February 4, 2009

To: Tom Vilsack, Secretary of Agriculture
From: Pesticide Action Network North America
Re: LBAM Reclassification Petition

Dear Secretary Vilsack,

On behalf of Pesticide Action Network North America (PANNA), our members and affiliated organizations, as well as the 16 co-signers of this letter, we respectfully request that USDA reclassify the light brown apple moth (LBAM; *Epiphyas postvittana*) from an actionable to non-actionable pest.

Although LBAM itself poses minimal threat to California agriculture, the classification of LBAM as "actionable" and the resulting domestic quarantine have had significant negative ecological and economic impact. This petition highlights the scientific evidence and historical documentation regarding LBAM's effects in California and elsewhere, the review of which compels a revision of USDA policy regarding this moth. Many of the arguments reported here have been presented to the United States Department of Agriculture (USDA) in a petition submitted 12 September 2008 by Harder, Kimes, Upton and Casper.[1]

Since fall 2007 PANNA has closely followed the LBAM situation in California. Our position, related analyses and materials are publicly available at www.panna.org/resources/lbam. PANNA registered opposition to the California Department of Food and Agriculture (CDFA) LBAM aerial spray program and communicated support for redirecting LBAM control efforts towards safer solutions that are protective of human and environmental health. Research to identify safer and more effective control measures has led us to the conclusion that USDA's classification of LBAM as an actionable high-risk pest of quarantine significance is unnecessary for the protection of agriculture and native flora in California and is, in fact, detrimental to both.

Argument for Reclassification

We urge USDA to alter its classification of LBAM from a high-risk pest of quarantine significance to a low-risk pest, commensurate with the minimal level of threat LBAM poses to agriculture and natural ecosystems. This call for reclassification is based on two central claims: (1) eradication and quarantine measures are unnecessary, as LBAM poses no significant economic or ecological threat, and (2) quarantine measures and associated eradication efforts impose real and unnecessary economic hardship on growers, in many instances compelling pest control activities that constitute a further threat to human health and the environment. A third argument that we support, but do not discuss in detail here, referring instead to Harder et al. (2008), is that ample evidence suggests that eradication efforts are not likely to succeed.

1. Quarantine and Eradication are Unnecessary as LBAM Poses No Significant Economic or Ecological Threat

There is no evidence to suggest that LBAM has yet had or has the potential to have a detrimental impact on either agricultural crops or native flora and forests in California. Experts in entomology and invasive species suggest that LBAM has likely been present in California for decades with no notable damage resulting. Nor has LBAM as an invasive species been found to cause appreciable economic or ecological damage in other locations in which it has long been established. Furthermore, LBAM is unlikely to spread or increase significantly in population as it is effectively controlled by the abundance of natural predators and parasitoids in California and unlikely to reproduce successfully outside the mild coastal climate areas where it has been found. For these reasons, we conclude that a federal domestic quarantine and attempted eradication of LBAM in California are unnecessary.

a) USDA's classification of LBAM as actionable is based on outdated and incomplete information; newer, more appropriate data suggest that LBAM is well controlled by natural and introduced enemies and is not a serious threat.

USDA based its initial and subsequent classification of LBAM as a high-risk pest primarily on information presented in five review papers published from 1957 to 2007, which are analyzed in detail in Harder, et al. The Harder et al. reclassification petition points out that most of the arguments regarding potential LBAM damage were based on partial references from papers originating in Australia and New Zealand prior to 2000, when widespread use of organophosphate pesticides had eliminated effective population control of LBAM by its natural predators and parasitoids.[2] In addition, the 2003 review by Venette, et al., used by USDA to justify the high-risk classification for this insect, provides substantially erroneous climate preferences and distribution models for LBAM.[3]

Harder et al. reviewed the scientific literature of the past 40 years which indicates that LBAM mortality is as high as 90% to 99%. Much of that mortality is attributed to predation and parasitization, as reported in recent data from California, New Zealand and Hawaii.[4] In Hawaii at the higher, cooler elevations, which more closely approximate the climate along the California and New Zealand coasts, and where LBAM is predictably most prevalent, LBAM has been found on both blackberry and gorse. The lack of any appreciable damage to these preferred hosts is attributed to effective natural biological controls of LBAM.[5]

A recent report by Harder and Rosendale addresses the "problem" of LBAM in New Zealand—where LBAM has been an established exotic for more than a century and which has climate and crops much like California's coastal growing regions —and effectively demonstrates that eradication efforts are not necessary.[6] The authors found no evidence of environmental threat from LBAM in New Zealand and report that, in agricultural settings, "New Zealand horticulture and agriculture professionals so successfully use IPM strategies to manage LBAM that in more than 3,000 U.S. shipments of pome (pip) fruit in 2006, only six were rejected." These IPM strategies include natural predators and parasitoids, some use of insect growth regulators (IGRs), and regular population monitoring using pheromone traps, data from which are the basis for determining whether any action is needed (i.e., LBAM treatments are on an as-needed basis, and typically involve a single ground application of an IGR at most once per season).[7] These recent findings are consistent with what is reported in the LBAM literature of the past 40 years.

In California, Mills established that native *Trichogramma* wasps have displayed a high degree of parasitization of LBAM both in laboratory and field settings. Mills has also shown parasitization of LBAM larvae by *Meteorus trachynotus* and *Entyus eurekas*.[8] This suggests that, unlike other California tortricids that host only single parasitoids, LBAM is host to multiple parasitoids, and very possibly experiences greater levels of parasitoid-related mortality than the other tortricids. In California there are presently 325 species of tortricids, of which 75 are leafrollers, none of which are classified by CDFA as actionable class A pests, and all of which are easily managed in agricultural settings. Most of the IPM strategies already employed to control for other leafrollers in California will likely control LBAM as well if natural predation and parasitization are not sufficient to control it.

USDA assessment of LBAM as a potential threat in California failed to include any analysis of the natural levels of control already present in this state, the results of which would likely reveal an eradication program for LBAM to be unwarranted.

b) USDA's classification of LBAM as actionable is predicated on the incorrect conclusion that LBAM is a rapidly expanding recent introduction in California.

Recognized scientific authorities in California support the argument that, in contrast to USDA's assertions, LBAM is very likely not a new pest in California.[9] Rather, LBAM has more probably been in the state from one to three decades.[10] LBAM has a low rate of dispersal (i.e. maximum lifetime travel distance of 300 meters; typically 50 meters per year), yet is found in at least 15 counties in California with a combined area of more than 22,000 square miles. Thus, it is likely that LBAM populations were already well established in California by the time it was detected in 2006.[11] Perhaps most significantly, trapping data since 2006 do not show the large population increases projected by CDFA.[12]

The primary argument offered by CDFA to describe LBAM as a new introduction to California was the absence of LBAM in the limited trapping study conducted by USDA in 2005 when compared with trapping data from 2007. The number and distribution of traps used in 2005 were inadequate, covering a much smaller area with far fewer traps than were used in 2007. In 2005, Santa Clara and Santa Cruz counties were the *only* counties in California in which USDA conducted LBAM trapping with a total of only 20 traps. As pointed out in Harder et al. 2008, "With a relatively limited flight distribution from its site of emergence it would have been highly improbable that detection of LBAM in an area of 446 square miles (Santa Cruz County) could be accomplished with 20 traps." No traps were set in San Francisco County, the county in which CDFA's 2007 and 2008 trapping data show the greatest LBAM population densities. According to the USDA website, the 2007 study employed thousands of traps in more than 15 counties.[13] It is therefore not possible to compare 2005 and 2007 trapping data, nor is it possible to plausibly assert, based on the 2005 data, that LBAM was not present in California in 2005.

California trapping data are consistent with trapping data from Hawaii, where LBAM has been established for more than 100 years. Recent trapping counts in Hawaii have not exceeded 118 moths per trap and average about 30 moths per trap at the higher, elevations that are its preferred habitat. Even in the most favorable habitat areas there has been no record of significant damage to either crops or native flora in Hawaii.[14] In California CDFA data indicate much lower counts

per trap than in Hawaii, even in the California counties with the highest populations.[15] Here too, there has been no record of appreciable damage to date.

It is both likely that LBAM has already established a substantial presence in its preferred climatic range in California and very unlikely that LBAM would spread to other areas of the state such as the hot Central Valley due to the severe climatic restrictions of this species. LBAM prefers a temperature range from 15 to 25°C (59-77°F) with 70% humidity, but it cannot sustain populations when temperatures reach 29 to 31°C (84.2-87.8°F) or dip below 7.1° C (45°F).[16] This is supported both by the scientific literature on LBAM biology and by the empirical findings of current LBAM distribution patterns worldwide (occurring predominantly in cooler humid regions of Tasmania, Southeastern Australia, New Zealand, Hawaii, England and the California coast).

2. Quarantine and Eradication Measures Pose Real Economic Threats to Growers

The federally imposed international LBAM quarantine and associated eradication measures already implemented have themselves posed human health and environmental hazards and have created significant and unnecessary economic hardship for growers. Here we do not address the extensive public opposition to eradication measures. Rather, we focus on the economic impact of quarantine measures on growers.

a) LBAM eradication efforts and quarantine enforcement have already adversely affected California agriculture.

Unlike LBAM itself, the 2007 federal domestic quarantine for LBAM has caused unnecessary financial loss to California growers and nurseries due to shipment restrictions, forced closures and excessive handling of delicate produce during inspection procedures. The quarantine has further mandated or otherwise compelled the excessive and contra-indicated application of organophosphates to nursery stock and field crops. Although CDFA has more recently allowed for the alternative application of Spinosad in combination with horticultural oil by organic growers, this newer protocol still requires the blanket spraying of the entire nursery or field if even a single LBAM larva is found. This overly aggressive measure eliminates the beneficial insects that would naturally control LBAM, perpetuating indefinitely the need to use chemical controls and forcing growers to incur additional, unnecessary costs.

A story cited in a recent issue of *The Ecologist* illustrates organic growers' experience with LBAM and the associated quarantine regulations: "Steve Munno is an organic farmer at the Center for Agroecology and Sustainable Food Systems at the University of California, Santa Cruz. Though the moth is on his farm, he says it has done no damage to his crops or those of other organic farmers he knows.[17] The LBAM, Munno says, is 'just another insect', and one that organic farmers are well-equipped to deal with. 'What is causing economic damage to farmers,' he says, 'is the time they must spend dealing with the bureaucracy of the LBAM program and examining their crops for moth larvae. This involves excessive handling, which with a delicate crop such as strawberries, can make it unsaleable'….Some farmers have had produce quarantined, and are forbidden even from selling it locally in case it is shipped out of state. There is no compensation."

b) The LBAM quarantine hurts growers in Hawaii as well as in California.

In Hawaii, where LBAM has been present for more than 100 years, no management program of any kind had ever been implemented for this moth prior to the 2007 domestic quarantine. Despite LBAM's conspicuous lack of significant damage to either Hawaii agriculture or flora, the 2007 federal domestic quarantine, now requires growers to incur additional costs in obtaining LBAM certifications. In some cases this has led to the loss of growers' ability to ship to long-established trade partners.[18]

c) Key international trading partners respond to USDA and have indicated willingness to modify their LBAM positions.

USDA has maintained that a primary reason for the federal domestic quarantine for LBAM is to ensure continued trade with partners such as Canada and Mexico. These trading partners have issued phytosanitary advisories for LBAM, primarily to maintain access to U.S. markets. In fact, they crafted their LBAM policies in response to the long-held USDA zero-tolerance policy (established in the mid 1980s, following the afore-mentioned 1984 USDA risk assessment for LBAM) and international quarantine against LBAM.

Both countries have indicated an openness to modifying their positions on LBAM were the U.S. to take the lead in revising the classification of this minor pest.[19] There is, therefore, neither trade nor scientific basis for a continued LBAM quarantine.

We urge you to give thoughtful consideration to the information provided herein and to reclassify the light brown apple moth before more damage is done to human health, the environment, or the economic welfare of farmers. Please keep us informed regarding your deliberations.

Respectfully submitted,

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State Senator Abel Maldonado
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1 Harder et al. Light Brown Apple Moth (LBAM) Eradication Program: Formal Petition to Reclassify LBAM as a Non-actionable Pest. Petition submitted to CDFA and USDA September 12, 2008

2 Harder et al., pp20, 35-36, 44.

3 Venette RC, Davis, EE DaCosta M, Heisler H, Larson M. 2003. Mini Risk Assessment. Light brown apple moth, Epiphyas postvittana (Walker) [Lepidoptera: Tortricidae]. USDA CAPS PRA.

4 Harder et al., pp34-35; Appendix 1 p89; Bernarr R. Kumashiro, personal communication (2008), Insect Taxonomist, Hawaii Dept. of Agriculture.

5 Reimer, personal communication (see endnote #14).

6 Harder, D. and J. Rosendale. March 2008. Integrated Pest Management Practices for the Light Brown Apple Moth in New Zealand: Implications for California. White Paper by D. Harder, Director of the University of California at Santa Cruz Arboretum and Adjunct Professor in the Department of Ecology and Evolutionary Biology; and J. Rosendale, grower and horticultural consultant, Monterey and San Francisco Bay Area.

7 Due to environmental health concerns we do not support aerial applications of IGRs or Bacillus thuringiensis. However, we do recognize that both of these tools could be important elements in a responsible and effective ground-level control program in agricultural areas. We also note that IGRs are highly acutely toxic to aquatic invertebrates and not permitted for use in organic production.

8 Mills NJ. 2008. Biological control: Exotic parasitoids. Presentation at a conference on research priorities for light brown apple moth: Priorities, importance, and control. July 22-24, 2008. Foster City, CA.

9 Statement by Prof. James Carey, Professor of Entomology and Invasive Species Expert, March 7, 2008.

10 Harder et al., p22.

11 Harder et al., p47.

12 Harder et al., p48.

13 USDA Animal and Plant Health Inspection Service. http://www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/updates.shtml

14 (a) Kumashiro, personal communication (see endnote # 5); (b) Domingo Cravalho, Jr., personal communication (2008), Inspection and Compliance Section Chief, Hawaii Depart. of Agriculture, Plant Quarantine Branch; (c) Neil Reimer, personal communication (2008), Plant Pest Control Branch Chief, Hawaii Depart. of Agriculture.

15 CDFA website. Light Brown Apple Moth Project: Situation Reports. http://www.cdfa.ca.gov/phpps/pdep/lbam/situationreports_2008.html. 27 Jan 2009.

16 Harder et al., pp38-39.

17 Robinson, Claire. Moth Balls, The Ecologist, September 2008. www.theecologist.org.

18 Cravalho, personal communication (see endnote #14); Reimer, personal communication (see endnote #14).

19 Harder et al., p13.