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BY EMAIL

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Emergency and Domestic Programs Emergency Management
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Re: Comments on the United States Department of Agriculture's "Light Brown Apple Moth Sterile Insect Field Evaluation Project in Sonoma and Napa, California Environmental Assessment May, 2009"

Dear Ms. Johnson:

On behalf of North Coast Rivers Alliance ("NCRA"), Marin Mothers Against the Spray ("MOMAS") and many concerned individuals including Richmond Mayor Gayle McLaughlin, Santa Cruz City Councilman Tony Madrigal, Town of Fairfax Councilmember Larry Bragman, Stop the Spray Alameda County Coordinator Helen Kozoriz, Stop the Spray San Mateo County Chair Sharon Luehs, Stop the Spray Santa Cruz Coordinator Paulina Borsook, Stop the Spray Soquel Coordinator Isabelle Jenniches, Stop the Spray Pacifica Co-Chair Ashley Larsen, Pesticide Free Zone Boardmember Whitney Merchant, and Stop the Spray Marin Boardmember and former Fairfax Mayor Frank Egger (collectively, "NCRA"), we respectfully submit the following comments on the United States Department of Agriculture ("USDA") Animal and Plant Health Inspection Service's ("APHIS") environmental review document entitled "Light Brown Apple Moth Sterile Insect Field Evaluation Project in Sonoma and Napa, California Environmental Assessment May, 2009" ("EA"). This EA fails to comply with the National Environmental Policy Act ("NEPA") 42 U.S.C. § 4321 *et seq.*; APHIS' NEPA implementing procedures 7 C.F.R. § 372 *et seq.;* and the Council on Environmental Quality's NEPA Regulations, 40 C.F.R. § 1500 *et seq.*[1]

The EA is insufficient because it fails to examine the need for and the environmental impacts of the sterile insect technology ("SIT") project, and fails to examine the impacts of this proposed field-test when taken with other proposed USDA/APHIS actions against the Light Brown Apple Moth ("LBAM"), including future USDA/APHIS use of LBAM SIT. Although USDA/APHIS has issued this EA to examine the environmental impacts of the field test, it fails to fully address the impacts contemplated by the project. The statement of purpose for the field test is "to evaluate the interactions of sterile moths with other sterile moths and with wild LBAM, and to determine the release techniques that will maximize the success of SIT in LBAM eradication projects," yet USDA/APHIS has never attempted to examine the effects, much less the cumulative impacts, of the full-scale LBAM SIT program. EA at 4.

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[1]NCRA assumes that USDA/APHIS failed to mention the Council on Environmental Quality's NEPA Regulations as an oversight. EA at 5.

For these reasons as explicated below, we request preparation of an adequate EA and ultimately, because of the potentially significant environmental impacts of this project, a full EIS.

I. USDA/APHIS' Decision to Use Sterile Insect Technology Has Clearly Already Been Made, in Violation of NEPA

"Because the very important decision whether to prepare an EIS is based solely on the EA, the EA is fundamental to the decision-making process." *Metcalf v. Daley*, 214 F.3d 1135, 1143 (9th Cir. 2000) ("*Metcalf*"). When properly prepared, an EA provides the necessary analysis to allow an agency to examine whether its proposed actions would have significant impacts to the environment requiring additional analysis and review. 40 C.F.R. § 1508.9. "[T]he comprehensive 'hard look' mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made." *Metcalf, supra*, 214 F.3d at 1142. Therefore, an EA needs to be prepared before an agency's "irretrievable commitment of resources" to an action. *Id.* at 1143.

In USDA/APHIS' programmatic EA addressing the LBAM in California, the agency addressed SIT as a *potential* future technique to control the LBAM. USDA/APHIS, *Treatment Program for Light Brown Apple Moth in California, Environmental Assessment* (Feb. 2008), 2. Instead of providing analysis of SIT within the programmatic EA, USDA/APHIS indicated it would "issue a detailed discussion of [its] use and an analysis of [its] potential environmental effects will be prepared for public comment." *Id.*, at 5. USDA/APHIS, in declining to analyze SIT, also mentioned "several factors which must be considered before SIT can be used for LBAM, including designing, building, and operating an LBAM-rearing facility that can safely meet the production needs of an SIT program." *Id.*, at 18-19.

Prior to issuing this EA, USDA/APHIS already began rearing moths for the Sterile Insect Technology program in a facility in Moss Landing, California. EA at 7. USDA/APHIS has apparently already obtained a permit from the State of California for this laboratory rearing program, and for the moth's transport to Lawrence Livermore National Laboratory to be irradiated, *without* first completing this EA. *Id.*; EA at 7. USDA/APHIS explains that one purpose of the project is to "determine the release techniques that will maximize the success of SIT in LBAM eradication projects." Also, the EA states that with either the proposed alternative or the no-action alternative, USDA/APHIS will continue rearing moths in Moss Landing. EA at 7. This is because USDA/APHIS fully intended and intends to use the moths for SIT, whether at the proposed time and place or otherwise. It made this decision *before* preparing this EA.

USDA/APHIS decided to use SIT prior to its evaluation of the SIT program's effects on the human environment, a clear violation of NEPA. Although this EA purports to address the effects of the SIT field test, it neither properly addresses those effects nor does it address the effects of programmatic SIT use. For these reasons, the EA is insufficient.

II. The No-Action Alternative Proposes that USDA/APHIS May Take a Not-Yet Disclosed Alternative Action; Any Analysis of this Action Should Include All Reasonable Alternatives

The EA fails to identify and assess other action alternatives, and its no action alternative is impermissibly vague. USDA/APHIS describes the no action alternative as one where USDA/APHIS would not conduct the action at the location or time-frame proposed, but where it could propose to perform the field-test at a different time or place. EA at 7, 9. As previously noted, the agency indicates

that it will continue to rear moths at its Moss Landing laboratory under either option. EA at 7. Instead of including potential future actions within the no-action alternative section, USDA/APHIS should have addressed alternatives besides the proposed alternative and the so-called no-action alternative.

The Ninth Circuit has held that an EA will have appropriately analyzed alternatives "[s]o long as *all reasonable alternatives have been considered* and an appropriate explanation is provided as to why an alternative was eliminated." *Native Ecosystems Council v. U.S. Forest Service*, 428 F.3d 1233, 246 (9th Cir. 2005), emphasis added; *see also, Environmental Protection Information Center v. U.S. Forest Service,* 234 Fed.Appx. 440, 443 (9th Cir. 2007) ("However, in every case, the agency's duty under NEPA remains to consider all reasonable alternatives"). USDA/APHIS has left the details of any other possible site or time-frame to the public's imagination. Neither USDA/APHIS nor the public can determine, based on the EA, whether the other sites or time-frames are more beneficial to the environment. One can only assume that in the unlikely event that USDA/APHIS were to decide against the proposed action, the agency would then put forth another EA with the new plans. Its failure to do so would violate NEPA.

III. The EA Relies on Questionable Data Regarding LBAM Hosts and LBAM's Damage-Causing Potential, Rendering the No-Action Alternative Analysis Inadequate

Despite its presence in California for decades, to date there is no documented evidence that LBAM has caused any commercially significant crop damage. Although damage to one small field of berries was attributed to LBAM in June of this year, this claim has not been documented. Donna Jones, *Blackberry Grower Takes Loss from Light Brown Apple Moth*, San Jose Mercury News, June 16, 2009, *available at* www.mercurynews.com. Despite the LBAM's presence in at least seventeen counties in California, the absence of any documented damage calls into serious question the need for USDA/APHIS's and CDFA's eradication program. Clearly, the need for this program requires more thorough study than can be provided by an EA.

The single claimed incident of berry damage last month raises more questions than it answers. LBAM larvae are relatively unmarked and can resemble species such as *Choristoneura rosaceana* and *Argyrotaenia franciscana*." Marc Epstein & Todd Gilligan, *Epiphyas postvittana, in LBAM ID: Tools for Diagnosing Light Brown Apple Moth and Related Western U.S. Leafrollers (Tortricidae: Archipini)* (2009) *available at* http://keys.lucidcentral.org/keys/v3/LBAM /Epiphyas_postvittana.htm. Instead of confirming the identity of the larvae by rearing the live larvae to adulthood, larval identification is now being attempted via DNA extraction, which has not been 100% conclusive. The California Department of Food and Agriculture's ("CDFA") recently released LBAM report indicates that DNA sequencing for the LBAM requires more research. CDFA/ Plant Health and Pest Prevention Services, *2008 Report To The Legislature: The Light Brown Apple Moth Program*, 12-13 (2009). It is well known that California's blackberries are common targets of other leafroller moths including apple pandemis, omnivorous leafroller, and orange tortrix. M.W. Johnson et al., *Light Brown Apple Moth in California: quarantine, management, and potential effects*, UC Statewide IPM program: light brown apple moth, *available at* http://www.ipm.ucdavis.edu/PDF/PUBS/lbam091207.pdf. The damage-causing potential of the LBAM has never been evaluated in comparison to the damage caused by existing leafrollers which are not subject to eradication programs. To adequately address the environmental and economic impacts of a no-action alternative, USDA/APHIS should present a full analysis of the LBAM's actual potential for damage in relation to that of other similar "pests".

Against this backdrop, the EA appears to exaggerate the potential for harm from LBAM. It raises the specter of monumental, expansive damage to "well over 1,000 plant species and more than 250

fruits and vegetables" citing the CDFA's LBAM host-list. EA 1, 9. The LBAM host list promulgated in the California Code of Regulations at 3 CCP § 3591.20(b) is different from the list cited by USDA/APHIS. Neither list, however, is based on actual, documented usage, much less *damage*. The EA fails to provide sufficient information to determine the risks posed by the LBAM. Although the LBAM is polyphagous, it still exhibits host-preferences; both host-lists fail to acknowledge these preferences. Many plant hosts included are only "occasional" LBAM hosts. *See, e.g.*, USDA, APHIS, PPQ, *Pest I.D. 348*, Global Pest and Disease Database. To adequately address the environmental and economic impacts of a no-action alternative, a proper analysis would include consideration of these preferences.

IV. USDA Failed to Properly Evaluate the Environmental Impacts of the Proposed Alternative

USDA/APHIS' analysis of the environmental impacts of the proposed alternative is deficient. The analysis does not clearly address the impacts of the proposed moth releases on the environment posed by the distribution of insects, the potential inadvertent release of fertile or semi-sterile moths, and the dye used to track the sterile moths post-release.

A. The Proposed Alternative Does Not Address the Impacts Posed by the Distribution of Insects

USDA/APHIS' proposed alternative will include the release of insects from trucks and by fixed wing aircraft. The aircraft will fly "500 ft above the vineyard canopy" at either sunrise or near dusk. EA at 8. The EA does not analyze the impacts that low-flying aircraft may have on bat and bird populations in the area.

Studies have shown observable adverse effects in raptor populations from overflights as low as 150 meters (500 feet), the level at which the aerial moth release flights would occur. *See, e.g.*, R. A. Efroymson, W. Hodge, & R. S. Nemeth, *Ecological Risk Assessment Framework for Low Altitude Overflights by Fixed-wing and Rotary-wing Military Aircraft*, Environmental Sciences Division, Oak Ridge National Lab (2001), 56-62. Waterfowl are also impacted by overflights. *Id.* USDA/APHIS should disclose and assess this information, as well as information on impacts to mammals within the project area, while considering the environmental effects of the proposed project.

Although the agricultural land in the project area may already be subject to occaisional low-flying aircraft, the EA does not address the frequency or height of existing overflights, or how the existing overflights would compare to the proposed flights. Without this information, USDA/APHIS lacks the information necessarily to assess the impact of the proposed overflights.

USDA/APHIS has not addressed the potential impact of SIT release on pollinators within the project area, nor the potential impact of SIT on other moth species. Non-target species are attracted to the LBAM pheromone, and often appear in LBAM Jackson-traps. *See, e.g.*, USDA/APHIS, *Finding of No Significant Impact, Eradication of Isolated Populations of Light Brown Apple Moth in California, Sonoma*, 2 (Dec. 2008). USDA/APHIS does not address how these non-target species will interact with large numbers of sterile moths, including sterile females. Additionally, USDA/APHIS has not addressed whether the presence of large numbers of sterile moths will impact various pollinator species within the project area.

The SIT project proposes to release moths over the Huichica Creek, which drains into the San Pablo Bay, which supports substantial populations of migratory waterfowl as well as endangered populations of chinook and coho salmon and steelhead. EA at 5, 6. This creek is a territorial water of

the United States for the purposes of the Clean Water Act. 33 CFR § 328.3. Any discharge of pollutants into this creek, including the discharge of sterile moths, would be a discharge of pollutants for which USDA/APHIS should have a NPDES permit. 33 U.S.C. §§ 1311(a), 1342, 1362(6), 1362(14). Instead, USDA/APHIS dismisses the impacts of the moths on the creek, as further explained below. For these reasons, the EA simply does not adequately address the impacts of sterile moth distribution in the SIT program.

B. The EA Fails to Sufficiently Address the Methodologies of the Proposed Action

The EA only briefly describes, in the broadest language, the proposed action. USDA/APHIS' failure to include information regarding the field test parameters and methodology impedes the public's ability to provide informed and useful responses regarding the project's environmental impacts.

From the EA, it is unclear whether the field test will provide scientifically useful or reproducible results. This is because the EA fails to outline the proposed action's (1) measurement parameters and the statistical criteria for disaggregating changes in LBAM populations attributable to SIT versus other environmental factors; (2) use (or non use) of control plots for comparison between SIT and non-SIT behaviors; (3) treatment replications; and (4) plans, if any, to mitigate possible data confounding caused by variables such as high populations of moth predators or low populations of wild moths. Any reliance on the outcome of the field test may have unintended environmental consequences if the test is not conducted using the appropriate research methods.

C. The EA Fails to Fully Address the Reliability and Risks of Moth Sterilization and the Subsequent Release of these Moths

The EA does not provide a detailed description of the moth irradiation procedure. It instead indicates that the moths will be irradiated by an existing biological irradiator at the Lawrence Livermore National Laboratory, and briefly addresses some general procedural matters. EA at 7, 9, 11. Although APHIS' NEPA procedures have categorically excluded the production of sterile insects, an examination of the production technique would better inform both USDA/APHIS and the public about the proposed project and its potential impacts. Additionally, APHIS' NEPA regulations state that "[w]hen any routine measure, the incremental impact of which, when added to other past, present, and reasonably foreseeable future actions (regardless of what agency or person undertakes such actions), has the potential for significant environmental impact," an EA or EIS should be prepared. 7 C.F.R. § 372.5 (d)(1). For both these reasons, the EA should include more information about the SIT process.

According to the International Atomic Energy Agency, lepidopterans are "radio resistant" because the amount of radiation required to fully sterilize the moths is more likely to reduce their competitiveness in the field. *Inherited Sterility in Moths,* 60 Insect Pest Control Newsletter International Atomic Energy Agency 30 (2003). Female lepidopterans are much more susceptible to radiation than males; the dosage that sterilizes the females will only partially sterilize male moths. *Id.* If partially sterile male moths mate with wild females, the females produce offspring. *Id.* These offspring will feed in the environment and may grow to adulthood, even if they will not produce offspring of their own. *Id.*

USDA/APHIS' proposed field-test of the captive moths' competitiveness against their wild brethren is inherently also a test of the radiation dosage level. The competitiveness of captive moths is intrinsically connected to the sterilization procedure. C.O. Calkins & A.G. Parker, *Sterile Insect Quality. in Sterile Insect Technique: Principles and Practice in Area-Wide Integrated Pest Management* 269,

279-280 (V.A. Dyck et al. eds., 2005) (noting that male moths which are dosed at high enough levels to achieve 100% sterility have a lower response rate to non-mated female moths than moths which have not been fully sterilized).

The correct radiation dosage is critical to the success of a SIT program; depending on the number of insects dosed at a time, and the particular dosing technique, the exposure of each insect can vary. D.R. Lance & D. O. McInnis, *Biological Basis of the SIT, in Sterile Insect Technique: Principles and Practice in Area-Wide Integrated Pest Management, supra,* 69, 80-81. "In practice . . . there is a systematic pattern of dose variation within [each] canister, and therefore not all insects receive the same dose." A. Bakri et al., *Sterilizing Insects with Ionizing Radiation, in Sterile Insect Technique: Principles and Practice in Area-Wide Integrated Pest Management, supra,* 233, 243. Further, environmental dosing conditions such as oxygen exposure and temperature can affect the amount of radiation required to achieve sterility. *Id* at 250-251.

USDA/APHIS states that the appropriate dose of gamma radiation will be used to sterilize the moths, "selected by using data from other programs in which adult moths were sterilized." EA p. 11. "Published data on the radiation biology of the same or similar species can provide guidance, but, in many cases are of limited value because dosimetric procedures . . . dose distribution, and other pertinent information are often not reported." Bakri, *supra,* at 245. Although the EA states that the agency will first test the treated moth's mating with non-treated moths to insure proper gamma ray dosage, it does not include any specific information regarding long-term ongoing sterility monitoring. EA at 11. This type of regular monitoring is critical to "confirm that specified levels of sterility are being achieved." Bakri, *supra,* at 248.

The EA indicates that the proposed project will consist of the release of up to 1,400 moths per acre, per week, for approximately 27 weeks. EA at 8. As the project area is 3 square miles, or 1,920 acres, the EA contemplates the release of almost *72.6 million moths* over the length of the project period. USDA/APHIS asserts that all the moths will be sterile, because of properly calibrated dosing and the use of indicator tags to measure the radiation emitted. EA at 11. The EA does not address whether normal variations in dosage could allow some insects to be only partially sterile, or even fertile post-gamma ray exposure.

Even if only .01% (1 in 10,000) of moths remained partially fertile, and were released, that would still unleash *thousands* of non-sterile LBAM into an area that currently has a very low trap-catch. Any release of only partially sterile moths could lead to increased populations of LBAM larvae in and around the proposed project area.

The risk of fertile insect release is not unheard of. In 2003, one SIT program had "a sterilization accident . . . which resulted in the release of fertile flies [around the facility in Mexico] . . . as well as the transboundary shipment and aerial release of fertile flies" in multiple treatment locations. Jorge Hendrichs, *To the Reader,* 60 Insect Pest Control Newsletter International Atomic Energy Agency 2 (2003). Additionally, it seems that the medfly program within California has accidentally released fertile insects. Insect Pest Control Section, International Atomic Energy Agency, *Model Business Plan for a Sterile Insect Production Facility* Agency (2008), at 158. Although the likelihood of this accidental fertile insect release is low, the EA should still consider its impacts as a reasonably foreseeable event. Any release of fertile moths could, of course, completely defeat the purpose of the program, and introduce additional environmental impacts. For this reason, USDA/APHIS must provide additional analysis of these risks and impacts.

USDA/APHIS also failed to address the risk of SIT resistance, either though asexual response

caused by *Wolbachia* infection or through mating preference of wild-females. Although the risk of *Wolbachia* induced asexual reproduction is considered to be rare in SIT programs, the consequences of such an occurrence are severe enough to warrant investigation and discussion. M. Whitten & R. Mahon, *Misconceptions and Constraints, in Sterile Insect Technique: Principles and Practice in Area-Wide Integrated Pest Management, supra*, 601, 619. *Wolbachia* is a commonly found bacteria in insects, and has been found in other Lepidopterans. *E.g.*, E.A. Dyson et al., *Wolbachia infection associated with all-female broods in Hypolimnas bolina (Lepidoptera: Nymphalidae): evidence for horizontal transmission of a butterfly male killer*, 88 Heredity 166, 168 (2002). Without sexual reproduction, neither SIT nor mating-disruption would be an effective way to control or reduce moth populations and insecticide use might thus increase in areas where moth control is mandated.

In at least two instances, SIT programs have observed an evolved insect resistance to SIT. Lance & McInnis, *supra* at 85, Whittin & Mahon, *supra* at 619-620. In these instances, the wild females who mated with wild males instead of sterile males produced offspring which could differentiate and favor wild males over sterile ones. Lance & McInnis at 85. Because the evolution of SIT resistant insects would render SIT programs ineffective, it is imperative that USDA/APHIS discuss the possibility and the resultant impacts of such a resistance in any environmental analysis regarding SIT.

D. The EA Fails to Fully Address the Impact of Calco Red Dye

Although Appendix A of the EA purports to address the environmental impacts posed by the Calco Red Dye used in the proposed project, USDA/APHIS' analysis falls short. The EA downplays the amount of Calco Red that will be released in the environment; the EA expressed the amount only as between "0.26 to 0.52" grams per acre. The EA fails to mention that 1,920 acres will be affected by the program. Using USDA/APHIS' estimate that each of the approximately 72,576,000 moths released would contain a maximum of approximately .0132 mg of dye, the project will release 958,003.2 mg, or 958 grams, of Calco Red Dye into the environment within the project area.

Calco Red Dye, CAS No 4477-79-6, is also known as Calco Oil Red N-1700 or Solvent Red 26. CommonChemistry.com, Substance Details for 4477-79-6, *available at* www.commonchemistry.org. Its molecular formula is $C_{25}H_{22}N_4O$, and its structure can be expressed as 2-Naphthalenol, 1-[[2,5-dimethyl-4-[(2-methylphenyl)azo]phenyl]azo]-. *Id.* It is an azo dye, meaning that it is a dye that contains double-bonded nitrogen pairs.

Calco Red's ability to dye the "integument, fat bodies, and ovaries of adult moths" after its addition to larval feed indicates its persistence in Lepidoptera. EA at 3-4. The Canadian Environmental Protection Agency has classified Calco Red as a *persistent chemical* because it breaks down slowly. Canadian Environmental Protection Agency *Domestic Substance List CAS no. 4477-79-6*, http://www.ec.gc.ca/ CEPARegistry/subs_list/Domestic.cfm/ (last visited June 26, 2009).

Although the appendix notes that previous use of Calco Red has not established significant effects on marked insects themselves, the appendix does not address the specific effects of Calco Red on vertebrate insectivores. EA at A-1. Without information regarding the effects of the Calco Red on potentially affected organisms, or information regarding non-lethal negative effects, USDA/APHIS is left with an incomplete picture of the environmental effects of its actions.

The European Union classifies Calco Red as an azo dye which "split[s] into carcinogenic amines;" specifically, Calco Red breaks into o-Toluidine. *Opinion of the Scientific Committee on Cosmetic Products and Non-food Products Intended for Consumers Concerning the Safety Review of the Use of Certain Azo-dyes in Cosmetic Products*, at 27, COM (2002) 495 final (Feb. 27, 2002). The United

States Department of Labor, Occupational Safety and Health Administration lists o-Toluidine as a *known animal carcinogen*, and it is also regulated under CERCLA, the Clean Water Act, and RCRA. o-Toluidine, Chemical Sampling Information, http://www.osha.gov/dts/chemicalsampling/data/CH_272500.html, (last visited June 23, 2009); *see also* 40 C.F.R. §§ 302.4, 268.40. USDA/APHIS' EA fails to address the potential risks of releasing such a product into the environment.

Despite the EA's statement that Calco Red will not impact aquatic resources, dead moths will likely enter the small ponds within the project area. Additionally moths will enter Huichica Creek, which drains into the San Pablo Bay National Wildlife Refuge. As the moths are distributed throughout the project area, Calco Red will enter the food-chain via bats, birds and ground-based insectivores. The EA, however, fails to address the actual effects of Calco Red dye on these insectivores and the environment.

i. The EA's Analysis of Environmental Impacts of Calco Red Fails to Address Calco Red; Instead it Addresses the Lethal Toxicity of Related Compounds

Instead of examining the effects of Calco Red itself, USDA/APHIS relied upon acute toxicity data of related dyes. EA at A-1, A-2. The EA looks generally at the oral toxicity values of "most azo dyes." EA at A-1. In Australia, azo dyes are a "class of concern for their potential induction of mutagenicity and carcinogenicity. National Industrial Chemicals Notification and Assessment Scheme Full Public Report, MHD-64, 6 (2008) *available at* http://www.nicnas.gov.au/publications/car/new/ltd/ltdfullr/ltd1000fr/ltd1358fr.pdf (last visited June 22, 2009). Azo dyes often contain or degrade into aryl-amines. *Dye:: Azo Dyes*, in Encyclopædia Britannica (2009) *available at* http://www.britannica.com/EBchecked/topic/174980/dye. Aryl-amines are known to have cancer risks in both people and animals. *See, e.g., Cancer Research Highlights: Arylamines and Bladder Cancer Risk in Nonsmokers*, 1 National Cancer Institute Cancer Bulletin 5 (2004), *available at* http://www.cancer.gov/NCICancerBulletin/NCI_Cancer_Bulletin_101204.pdf

The EA also only addresses the median lethal toxicity figures for impacts to mammals and fish. EA A-1, A-2. Median lethal toxicity figures address the dosage of a substance which is expected to kill half of the population. Donald J. Ecobichon, *The Basis of Toxicity Testing* 43 (2nd ed. 1997). Absent from USDA/APHIS' analysis is any mention of non-lethal impacts to exposed species. EA at A-1, A-2. Since azo dyes and arylamines are known to have mutagenic properties, the non-lethal but still damaging effects of azo dyes like Calco Red should be addressed in USDA/APHIS' environmental analysis of the LBAM SIT program.

ii. The EA Fails to Properly Analyze the Effects of Azo Dyes on those Animals Most Likely to Consume Moths

USDA/APHIS relied on acute toxicity data for related dyes that only addressed limited mammalian species. EA at A-1. *The agency did not examine any toxicity data for birds*. EA at A-1. In the project area, close to and upstream from San Pablo Bay National Wildlife Refuge, there are many species of birds that feed on insects, including moths. Phoebes, swallows, larks, shrikes, vireos, wrens, starlings, chickadees, and bushtits, for example, are all local birds that feed on insects including moths. Birding Sonoma Valley, www.sonomabirding.org (last visited June 29, 2009).

The project counties are also host to multiple species of moth-eating bats. The hoary bat, *lasiurus cinereus*, which averages between 20-35 g., can eat up to forty percent of its weight at each feeding. S. Anderson, *Lasiurus cinereus*, Animal Diversity Web http://animaldiversity.ummz.umich.edu/site/accounts/information/Lasiurus_cinereus.html (last visited June 19, 2009). Additionally the Western Red Bat, *lasiurus biossevilli*, is found in the project area. The

Western Bat Working Group considers this bat to be a species of special concern due to habitat loss. Natureserve.org, *Lasiurus blossevillii,* Western Red Bat, *available at* http://www.natureserve.org/infonatura/servlet/InfoNatura?searchName=Lasiurus+ blossevillii (last visited July 1, 2009). USDA/APHIS' failure to examine the impacts of Calco Red upon these species of moth predators renders the EA incomplete. Without an adequate description of the project's impacts on the environment, the EA fails to serve its role as an informative document.

iii. USDA/APHIS Fails to Adequately Examine the Effects of Calco Red on Aquatic Resources

USDA/APHIS failed to properly analyze the potential impacts of Calco Red dyed moths on aquatic resources; it assumed that the dye would be diluted with the entire body of water, in a solution. EA at A-2. The dye will not dissipate evenly when introduced to a water body via moths; instead, the dye will be concentrated in the areas where the dead moths float. USDA/APHIS should have analyzed the effects of Calco Red on fish and other aquatic organisms that scavenge on floating organic matter, at the appropriate concentrations.

Instead, the EA indicates that "[i]mpacts to aquatic invertebrate detritivores are not expected to occur based on the low number of moths which could enter aquatic resources, the lack of effects of Calco Red to terrestrial invertebrates, and the lack of toxicity of similar dyes to water column aquatic invertebrates at environmentally relevant levels." EA at A-2. Because the EA does not adequately address the effects of Calco Red on aquatic and terrestrial invertebrates, this issue requires additional environmental analysis.

E. The EA Fails to Adequately Address the Impacts to Endangered Species

USDA/APHIS has not addressed the impacts to endangered species posed by the proposed action. USDA/APHIS instead indicates that it will not perform the action until it "has completed a determination of effects on listed species and their habitat in that area . . . and section 7 consultation with FWS and/or NMFS has been completed . . . ." EA at 13. Because USDA/APHIS has provided no information regarding endangered species besides this commitment to consult, the EA lacks sufficient information for the agency to make an informed decision regarding the SIT field-test.

V. The EA's Cumulative Impacts Analysis Is Grossly Insufficient

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. Even impacts that are insignificant when taken alone may, when viewed with these other foreseeable actions, become significant.

A "merely perfunctory cumulative impact analysis will not pass muster under NEPA." *Idaho Conservation League v. Bennett*, 2005 WL 1041396, 4 (D. Idaho 2005). Agencies may only properly analyze the cumulative impacts of a project when the agency possesses quantified, detailed information regarding that project, information which the agency provides to the public in an appropriate NEPA document. "A proper consideration of the cumulative impacts of the project requires some quantified or detailed information; general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Klamath-*

Siskiyou Wildlands Center v. Bureau of Land Management, 387 F.3d 989, 993-94 (9th Cir. 2004) (internal citations omitted).

There are two reasons why NEPA requires a high level of specificity in the data provided as the foundation for cumulative impacts analyses: first, the agency must be sufficiently informed to make an educated decision regarding the project's cumulative impacts, and second, the public must be assured that the agency was adequately informed. A cumulative impacts analysis must be "sufficiently detailed" in order to be "useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts and *must rely on some quantified or detailed information*." *Habitat Education Center v. Bosworth*, 381 F.Supp.2d 842, 851 (E.D.Wis. 2005) (emphasis added). Moreover, "[w]ithout quantified or detailed information, neither the courts nor the public . . . can be assured that the [agency] provided the hard look that it is required to provide." *Id.*

The scant paragraph in the EA entitled "Cumulative Effects" does not address any cumulative impacts at all. Instead, it declares that since there would be no significant environmental effects from the proposed action, there would be no cumulative effects either. This statement does not comport with the requirements of NEPA. *See Kern v. U.S. Bureau of Land Management*, 284 F.3d 1062, 1075 (9th Cir. 2002) (EA was inadequate when it performed no cumulative impact analysis of "reasonably foreseeable future actions" that could "constitute collectively significant actions" when taken with project); *see also, O'Reilly v. U.S. Army Corps of Engineers*, 47 F.3d 225, 235 (5th Cir. 2007) (EA invalid, failed to examine whether the individual effects when taken together would be "*cumulatively* significant").

The EA fails to consider any impacts of Sterile Insect Technology as an integral aspect of the Light Brown Apple Moth Eradication Program, yet the EA clearly connects that program to this action. EA at 4. USDA/APHIS must analyze the cumulative effects of the proposed action taken with the larger LBAM program. USDA/APHIS, *Treatment Program for Light Brown Apple Moth in California, Environmental Assessment* (Feb. 2008). USDA/APHIS has never examined the full scope and effect of the LBAM treatment program; both previous programmatic EIS do not adequately address the human health effects or environmental effects of USDA/APHIS' ongoing actions.

Cumulative impacts analyses must provide careful review of the effects of past, present and future projects and conditions in the area, together with the project's projected impacts. Any worthwhile cumulative impacts analysis should "examine whether the action is related to other actions with individually insignificant but cumulatively significant impacts." *Soda Mt. Wilderness Council v. Norton*, 424 F.Supp.2d 1241, 1266 (E.D. Cal.2006). In order to pass muster, cumulative impacts analyses in EAs must consider the "incremental impacts that can be expected" from each successive action in a series, and must also consider "how those individual impacts might combine or synergistically interact with each other" to affect the environment. *Oregon Natural Resources Council v. Bureau of Land Management*, 470 F.3d 818, 823 (9th Cir. 2006). Here, USDA/APHIS has failed to perform this function. EA at 12.

This is not the first time USDA/APHIS has overlooked this NEPA requirement. Its previous EAs likewise failed to address the cumulative impacts of the LBAM Program. In February 2008, for example, USDA/APHIS simply concluded that "[t]he use of these treatments over the duration of the eradication program is expected to result in minimal environmental effects," without providing any detailed, quantified information regarding the effects that would result from a shorter versus a longer treatment program. USDA/APHIS, *Treatment Program for Light Brown Apple Moth in California, Environmental Assessment* 34 (Feb. 2008). Then, as now, USDA/APHIS failed to provide any detailed or quantified information to support its statement that the program will have minimal environmental effects. Instead, USDA/APHIS favorably compared its program to a hypothetical alternative scenario, one for which no data is provided that would demonstrate its likelihood: "[t]he proposed coordinated eradication program

is likely to be more effective than relying upon the numerous, uncoordinated independent actions that would otherwise be taken by land managers when they felt it necessary" to combat the presence of LBAM. *Id.* This imagined outcome is insufficient both as a justification for the program, and as a demonstration that the program will not cumulatively impact the environment and human health. By failing to address the cumulative impacts of the LBAM program and SIT, USDA/APHIS has shown an ongoing disregard for its responsibilities under NEPA and to the American public.

Although the current EA does not address any cumulative effects, the existence of these potentially significant effects is clear. The reasonably foreseeable impacts of SIT used with the LBAM Program include both direct and indirect impacts.

Most SIT programs that have reported successful outcomes rely on pre-release population suppression to obtain the target ratio of sterile to wild insects. P. Nagel & R. Peveling, *Environment and the SIT, in Sterile Insect Technique: Principles and Practice in Area-Wide Integrated Pest Management, supra,* 499, 503. Like successful mating disruption, SIT is most effective when the wild population can be flooded, otherwise mating is not reduced by a significant margin. Population suppression is most-often achieved through pesticide release in the target areas. Pesticide use poses its own host of potentially adverse effects. None are disclosed. Pesticide suppression, regardless of the means, will have effects on non-target populations, including non-insect populations. Additionally, LBAM is susceptible to pesticide-resistance. Any cumulative impacts analysis that actually addresses the cumulative impacts of the SIT field test as a part of the bigger LBAM program should clearly address these factors.

Another impact that the EA fails to address is the widespread distribution of Calco Red that will result from the release of the captive insects. In order for the LBAM program's trap data to accurately monitor the spread of fertile LBAM, captive moths will require dye for the duration of SIT LBAM program. As mentioned above, the impacts of Calco Red to the food-chain require careful analysis and consideration; USDA/APHIS should make sure that it has all the information required to take a hard look at its environmental impacts in making a decision on the proposed project.

Further, although the EA briefly describes the methodology used to prevent non-sterilized moths from being released, the risk of releasing fertile moths through the SIT program exists, as explained above. As both USDA/APHIS and the California Department of Food and Agriculture have emphasized their planned reliance on SIT to manage this moth in California, it is necessary to address the potential cumulative effects of expanding this program outside the Field Evaluation Project. Likewise, any risk of evolved resistance to SIT is increased with its widespread use. USDA/APHIS' failure to address these effects renders the EA incomplete.

VI. USDA/APHIS Failed to Provide Sufficient Notice to the Public Regarding the Publication of the Environmental Assessment and the Comment Period

The NEPA regulations set forth by the Council on Environmental Quality ("CEQ"), which appear at 40 C.F.R. § 1500 et seq., apply to all federal agencies. 40 C.F.R. § 1507.1. These regulations require agencies to calibrate the intensity of their efforts to provide notice to the public with the relative significance and controversy of the environmental issue at hand.

40 C.F.R. § 1506.6 provides, in pertinent part, that

Agencies *shall:*

> (a) Make diligent efforts to involve the public in preparing and implementing their NEPA procedures.
> (b) Provide public notice of . . . the availability of environmental documents so as to inform those persons and agencies who may be interested or affected.
> . . .
> 3. In the case of an action with effects primarily of local concern the notice may include:
> (i) Notice to State and areawide clearinghouses pursuant to OMB Circular A- 95 (Revised).
> . . .
> (iii) Following the affected State's public notice procedures for comparable actions.
> (iv) Publication in local newspapers (in papers of general circulation rather than legal papers).
> (v) Notice through other local media.
> (vi) Notice to potentially interested community organizations including small business associations.
> (vii) Publication in newsletters that may be expected to reach potentially interested persons.
> (viii) Direct mailing to owners and occupants of nearby or affected property.
> (ix) Posting of notice on and off site in the area where the action is to be located.
> (c) Hold or sponsor public hearings or public meetings whenever appropriate or in accordance with statutory requirements applicable to the agency. Criteria shall include whether there is:
> 1. Substantial environmental controversy concerning the proposed action or substantial interest in holding the hearing.
> . . .
> (d) Solicit appropriate information from the public.

40 C.F.R. § 1506.6, emphasis added. It is of paramount importance to the integrity of the NEPA process that agencies fully involve the public during environmental review, in order for the public to provide relevant factual input. "Before a preliminary or threshold determination of significance is made the responsible agency must give notice to the public of the proposed major federal action and an opportunity to submit relevant facts which might bear upon the agency's threshold decision." *Hanly v. Kleindienst*, 471 F.2d 823, 836 (2nd Cir. 1972).

Courts have recognized that without such input, avoidable harm to the environment may result. Such "harm consists of added risk to the environment that takes place when governmental decisionmakers make up their minds without having before them an analysis (with public comment) of the likely effects of their decision on the environment. NEPA's object is to minimize that risk, the risk of uninformed choice." *West v. Sec'y of Dep't of Transportation*, 206 F.3d 920, 930 n. 14 (9th Cir. 2000)(internal quotations omitted).

USDA/ APHIS has failed to ensure that such avoidable harm will not result; it did not sufficiently alert the public as to its ability to review and comment upon the EA. No local notice was provided. If not for an offhand comment quoted within an article related to an entirely different part of the state, NCRA would not have learned of the EA until after the comment deadline. Additionally, the EA, as posted upon the USDA/APHIS webpage, is not included with other actions for 2009, and instead

is placed at the bottom of the page, below actions taken in 2007. Light Brown Apple Moth Environmental Assessments, http://www.aphis.usda.gov/plant_health/ea/lbam.shtml (as viewed June 16, 2009). A search of legal notice postings in local papers, such as the Santa Rosa Press Democrat, the Sacramento Bee and the San Francisco Chronicle failed to uncover any notice of this action. Although USDA/APHIS purported to provide such notice to "local newspapers," NCRA has been unable to locate such notice. Within the EA *itself*, USDA/ APHIS provided *no* information regarding the public's ability to comment, let alone a comment deadline.

USDA/APHIS failed to utilize many of the other means of public notice recommended by the regulations. It did not provide notice to state and area-wide clearinghouses such as the state's CEQAnet website. 40 C.F.R. § 1506.6(b)(3)(I); www.CEQAnet.gov. It also failed to follow the State's public notice procedures for comparable actions. 40 C.F.R. § 1506.6(b)(3)(iii). As best as NCRA could ascertain, USDA/APHIS did not provide notice through local newspapers of general circulation, nor did it provide notice through non-newspaper local media. 40 C.F.R. § 1506.6(b)(3)(iv), 40 C.F.R. § 1506.6(b)(3)(v). Similarly, USDA/APHIS did not provide notice to NCRA or other potentially interested community organizations (many of which, like NCRA, have previously submitted comments to USDA on prior LBMA EA's), despite the obviously controversial nature of this program. Under the NEPA regulations, it should have. 40 C.F.R. § 1506.6(b)(3)(vi).

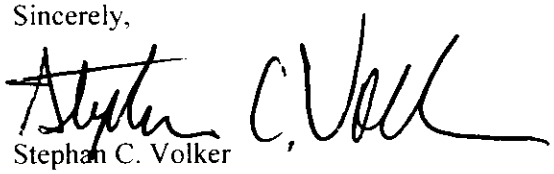
Moreover, USDA/APHIS failed to hold or sponsor public hearings or public meetings, an oversight given the increased public interest in LBAM. The burden that the LBAM's spread might impose (given current quarantine restrictions) on agricultural exporters alone creates substantial economic interests in any action that USDA/APHIS takes. There is considerable interest in and confusion and misinformation about the LBAM, and clearly "[s]ubstantial environmental controversy concerning the proposed action or substantial interest in holding the hearing." 40 C.F.R. § 1506.6(c)(1). Accordingly, a public hearing is warranted.

USDA/APHIS' failure to provide public notice clearly impedes its ability to gather the appropriate public input. It is incumbent upon USDA/APHIS to carefully and comprehensively solicit and review any information from the public relating to potential environmental and health hazards that may arise from Sterile Insect Field Evaluation, as well as the efficacy of Sterile Insect Technology to combat invasive species.

VII. Conclusion

For all of the foregoing reasons, NCRA respectfully objects to USDA/APHIS' deficient Environmental Assessment. In order to successfully fulfill its NEPA obligations, USDA/APHIS must provide adequate public notice and significantly revise and augment the EA. Thereafter, due to the potential for significant adverse environmental impacts, it must prepare an EIS for the Sterile Insect Technology Program.

Sincerely,



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