA requires, at a minimum, an EIR to determine exactly to what extent this project will create a new sources of sediment.

b. Environmental setting for assessing the significance of cumulative sediment impacts.

Since Napa County adopted its Hillside Ordinance in 1991 (requiring Erosion Control Plans for conversion projects such as this one), there have been drastic changes in the environmental setting in the Napa River drainage and surrounding region. Populations and habitat conditions for coho salmon and steelhead in this region have declined to the point where, in 1996 (coho) and 1997 (steelhead), the National Marine Fisheries Service ("NMFS") listed local Evolutionarily Significant Units ("ESUs") of these species as "threatened" under the federal Endangered Species Act. (*See* Exhibit 2 for coho 'threatened' decision; and Exhibit 3 for steelhead 'threatened' decision.) This occurred in the context of the Board's identification of the Napa River as "water quality limited" under section 303(d) of the federal Clean Water Act due to excessive sedimentation and nutrient loading.

The identification of the Napa River as impaired due to sediment under section 303(d) of the Clean Water Act requires the state of California to prepare and adopt a Total Maximum Daily Load ("TMDL") for sediment in the Napa river drainage.

On June 14, 2002, the San Francisco Bay Regional Water Quality Control Board ("Regional Water Board") released the Napa River Basin Limiting Factors Analysis. (*See* Exhibit 4.) This report is Phase 1 of the TMDL study for the Napa River Basin. According to the Phase 1 report, sedimentation of gravel stream beds is reducing the survival of steelhead fry by 50% or more and

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[2] The point is not that, in terms of ozone levels, the proposed Hanford project will result in the ultimate collapse of the environment into which it is to be placed. The significance of an activity depends upon the setting. (Guidelines, § 15064, subd. (b).) The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project when compared with preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin.
Kings County Farm Bureau v. City of Hanford, *supra*, 221 Cal. App. 3d at 718.

additional study is required in order to further understand the sediment problems plaguing the Napa River Basin. In the meantime, the Phase 1 report recommends that "opportunities to prevent increased delivery of sediment to channels, and preferably reduce sediment delivery, should be pursued." (Exhibit 4, p. ES-35.)

On June 28, 2005 the Regional Water Board issued its Napa River Sediment Total Maximum Daily Load Draft Technical Report ("Draft Technical Report"). (*See* Exhibit 1.) This report confirms and expands upon the conclusions of the Phase 1 report. Key findings of the Draft Technical Report include:

- "Channel incision, which occurs in Napa River and lower reaches of its tributaries, has greatly reduced the quantity and quality of spawning and rearing habitat for salmon, and appears to be the primary factor limiting chinook salmon reproductive success and smolt survival undercurrent conditions (Stillwater Sciences and Dietrich, 2002). Excessive amounts of fine sediment deposited at potential spawning sites for salmon and/or steelhead in Napa River and its tributaries causes high rates of egg and larval mortality during incubation. Although poor spawning habitat quality does not currently appear to be a primary factor limiting for steelhead, high mortality at during egg incubation may further depress what appears to be a very small run. Other factors including poor flow persistence during the dry season and poor habitat access, appear to be the primary factors that limit steelhead productivity and survival in the Napa River watershed at present (Stillwater Sciences, 2002)[3]. We conclude that progress towards resolution of all factors limiting steelhead productivity and survival in the Napa River watershed is needed to conserve and recover steelhead populations. Therefore, we recommend actions to address sediment and additional management and research actions to address the above limiting factors, as a component of the sediment TMDL implementation plan." (Exhibit 1, p. 3.)

- "Channel incision is a controllable water quality factor that results in a violation of the narrative water quality objective for population and community ecology (Table 1)." (Exhibit 1, p. 7.)

- The narrative water quality objective for population and community ecology is, "The health and life history characteristics of aquatic organisms in water affected by controllable water quality factors shall not differ significantly from those for the same waters on areas unaffected by controllable water quality factors." (Exhibit 1, p. 6.)

[3]Attached to these Comments as Exhibit 39.

- "Sediment loads vary depending on geologic terrain, land uses, and dams." (Exhibit 1, p. 13.)

- "More than half of all sediment delivered to channels comes from grazing, vineyards, roads, and erosion of the bed and banks of Napa River and lower tributary reaches." (Exhibit 1, p. 13.)

- "30% of the watershed drains into dams, capturing a significant fraction of all sediment input to channels, nevertheless fine sediment load remains substantially elevated in Napa River." (Exhibit 1, p. 13.)

- "In addition to being a significant sediment source, erosion of the river's bed and banks is degrading aquatic habitat." (Exhibit 1, p. 13.)

- "Where hillside vineyards replace mature mixed evergreen forests, peak runoff rate and volume from the vineyard site may be increased substantially because mature conifers intercept a significant proportion of the total rainfall in a storm, greatly reducing the rate of delivery (and in some cases total amount) of rainfall that is input into the soil. Furthermore, if vineyard development involves installation of subsurface drainage pipes, more storm runoff, at a faster rate, may be discharged off-site than under natural conditions." (Exhibit 1, p. 18.)

- "Sediment input from sheet wash erosion caused by grazing and/or vineyards may contribute a few hundred or more tonnes/km2/yr in the soft sandstone and clayey rock, and hard lava flow terrains." (Exhibit 1, p. 43.)

- "Four significant categories of human caused sediment sources are: 1) grazing lands, **2) vineyards**, 3) roads, and 4) erosion of the Napa River bed and banks." (Exhibit 1, p. 46 (emphasis added).)

- "To protect chinook salmon and steelhead, rates of fine sediment supply and channel incision must be reduced in a manner that enhances aquatic habitat conditions." (Exhibit 1, p. 55.)

Several additional reports prepared specifically to assess impacts of vineyard conversions in the Napa Valley describe the causes of these changes, including reports by Dr. Robert Curry (Exhibit 5, *Napa Valley Hillside Vineyards: Cumulative Effects of Conversion of Upland Woodlands and Chaparral to Vineyards*) and Dr. Robert Abbot and Dr. Robert Coats (Exhibit 6, *Expert Witness Report: Cumulative Impacts on Fisheries Resources from Intensive Viticulture Practices in Napa County*). Dr. Abbot and Dr. Coats demonstrate that existing significant impacts on anadromous fish species in the Napa River drainage are not adequately addressed by the standard review procedures

for new hillside vineyards.

Standard erosion control planning for hillside projects, including vineyards on slopes over 5% and non-agricultural projects on slopes over 15%, in the Napa Valley, as regulated by the Napa County Planning Department and supervised by the Resources Conservation District, focuses on measures to prevent erosion of soils from hillside vineyard sites. While these efforts have had some degree of success, the standard approach fails to adequately account for increases in runoff due to project induced changes in the moisture infiltration capacity of the project soils. As explained by Dr. Curry, increases in runoff peak flows have the potential to generate downstream sedimentation by breaking down and sweeping away the bed and banks of streams below the project site, destroying both riparian and fish habitat. The mechanisms of this impact are explained in more detail in the December 2000 report (Exhibit 5) prepared by Dr. Robert Curry.

c. This project's contribution to existing significant cumulative sediment impacts is cumulatively considerable .

Here, the DEIR concludes there would be no significant cumulative impact from erosion and sedimentation based on two primary assumptions. First, "the sediment supply from the vineyard into the creeks and downstream from the project site would be less than under existing conditions." (DEIR, p. 4.3-12.) Second, the project will not significantly increase runoff. These assertions are flawed because they neither account for all the means by which the project will initiate sediment transport nor consider the appropriate time frame in which the project will contribute "cumulatively considerable" amounts of sediment to the stream system.

The DEIR's contention that the project will reduce the pre-existing sediment supply is based on the alleged "disconnect" between most of the watersheds in the project area on one hand and Conn Creek and the Napa River on the other. As Dr. Curry demonstrates, however, this alleged "disconnect" is illusory for several reasons. First, the assertion that there is a "disconnect" is based on the flattening of the terrain between the project activities and the watercourses downslope of those activities. But this flattening does not prevent eroded soil from reaching those watercourses; at best it merely delays the delivery of those sediments to the streams. (Exh. 14.) Even a delay of several decades before additional project-induced sediments are delivered to the stream system cannot support a conclusion of no significant cumulative impacts because this merely defers (a part of) the project's contribution to existing significant cumulative impacts to the next generation.

Also, the DEIR's sediment delivery analysis overlooks the extent to which removing the rocks from the vineyard soils will decrease the soil's rainfall permeability and thereby cause increases in runoff and peak flows in downslope watercourses. In connection with the proposed vineyard expansion at Pahlmeyer Vineyards, Dr. Curry observed that whether clay layers are present in the soils on site is critical to assessing runoff impacts. Clay rich soils have gaps around rocks and roots that allow rainwater to percolate into the ground. Removing the rocks and roots by ripping the

soil eliminates these gaps and reduces the amount of rain that soaks into the ground. Dr. Curry concluded that changing the soil on this property from its natural state by ripping and rock removal would significantly decrease its infiltration capacity and lead to significant increase in runoff, which would contribute to increases in peak flow. (*See* Exh 5.) Dr. Curry observes that this same mechanism of increasing peak flows will occur in connection with this project, and the increased peak flows are likely to mobilize soil from the draws, swales, and streambanks on and downslope of the site and thereby generate new sediment inputs. (Exh. 14.) The DEIR fails to quantify the magnitude of these new inputs; therefore, there is no basis for its conclusion that post-project sediment delivery will be less than pre-project levels.

In addition, Dennis Jackson's letter report details numerous flaws in the project's hydrologic analysis, including the unwarranted assumption that the on-site ponds will retain any storage capacity in a heavy rainfall (Exh. 15, p. 4) and the failure to describe the land contouring proposed as Mitigation Measure 4.4-6 (Exh. 15, p. 5).

Mr. Jackson's expert comments on a previous project in this watershed (the Abreu vineyard conversion) (Exhibit 51, pp. 2-3) note that fine sediment in streams flowing into Lake Hennessey have "the potential to adversely impact the spawning of resident rainbow trout." He goes on to note that these residents are land-locked steelhead. Because steelhead in the Napa River system are listed as federally endangered and are thus in danger of extinction, the resident trout provide a significant genetic link to the once-abundant steelhead population and must be conserved to the utmost. Therefore, increasing sediment in these streams, which reduces the likelihood of successful spawning, will harm the remnant steelhead.

Further, some proportion of fine sediment entering Lake Hennessey from upstream sources such as this project will spill into lower Conn Creek and thence to the Napa River. (See e.g., Exhibit 1 ("[c]hannel incision, and associated bank erosion in areas underlain by thick alluvial deposits, also appears to be a significant sources of sediment delivery to the Napa River.") Thus, the increased sediment from this conversion may also deliver sediment below the Conn Creek dam and harm anadromous steelhead there. The Regional Water Quality Control Board and the U.S.E.P.A. have identified the Napa River as "water quality limited" under section 303(d) of the federal Clean Water Act due to excessive sedimentation and nutrient loading. This project will exacerbate that condition; therefore, it will contribute to this existing significant cumulative effect.

B. THE DEIR FAILS TO DISCLOSE POTENTIALLY SIGNIFICANT IMPACTS ON WATER QUALITY FROM NUTRIENT POLLUTION.

The DEIR fails to adequately describe the environmental setting or project for purposes of evaluating impacts on water quality from project induced nutrient inputs. For example, the letter report by 2ndNature (Exhibit 16), notes:

- Despite widespread recognition of the local nutrient loading problem in the watershed, the draft EIR does not estimate the potential surface water or nutrient loading as a result of the proposed vineyard development. No quantifications of existing or predicted post-project conditions are given.

- Instead of collecting multiple samples from at least two locations as recommended, single samples were collected at the end of the 2004 rainy season. This sampling frequency is insufficient to characterize vineyard runoff, especially considering the spatial and temporal variability in runoff pollutant concentrations.

- The most significant omission in the Draft EIR's impact analysis is that these single samples from neighboring vineyards were not even evaluated for nutrients or suspended sediment, two primary pollutants of concern that are already impairing nearby receiving waters including the City's water supply.

Nutrient pollution in both Lake Hennessey and the Napa River are serious issues. The City of Napa has treated and apparently intends to continue treating Lake Hennessey with a toxic pesticide, copper sulfate, to control excessive algal blooms caused by increased nutrient pollution. (*See* Exhibit 34, City of Napa's Draft Negative Declaration for Use of Copper to Control Aquatic Weeds at the Milliken Diversion Dam and Lake Hennessey, February 21, 2006.) The toxic effects of this treatment are discussed in detail in the Living Rivers Council's comments on the City's treatment plan that were submitted to the City on March 23, 2006, and which are attached hereto as Exhibits 35 through 38.

C. THE DEIR FAILS TO DISCLOSE POTENTIALLY SIGNIFICANT IMPACTS ON WATER QUALITY FROM PESTICIDE POLLUTION.

The DEIR fails to adequately describe the environmental setting and project needed to assess impacts from pesticide use on the proposed vineyard. (*See, e.g.,* Exh. 15, p. 3 ("The water quality sampling methodology is not described.") Without detailed information regarding the types, amounts, and timing of pesticide use (typically required in a Pesticide Management Plan) and the related environmental setting, it is impossible to adequately identify let alone properly avoid or mitigate impacts of such pesticide use on biological resources and water quality. The DEIR also fails to adequately discuss the mechanisms by which pesticides applications cause adverse water quality impacts. (*See, e.g.,* Jackson, Exh. 15, p. 4 ("The DEIR has not address the potential for subsurface delivery of chemicals, nutrients or pathogens to Conn Creek or the Napa River"); Exh. 16, p. 4 ("The transport of pesticides through groundwater flows is also of concern and is not adequately addressed in the Draft EIR. While a suite of pesticides and herbicides were tested for in surface waters, the groundwater component was completely ignored.") As a result, the DEIR fails to disclose the potential impacts from pesticides and other chemicals to be used by the vineyard.

In the report entitled *Cumulative Impacts on Fisheries Resources from Intensive Viticulture Practices in Napa County, CA*, Dr. Robert Abbot and Dr. Robert Coats discuss how the use of agricultural chemicals and pesticides can impact steelhead and other aquatic species. (Exhibit 6.) In addition, the reports attached as Exhibits 19-28, discuss how pesticide contamination from pesticides such as organophosphates, including diazinon and chlorpyrifos, results in adverse impacts to fish and the aquatic invertebrates that form the base of the aquatic ecosystem. While it is unknown whether this project will use diazinon or chlorpyrifos, the attached studies and data are equally applicable to the numerous organophospate pesticides typically used by vineyards, as well as a host of other pesticides. As stated in *Disrupting the Balance*:

> Most fish species and many species of zooplankton in the San Francisco Bay-Delta have experienced dramatic population declines in the last several decades. Multiple factors contribute to these declines, including toxic contaminants in waterways, dams diversions, exotic species, and reduction in food sources. Pesticides known to kill aquatic animals and plants, impair their reproduction, and reduce food sources for fish are thought to be one of the major stressors affecting aquatic organisms in the Bay-Delta ecosystem.

(Exhibit 19, p. 37.) The key to aquatic ecosystems are the tiny aquatic organisms, known as phytoplankton and zooplankton, which form the base of the food web for larger organisms such as fish, insects and amphibians. These organisms are crucial for supplying the food for larger aquatic species, particularly the young of a number of fish species. (*Id.* at pp. 37-39.)

The California Department of Fish and Game has established criteria for protection of aquatic life which account for the importance of invertebrate organisms in the aquatic ecosystem. For chlorpyrifos, Fish and Game has established a chronic aquatic life criteria of 0.02 ug/liter (parts per billion) and an acute aquatic life criteria of 0.07 ug/liter.[4] For diazinon, Fish and Game has established a chronic aquatic life criteria of 0.04 ug/liter and an acute aquatic life criteria of 0.08 ug/liter.[5]

Fish and Game's report noted the likelihood of significant environmental impacts if a four day average pesticide concentration does not exceed the chronic aquatic life criteria level, and if a one hour average concentration does not exceed the acute aquatic life criteria every three years.[6] It is essential that the types and amounts of pesticides to be applied be disclosed and analyzed in an EIR in order to ensure that these limits are not exceeded.

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[4] Exhibit 19, p. 41, Table 3-1.

[5] *Id.*

[6] *See e.g.,* Exhibit 23, p. iii.

Numerous studies corroborate Fish and Game's findings that these levels of chlorpyrifos and diazinon contamination are harmful to aquatic organisms, from small invertebrates such as *Daphina* species to fish species listed under the federal Endangered Species Act. As discussed in several reports, the direct impacts to listed fish species from low levels of chlorpyrifos and diazinon contamination are significant, including reduced mobility, lowered immune response leading to disease, development abnormalities, endocrine disruption, and disruption of smell and taste.[7] Moreover, chlorpyrifos and diazinon contamination has substantial indirect impacts on fish species by harming or even eliminating smaller invertebrates on which juvenile fish feed.[8] This impact is particularly significant given that many fish species use adjacent waterways as nesting grounds in which their young hatch and grow to adulthood. In fact, the Fish and Wildlife Service has indicated that pesticide contamination, including chlorpyrifos and diazinon, are a likely cause of the declines of several listed fish species in the Delta and adjacent waterways in the Sacramento River and San Joaquin River basins.[9] As stated by the U.S. Geological Survey:

> NAWQA findings for streams indicate that pesticides detected in water, most of which were in use during the study period, frequently exceeded aquatic-life benchmarks...The screening-level assessment indicates that the most widespread potential impact of pesticides on water quality is adverse effects on aquatic life and fish-eating wildlife, particularly in streams draining watersheds with substantial agricultural and urban areas. ... The widespread potential for adverse effects shown by the screening-level assessment—and the uncertainty in this potential because of the preliminary nature of the assessment and the complexity of pesticide exposure—indicate a continuing need to study the effects of pesticides on aquatic life and wildlife under the conditions of pesticide exposure that occur in the environment.[10]

A number of recent studies have also found that the class of pesticides known as pyrethroids, which many have considered more environmentally benign than organophosphates, also damage aquatic ecosystems. (*See* Exhibit 35). In light of the numerous and varied adverse impacts to aquatic species identified herein, coupled with the fact that coho and steelhead in the Napa River and its tributaries have suffered alarming declines, it is imperative CDF require specific information regarding the planned use of pesticides for the vineyard in order to complete proper environmental

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[7] *See* Exhibits 19, 20-28.

[8] *Id.*

[9] Exhibit 38, Determination of Threatened Status for the Sacramento Splittail, 64 FR 5963 at 5974.

[10] Exhibit 37 (The Quality of Our Nation's Waters: Pesticides in the Nation's Streams and Groundwater, 1992-2001, USGS Circular 1291, 2006, pp. 8-9.

review. Once specific pesticide information is received, the impacts can be properly identified and mitigation measures or project alternatives can be developed to address those impacts. CEQA requires CDF to understand and identify any such impacts before deciding to approve the project.

D. THE DEIR FAILS TO DISCLOSE POTENTIALLY SIGNIFICANT IMPACTS ON GROUNDWATER AVAILABILITY.

1. The DEIR Fails to Adequately Describe the Environmental Setting for Purposes of Evaluating Impacts on Groundwater Resources.

The DEIR concludes the Project will have no significant adverse effects on groundwater resources. This conclusion is unwarranted, however, because as described in more detail in the report by Dennis Jackson (Exh. 15), the DEIR fails to adequately describe the environmental setting for purposes of evaluating impacts on groundwater resources. For example, the well pumping tests were not conducted according to standard protocols, the aquifer from which groundwater will be drawn is not described, and the calculation of expected recharge is deeply flawed because it is based on the false assumption that the entire property will contribute to groundwater recharge. (*See* Exh. 15, pp. 7-14.)

2. The County's Fair Use Thresholds Are Not Appropriate Criteria of Significance for Groundwater Impacts.

The County's "fair use" thresholds are set forth in the County Planning Department's *Water Availability Analysis: Policy Report* dated August 2003, a copy of which is attached as Exhibit 7. This document describes the procedure for obtaining a groundwater permit and establishes "thresholds" for use of groundwater in each basin. If a new water use is below this threshold, the County assumes that the use will not have a significant adverse effect on the aquifer.

In the area where this project is located, the threshold is deemed to be 1 acre foot per acre per year for each acre of land overlying the aquifer and 0.5 acre feet per acre per year for each acre of land overlying the gradient up-slope of the aquifer (i.e., hillside area). Since the property consists of hillside land, the County's assumed "threshold" for the property is 0.5 acre feet per acre per year times 75.5 acres, or 37.75 acre feet per year.

This threshold is not an appropriate criterion for determining whether the project's impacts on groundwater are significant for several reasons.

- First, it is not based on any actual data relating to the availability or use of groundwater in the area. The County's 2003 Policy report explains that the "threshold" number for the Valley Floor Area was "determined in 1991 in the form of a staff report to the Board of Supervisors" and "was established as the expected demand an average vineyard would have." (Exh. 7.)

The 1991 staff report to the Board of Supervisors notes that no "extensive groundwater studies" have been conducted in many areas of the County. (Exh. 11, p. 2.) The 1991 staff report summarizes the findings in the January 1991 Water Resources Study for the Napa County Region (Napa County Flood Control and Water Conservation District), a copy of which is attached as Exhibit 12.

● Second, the County's threshold does not take into account the fact that many previous owners may be using more than their "threshold" amount of water. As a result, later owners may not be able to use their "threshold" amount, or as in this case, any amount of groundwater, without causing or exacerbating existing significant effects. The DEIR presents no information on the use of groundwater by others property owners in the area.

● Third, existing groundwater supplies in the Napa Valley area are already being depleted, yet the County's thresholds assume, without any empirical foundation, that groundwater extraction and recharge are in balance. The April 7, 1999 Memorandum from Napa County Planning Department to the Planning Commission regarding a General Plan Amendment relating to groundwater use and the proposed Napa County groundwater ordinance states:

> The 1991 study also develops short and long-term projections of water needs among users and regions in Napa County using these figures to balance water needs and supplies for the period 1990 through 2020. The results of this balance reveal substantial long-term inadequacies in supply throughout the county's subareas, although admittedly at present some areas have a short-term surplus. From this study it is reasonable to conclude that as the county's water needs increase in the future , increases in agricultural and rural uses are likely to eliminate any existing groundwater surplus. This change from surplus to deficit is likely to be far more pronounced and occur sooner rather than later if increased municipal and industrial demands are also satisfied by using groundwater.... The 1993 Report confirmed the 1991 Study's results and projected a growing deficiency in the overall county water supply. The Report identified shortfalls of 10,900 acre feet by the year 2000 which would increase to 18,600 acre feet by 2020 and 23,000 acre feet by 2030." (Exhibit 9, p. 2.)

Similarly, the January 19, 1993 Memorandum from the Napa County Water Advisory Committee to the Napa County Board of Supervisors re: Report of the Water Advisory Committee, referenced in the 1999 staff report above and attached hereto as Exhibit 10, notes that "Increased utilization of groundwater as a source of supply can have severe detrimental effects on the rural residential community." In sum, the "thresholds" are not based on any empirical analysis of actual groundwater supply or availability.

E. THE DEIR FAILS TO DISCLOSE POTENTIALLY SIGNIFICANT IMPACTS ON

OAK WOODLANDS.

1. The DEIR Misinterprets CEQA Section 21084.

The DEIR describes the oak woodlands on site as a "sensitive habitat." (DEIR, p 4.1-16.) The DEIR also describes the project-induced loss of 121 acres of mixed oak woodland on site (out of approximately 397 pre-project acres). (DEIR p. 4.1-35.)

The DEIR (at p. 4.1-34) establishes two thresholds of significance for the loss of vegetation communities that apply to the loss of on site oak woodlands:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional, plans, policies, or regulations or by CDFG or USFWS.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Rather than apply these thresholds of significance to the project-induced loss of oak woodland, the DEIR concludes that this "large amount of oak woodland removal ... would not be considered a significant impact because CEQA section 21083.4(d)(3) specifically exempts the conversion of oak woodlands for agricultural purposes from the significance determination and mitigation requirements." (DEIR, p. 4.1-35.) Based on this legal conclusion, the DEIR provides no factual assessment of the significance of this impact.

This is an error of law. The exemption for agricultural conversions in subdivision (d)(3) of section 21083.4 is an exemption from "this section" i.e., section 21083.4, not an exemption from "this division", i.e., CEQA as a whole. Therefore, while the project is exempt from the specific requirements and procedures set forth in section 21083.4, it is not exempt from the remainder of CEQA, including the requirements under section 21081 to identify all significant impacts of the project and to implement all feasible mitigation measures that substantially reduce significant impacts.

Indeed, the clear intent of section 21083.4 is to provide enhanced protection to oak woodlands over and above what they normally receive under CEQA. The clear intent of subdivision (d)(3) of section 21083.4 is to exempt agricultural conversions from this enhanced level of protection. It is absurd to suggest that the intent of subdivision (d)(3) of section 21083.4 is to reduce the level of protection afforded to oak woodlands below what they normally receive under CEQA. CEQA must be interpreted so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. *Laurel Heights Improvement Assn. v. Regents of University of California* ("*Laurel Heights I*") (1988) 47 Cal. 3d 376, 390; *Friends of Mammoth*

v. Board of Supervisors (1972) 8 Cal.3d 247, 259.

The project is also inconsistent with several General Plan policies. With respect to the oak woodlands on site, the project fails to "provide protection and enhancement for wildlife habitat" or "provide replacement habitat of like quantity and quality" to that which is being lost, in violation of General Plan Conservation Policy I.A.6 (All Fishery and Wildlife Habitat), which provides:

> 1) Residential, commercial, industrial, agricultural and water development projects should include management plans for fishery, wildlife and recreation purposes, including provisions to:
> a) employ supplemental planting and maintenance of grasses, shrubs and trees of similar quality and quantity to provide adequate vegetation cover to keep the watersheds, especially stream side, in good condition and to provide shelter and food for wildlife;
> b) provide protection and enhancement for wildlife habitat; and
> c) provide replacement habitat of like quantity and quality.

Also, the map at DEIR Figure 4.1-1 shows that the oak woodlands on site are riparian woodlands, yet the project fails to comply with General Plan Conservation Policy I.A.6 (b) (Riparian Woodland and Wildlife Habitat), which provides:

> To offset additional losses of scarce riparian woodlands, due to conversions, developers shall provide and maintain similar quality and quantity of replacement habitat or in-kind funds to an approved wildlife habitat improvement and acquisition fund.

Thus, not only is the project inconsistent with the General Plan, but the DEIR also fails to identify this inconsistency as a significant adverse effect.

These legal errors are especially egregious given the wealth of ecologically beneficial functions attributable to oak woodlands and forests. While the DEIR summarizes many of these benefits (*see* e.g., DEIR, pp. 4.1-8 through 4.1-12), the following sections (and exhibits 39 through 50) further explain the benefits provided by oak woodlands and why the loss of 121 acres of oak habitat is a significant impact.

Oak forests and woodlands provide habitat for a host of plant and animal species, corridors for wildlife nesting, foraging, roosting and movement, as well as soil stabilization and water quality functions. Accordingly, an analysis of the potential impacts of the removal of 121 acres of oak habitat must entail more than a superficial determination that the oaks in question do not support any rare or endangered plant or animal species. Moreover, as discussed above with regard to cumulative sedimentation impacts, the DEIR must also determine whether the loss of oak habitat is

'cumulatively considerable' in the context of all other past, present and reasonably foreseeable future projects proposing to remove oak trees.

2. Oak Woodlands Provide Many Benefits to Wildlife.

Numerous studies have shown that hardwood ecosystems support an unusually high amount of wildlife, approximately 331 breeding species, the largest number of any habitat type in California. (*See* Exhibit 39, pp. 2-3, 34). For example, the 1986 Report prepared for the California Board of Forestry states:

> These habitats support a rich wildlife fauna because they are complex and diverse, with many plant species and layers, providing many habitats and niches. This layering, or "vertical edge," is the most important element contributing to the diversity of these hardwood communities. [...] Gophers, moles, and mushrooms occupy the subsurface layer; grasses, forbs, duff, mulch, and litter clothe the forest floor and support mice, towhees, skunks and many other species. Subcanopy layers (e.g., shrubs) vary in number and support representative wildlife, especially birds. The canopy itself may be layered, and supports its own characteristic fauna. Some wildlife species are restricted to one layer; some use all. Not all hardwood stands have as many layers as a mature stand, but even a lone oak tree contains parts of several layers, and is, by itself, a rich habitat element." (*Id.* at 34).

The Report also summarizes how oak woodlands provide a rich source of feeding for wildlife species:

> Martin et. al. (1951), in their classic study of wildlife food habits in the United States, found that oaks were fed upon by 96 species of wildlife, more than any other plant group. Wildlife browse leaves, twigs and flowers of oak, gnaw on bark and tender wood, and eat acorns, galls, lichens and mistletoe. Predators catch prey that live in and on oak trees. The list of plant foods, predators, and prey expands rapidly if we consider the entire oak stand or forest, not just individual trees. Associated tree species, shrubs, grasses, forbs, mushrooms and other fungi, all contribute to the rich feeding network provided by oak environments. Verner (1980) listed 45 species of birds that obtain insects from oak foliage, twigs, bark or wood; 9 species that catch aerial insects by launching from perches in oaks; 3 species that eat sap; and 2 species that eat the berries of mistletoe growing in oaks. Moreover, hawks and owls perch in oak trees to search for prey. (*Id.* at 36).

The most important single food supplied by oaks are acorns, which are considered to be as important as any forest wildlife food in the United States. (*Id.*) Acorns are an ideal food, providing rich stores of fat and carbohydrates in the fall when wildlife species in California strive to build extra fat stores

to survive the winter. Many California species are almost wholly dependant on seasonal supplies of acorns, including deer, black bear, wild pig, western grey squirrel, wild turkey, wood duck, and acorn woodpecker. (*Id.*) Acorns are especially important for deer in California, making up 75% or more of the diet when they are available. (*Id.*)

The importance of oak woodlands to wildlife is further illustrated by a 1993 California Fish and Game report which states:

> Justifying the importance of hardwood rangelands and implications to wildlife if these habitats are lost or severely degraded is analogous to what would occur to wildlife if other habitats, such as wetlands and riparian and old-growth coniferous forests, were substantially altered. (*See* Exhibit 40, p. 3).

Besides the abundant food resources, the report notes that:

> Hardwood rangelands provide many opportunities for breeding sites. Oak trees, in particular, because of their large trunks and branches, often dead and with cavities, are used by nesting birds.... Valley oaks in particular, provide important nesting habitat for a wide variety of birds, particularly large bodied birds such as raptors. (*Id.* at 6.)

3. Oak Woodlands Provide Many Benefits to Soil and Water.

Oaks also play an important role in stabilizing soil, maintaining nutrients, and reducing erosion runoff to streams in oak woodland habitats. A 1983 Hardwood Task Force found that "the harvesting of hardwoods can, and does, cause damage to soil and water related resources.... Resource damage occurs through soil erosion, stream bank degradation, degraded water quality, and sedimentation of spawning grounds or other destruction of water related resources." (*See* Exhibit 41, p. 27; *see also* Exhibit 40, p. 2 ("Increased erosion, flooding and turbidity; reduced water quality; and reduced amounts of wildlife habitat were the consequences of these extensive woodland losses."))

A 1991 Report prepared for the Board of Forestry found, where ground cover was reduced by grazing, oaks were an important factor in controlling the erosion observed on hardwood rangelands throughout California. (*See* Exhibit 42, p. 4-3) Oaks were also found to contribute to improved watershed conditions by contributing to higher water infiltration rates, soil fertility, and increased organic matter, compared to open grasslands without oaks. (*Id.*) The Report also found that due to the importance of oaks in nutrient cycling, the removal of oak canopy cover below 20% has adverse impacts on soil fertility. (*Id.* at 5-7). Overall, the Report confirmed the wealth of literature showing that the clearing of oak woodlands has the potential for significant negative impacts on soil stability, soil fertility, and water quality. (*Id.* at 3-7; Table 3-1.)

4. Oak Woodlands Are Being Lost Statewide and Locally.

Oak woodlands in California decreased by approximately 1.2 million acres from 1945 to 1985 from a combination of rangeland clearing, fuelwood cutting, and residential development. (*See* Exhibit 43, pp. 1-2.) The Board's 1993 Status Report on oak woodlands notes that "conversion of hardwood rangelands by land use change" was having the largest impact on the sustainability of the resource, but provides no numbers to gauge this impact. (*See* Exhibit 44, p. 5.) Since 1993, no state agency has attempted to assess the rate at which oak woodlands continue to be eliminated in California.

The evidence that does exist indicates that the declines are accelerating due to conversion to non-forestry land uses such as vineyard expansion or residential housing. This is particularly true in northern California counties. In Sonoma County, for example, between 1990 and 1997, researchers identified 11,600 acres of new vineyards, over 7,000 acres of which had replaced oak habitats. (*See* Exhibit 40, pp. 8-9). The accelerating loss of woodlands in these counties are only snapshots of what is happening throughout the state and, almost certainly, in Napa County. (*See, e.g*,. *Id.* at 8 (reporting that vineyard acreage statewide has more than doubled between 1990 and 1997); *Id*. at 9 (discussing expanding vineyard acreage in Mendocino and San Luis Obispo Counties.))

Unfortunately, despite the continuing loss of oak woodlands, most local jurisdictions, including Napa County, have not adopted mandatory ordinances regulating the harvest or conversion of oak woodlands (Santa Barbara County's Oak Tree Protection and Regeneration Ordinance being the lone exception). "Grading ordinances" such as those adopted in Napa and Sonoma Counties, for example, do not require any special protection for oak woodlands, outside of minimal erosion control. In Sonoma County, for example, researchers estimate that only 20% of new vineyard conversions will even require an erosion control plan. (*See, e.g.*, Exhibit 41, pp. 19-20.)

The continued cumulative impacts from loss of oak woodlands have the potential to fragment habitat for wildlife populations which occur there. For example, the 1983 Task Force commissioned by the Board of Forestry to assess the status of oak woodlands found that these oak woodlands were "part of clear migratory corridors or winter feed areas" that provide acorns and browse, which the Task Force described as "critical food sources." (*See* Exhibit 41, p. 61). To protect these valuable forest resources consistent with the Forest Practice Act, the Task Force recommended minimum basal retention areas of hardwoods based on the size of the timber operation, the current level of hardwoods on the site, and the importance of the wildlife habitat at issue. (*Id.*, at 62-63.) This need to protect habitat connectivity is emphasized by the 1998 Integrated Hardwood and Range Management Study study assessing the impacts of vineyards on the oak woodland environment. The study found that:

Habitat fragmentation is a major threat to the viability of many wildlife populations,

> and wildlife isolated in small patches of habitat is often in greater danger of localized extinction. The greatest risk is when small (less than 25 acre) (10-ha) regional woodlands are isolated from larger expanses of woodland. Chance events such as wildfires and epidemics can seriously impact these small woodland patches to a greater degree than larger blocks. Large mammals and raptors are especially sensitive to habitat fragmentation because they require large tracts of woodland in which to range. Extensive clearing of oak woodland should be avoided in the middle of contiguous woodland habitat, especially if the cleared area will lead to small isolated habitat islands. (*See* Exhibit 46, p. 12.)

Unfortunately, as discussed in the more recent 2000 study of vineyard expansion, habitat fragmentation is the norm in Northern California coastal counties. (*See* Exhibit 45, pp. 12-18.)

The possibility of habitat fragmentation and overall lack of information regarding the impacts to oak woodlands from vineyard conversions is particularly significant given the recent discovery of a pathogenic fungus, which has been decimating populations of oak species such as coast live oak and black oak in several coastal counties. (*See* Exhibit 47, p. 1.) Since oak woodland species are already under stress due to this disease, the environmental impacts from clearing healthy oak woodlands is likely to be even more significant on wildlife and the physical environment.

In order to provide sufficient information regarding the environmental setting to judge the significance of this forest conversion, the DEIR must provide information regarding the historic and current amount of hillside forest habitat, including oak woodlands, available in the region. In a recent Response to Comments document prepared by the County of Napa in relation to a new vineyard proposed for development in grassland habitat in southern Napa County, the County provided detailed information regarding both the historic and current amount of grassland habitat available in the County, and the percentage of that habitat that the project would eliminate. (*See* Exhibit 48.) The DEIR should do the same for oak woodlands.

As further support that the loss of over 121 acres of oak habitat is a significant impact, EDEN submits the attached report by Dr. Reed Noss entitled *Habitat Fragmentation as A Cumulative Impact of Winery Expansion and other Development in Napa County*. Dr. Noss details the type of information the County currently lacks in its assessment of the cumulative biological impacts of new vineyard conversion in the county. (Exhibit 49.)

Napa County, like Santa Barbara County has experienced a dramatic loss of oak woodlands due to vineyard conversions over the last 15 years. However, instead of turning a blind eye to the effect of vineyard conversions on oak woodlands, Santa Barbara County recently addressed the problem head on and passed a comprehensive oak tree protection and regeneration law. The law, known as "The County Deciduous Oak Tree Protection and Regeneration Ordinance" requires measures such as oak tree management plans which are required to:

> (1) Demonstrate how the mix of deciduous oak tree savannas, woodlands, and forests on the lot will be preserved, created, enhanced, restored, and maintained, so that:
> (A) The removal of protected oak trees does not divide the remaining savanna, woodland, and forest habitats into small, isolated fragments.
> (B) Protection, maintenance, restoration, and enhancement of large blocks of savanna, woodland, and forests are given priority over maintenance, restoration, and enhancement of smaller, more isolated habitat patches.
> (C) Valley and blue oak trees that link on- or off-site oak tree savannas, woodlands, forests, or other existing, proximate habitats are retained to the maximum extent feasible.
> (D) On-site replacement is given priority over off-site replacement except where no suitable on-site locations exist, or reasonable use of the lot would be precluded as determined by planning and development along with the oak tree specialist. In such cases the replacement oak trees may be planted in an off-site location acceptable to the applicant, the landowner and the oak tree specialist. For off-site replacement planting locations priority shall be given to nearby sites and to sites adjoining existing deciduous oak woodlands or providing links between deciduous oak woodlands.
> (E) There is avoidance of removal of actively used granary trees, raptor roosting or nesting trees, and trees in riparian and other wildlife corridors.

(Santa Barbara County Code, Chapter 35 Zoning, Article IX, Deciduous Oak Tree Protection and Regeneration.)

F. THE DEIR FAILS TO ANALYZE A REASONABLE RANGE OF PROJECT ALTERNATIVES.

The DIER analyzes only three alternatives. It should also include a "no grazing" alternative, since grazing is acknowledged to be a source of erosion and sedimentation. It should also include an alternative that requires improved grazing practices, as recommended by Dennis Jackson. (*See* Exhibit 15, pp. 102.)

Thank you for your attention to these comments.

Very truly yours,

Thomas N. Lippe

cc: Client

LIST OF EXHIBITS

1. June 28, 2005 Regional Water Board Napa River Sediment Total Maximum Daily Load Draft Technical Report ("Draft Technical Report").

2. National Marine Fisheries Service Endangered and Threatened Species: Threatened Status for Central California Coast Coho Salmon Evolutionary Significant Unit (ESU) Final Rule Fed. Reg. Vol. 61, No. 212, page 56138. October 31, 1996

3. National Marine Fisheries Service Endangered and Threatened Species: Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead Final Rule Fed. Reg. Vol. 62, page 43937. August 18, 1997

4. Napa River Basin Limiting Factors Analysis, prepared by Stillwater Sciences and Professor William Dietrich for San Francisco Bay Water Quality Control Board and California State Coastal Conservancy, June 14, 2002.

5. Cumulative Effects of Conversion of Upland Woodlands and Chaparral to Vineyards Report prepared by Robert R. Curry, PhD. December 24, 2000.

6. Expert Witness Report: Cumulative Impacts on Fisheries Resources from Intensive Viticulture Practices in Napa County, CA prepared by Robert R. Abbot, PhD., and Robert N. Coats, PhD. February 1, 2001

7. Water Availability Analysis: Policy Report: Napa County Department of Public Works, August 2003 (13 pages)

8. Department of Public Works, Water Availability Analysis (4 pages)

9. April 7, 1999 Memorandum from Napa County Planning Department and other County agencies to Planning Commission regarding General Plan Amendment relating to groundwater use and proposed Napa County groundwater ordinance (7 pages)

10. January 19, 1993 Memorandum from Napa County Water Advisory Committee to Napa County Board of Supervisors re Report of the Water Advisory Committee (21 pages)

11. February 27, 1991 Memorandum to Planning Commission from Jeffrey Redding, Director, re Public Works Department Report on Water Availability Analysis

12. January 1991 Water Resources Study for the Napa County Region (Napa County Flood

Control and Water Conservation District).

13. Mapping vineyard expansion provides information on agriculture and the environment, and Modeling Vineyard Expansion, potential habitat fragmentation, California Agriculture, May-June 2000, Volume 54, Number 3, p. 7 University of California, Division of Agriculture and Natural Resources.

14. Letter report dated January 21, 2007 from Dr. Robert Curry, PhD., Watershed Systems, to Thomas Lippe.

15. Letter report dated January 16, 2007 from Dennis Jackson, Hydrologist, to Thomas Lippe.

16. Letter report dated January 22, 2007 from Nicole Beck, 2ndNature, Inc., to Thomas Lippe.

17. Final Rule: Determination of Threatened Status for the Northern Spotted Owl [Endangered Species Act], U.S. Fish and Wildlife Service. Federal Register, Vol 55, No 123, June 26, 1990, p. 26114.

18. Kenwyn B. Suttle, Mary E. Power, Jonathan M. Levine, and Camille Mcneely, How Fine Sediment in Riverbeds Impairs Growth and Survival of Juvenile Salmonids, Department of Integrative Biology, University of California, Berkeley, California. *Ecological Applications*, 14(4), 2004, pp. 969–974.

19. Susan Kegley, Lars Neumeister, Timothy Martin, Disrupting the Balance: Ecological Impacts of Pesticides in California, Pesticide Action Network, 1999.

20. Mark Munn and Robert Gilliom, Pesticide Toxicity Index for Freshwater Aquatic Organisms, USGS, 2001, Water Resources Investigation Report No. 01-4077.

21. Kuivila, Kathryn M., Studies Relating Pesticide Concentrations to Potential Effects on Aquatic Organisms in the San Francisco Bay-Estuary, California, U.S. Geological Survey (1999).

22. Hazard Assessment of the Insecticide Chlorpyrifos to Aquatic Organisms in the Sacramento-San Joaquin River System, Department of Fish and Game, Environmental Services Division, Administrative Report 94-1, 1994.

23. Hazard Assessment of the Insecticide Diazinon to Aquatic Organisms in the Sacramento-San Joaquin River System, Department of Fish and Game, Environmental Services Division, Administrative Report 94-2, 1994.

24. R.D. Ewing, Diminishing Returns: Salmon Decline and Pesticides, Northwest Coalition for Alternatives to Pesticides, 1999.

25. C. Cox, Lethal Lawns: Diazinon Use Threatens Salmon Survival, Oregon Pesticide Education Network, 2000.

26. P. Lind, Poisoned Waters: Pesticide Contamination of Waters and Solutions to Protect Pacific Salmon Northwest Coalition for Alternatives to Pesticides, Washington Toxics Campaign, January 2002.

27. C. Cox, Diazinon: Ecological Effects and Environmental Contamination, Insecticide Fact Sheet, Journal of Pesticide Reform, Vol. 20, No. 3, Fall 2000.

28. C. Cox, Chlorpyrifos: Part 3: Ecological Effects, Insecticide Fact Sheet, Journal of Pesticide Reform, Vol. 15, No. 2, Summer 1995.

29. Janet Raloff, A Little Less Green? Studies challenge the benign image of pyrethroid insecticides. Science New Online, February 4, 2006.

30. The Quality of Our Nation's Waters: Pesticides in the Nation's Streams and Groundwater, 1992-2001, USGS Circular 1291, 2006.

31. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Sacramento Splittail, 64 FR 5963

32. Stillwater Sciences and W.E. Dietrich, 2002. Napa River Basin Limiting Factors Analysis. Final Technical Report prepared for San Francisco Bay Water Quality Control Board, Oakland, Calif., and California State Coastal Conservancy, Oakland, Calif. June 14, 2002.

33. Excerpt from Leidy, R.A., et al, 2005. Historical distribution and current status of steelhead/rainbow trout in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, pp. 213-249.

34. City of Napa's Draft Negative Declaration for Use of Copper to Control Aquatic Weeds at the Milliken Diversion Dam and Lake Hennessey, February 21, 2006.

35. Letter dated March 23, 2006 to Felix Riesenberg, City of Napa Department of Public Works from Thomas Lippe.

36. Letter dated March 22, 2006 to Thomas Lippe from Jeffrey Hagar, including Mr. Hagar's *curriculum vitae*.

37. Letter dated March 22, 2006 to Thomas Lippe from Dr. Nicole Beck, including Dr. Beck's *curriculum vitae*.

38. Letter dated March 22, 2006 to Thomas Lippe from Dr. Robert Coats, including Dr. Coats's *curriculum vitae*.

39. Status of the Hardwood Resource of California: A Report to the Board of Forestry, Revised September 8, 1986.

40. The Wildlife Values of California's Hardwood Rangelands and How Wildlife May be Impacted from Firewood Harvesting, Barret Garrison, California Department of Fish and Game, July 1993

41. California's Hardwood Resource: Preliminary Report of the Hardwood Task Force dated December 6, 1983.

42. Hardwood Rangeland Soil and Water Quality in California: Resource Assessment and Management, prepared by Jones & Stokes Associates, Inc., dated May 1991.

43. The Hardwoods of California's timberlands, woodlands and savannas, Bull. PNW-RB-148, by Charles L. Bolsinger, dated 1988.

44. Board of Forestry Hardwood Policy, Current Status of the Integrated Hardwood Range Management Program dated April 23, 1993, prepared by Board of Forestry and IHRMP Staff.

45. Mapping vineyard expansion provides information on agriculture and the environment, and Modeling Vineyard Expansion, potential habitat fragmentation, California Agriculture, May-June 2000, Volume 54, Number 3, p. 7 University of California, Division of Agriculture and Natural Resources.

46. Vineyards in an Oak Landscape, A. Merenlender & J. Crawford, University of California, Division of Agriculture and Natural Resources, 1998.

47. Oak Mortality Syndrome: Sudden Death of Oaks and Tanoaks, B. McPherson et. al., from "Tree Notes", California Department of Forestry and Fire Protection, No. 26, August 2000.

48. Excerpt from Suscol Springs North Vineyard Conversion Project, Response to Comments, draft, ECP#99-492, prepared by Lamphier-Gregory, January 2002.

49. Habitat Fragmentation as A Cumulative Impact of Winery Expansion and other

Development in Napa County, Dr. Reed Noss.

50. Excerpt from Deposition of Gerald A. Ahlstrom, Ph. D., called as a witness by Plaintiffs, California Oak Foundation and Mountain Lion Foundation in California Oak Foundation v. California Department of Forestry and Fire Protection, San Francisco Superior Court Case No. 314859.

51. Letter dated February 27, 2006 to Thomas Lippe from Dennis Jackson regarding Abreu Vineyard Conversion Project.

52. Suscol Spring North Vineyard Conversion Project, Review of Proposed Napa County Negative Declaration Application 99-492, Erosion Control Plan 99-492, by Dr. Robert R. Curry, Watershed Science Specialist, Registered Geologist, 12-23-2001.