



United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

1400 Independence  
Avenue, SW  
Washington, DC  
20250

December 29, 2009

(b)(6)

Executive Director  
South Carolina Nursery & Landscape Association  
332 Sunward Path  
Inman, South Carolina 29349

Dear (b)(6)

Thank you for your letter of December 16, 2009, to Mrs. Cindy Smith requesting approval of the special needs request (SNR) submitted by South Carolina on November 24, 2009. Mrs. Smith has asked that I respond on her behalf.

On March 6, 2009, the Animal and Plant Health Inspection Service (APHIS) received two SNR's regarding the Federal regulatory programs for the light brown apple moth (LBAM) and sudden oak death (SOD) submitted by 11 southern States and the territory of Puerto Rico. The State of South Carolina was included in that initial request. On September 21, 2009, APHIS notified the States and the territory of Puerto Rico that these requests did not meet the criteria listed in the SNR Regulations (7 CFR Part 301.1).

APHIS then received an additional SNR for SOD from (b)(6) Assistant Department Head of the South Carolina Department of Plant Industry, dated November 24, 2009. While LBAM may be of concern to South Carolina, it has not yet been submitted as a SNR to APHIS. I have asked my staff to give this recent SNR for SOD from the South Carolina Department of Plant Industry an expeditious review so we may make a determination about whether or not it meets the criteria set forth for a SNR. I am hopeful this determination can be made within the next several weeks.

I appreciate your interest in ensuring that we have the strongest program possible in place.

Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



*Safeguarding American Agriculture*  
APHIS is an agency of USDA's Marketing and Regulatory Programs  
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March 17, 2010

Ms. Rebecca Bech  
Deputy Administrator for  
Plant Protection and Quarantine  
USDA-APHIS  
Jamie L. Whitten Federal Building  
14<sup>th</sup> Street and Independence Avenue, SW  
Room 301-E  
Washington, DC 20250

Dear Ms. Bech:

The purpose of this correspondence is to transmit a Special Need Request for the State of South Carolina regarding light brown apple moth (*Epiphyas postvittana*) as permitted under the Plant Protection Act (PPQ, 7 U.S.C. 7701).

This special need request is based on sound scientific data and clearly details risk assessments documenting that the subject insect does not currently exist in South Carolina. The document also illustrates how the introduction and establishment of light brown apple moth would harm the environment and agricultural industries of South Carolina, and cause economic damage through loss of trade revenues. The petition also describes a unique agricultural crop and ecosystem in South Carolina that are particularly vulnerable to *Epiphyas postvittana*. Finally, the importance of forestry and agriculture to South Carolina's economy is discussed.

Should you need additional information relating to this submission, please feel free to contact me. I sincerely appreciate the opportunity to submit this special need request to you for review and prompt action.

(b)(6)

Assistant Department Head  
864-646-2135  
(b)(6)@clermson.edu

#### Attachments

c:

(b)(6)



## **South Carolina Petition for Special Need Request to USDA APHIS PPQ Regarding Light Brown Apple Moth, *Epiphyas postvittana* (Walker)**

**This petition is organized according to “Special Need Requests Under the Plant Protection Act”, 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). Following the specific data required by that process, the following is presented with respect to the USDA-APHIS-PPQ *Epiphyas postvittana* regulations and mitigation measures:**

- I. Inadequacy of the Current Mitigation Measures for Nurseries and**
- II. Recommendation to Impose Prohibitions or Restrictions on the Movement in Interstate Commerce of Specific Articles that are in Addition to the Prohibitions and Restrictions Imposed by APHIS PPQ**

USDA APHIS PPQ amended its domestic quarantine regulations to establish a process by which a State could request approval to impose prohibitions or restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by APHIS PPQ. The Plant Protection Act provides that States may make such special need requests. The process is described in “Special Need Requests Under the Plant Protection Act,” 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). All special need requests must be submitted to the Deputy Administrator for Plant Protection and Quarantine, APHIS, USDA, Jamie L. Whitten Federal Building, 14<sup>th</sup> Street and Independence Avenue, SW., Room 301-E, Washington, DC 20250.

Specific criteria for Special Need Requests are identified in §301.1-2 Criteria. These five elements are listed below, along with commentary specific to South Carolina’s petition for change.

- 1) *Data drawn from a scientifically sound detection survey, showing that the biological control organism, noxious weed, or plant pest of concern does not exist in the State or political subdivision or, if already present in the State or political subdivision, the distribution of the biological control organism, noxious weed, or plant pest of concern;*

Current known distribution of the *Epiphyas postvittana* is available at: <http://pest.ceris.purdue.edu/searchmap.php?selectName=ITBUBPA> and <http://www.cdffa.ca.gov/phpps/PDEP/lbam/quarantine.html>. In 2008, USDA APHIS PPQ conducted a national detection survey for light brown apple moth to demonstrate areas free of the insect and to find any additional areas that might be infested. To date, no state outside of California in the continental U.S. has been found to have any population of LBAM. The methodology involved in surveying for LBAM involved an evaluation of states that would be considered to have crops that would be high to medium risk and also to look at nursery stock. The criteria utilized in surveying for LBAM in nurseries were to look at nurseries that received stock from California first. The results of the national light brown apple moth survey confirm the absence of LBAM in states other than California. These data are reported as entered into NAPIS in: <http://pest.ceris.purdue.edu/pdf/pdfdata.php?pestcode=ITBUBPA&startdate=20070101>

USDA APHIS PPQ and the Clemson University Department of Plant Industry (DPI) have conducted nursery and orchard surveys for light brown apple moth (LBAM) for two years with no detection of the insect in nursery stock, peach fruit or foliage, or the environment.

Beginning in 2008, two types of surveys for LBAM have been conducted in South Carolina. USDA APHIS PPQ in SC conducted an LBAM survey at nurseries that purchase plant material from California, recording 369 negative observations. South Carolina and Georgia peach growers have collaborated in an effort to develop an export market to Mexico for peaches from both states. To confirm the absence of target pests, the Clemson University Department of Plant Industry conducted an intensive insect trapping survey at commercial peach orchards in South Carolina. Targeted insects included LBAM among other pests of concern to Mexico. From 2008 to 2009, no LBAM have been detected in 396 observations in peach orchards. Data from the 2008 survey are presented in Horton et. al. (2009). South Carolina LBAM surveys will be repeated in 2010 in order to confirm that the insect is not present in this state.

- 2) *If the biological control organism, noxious weed, or plant pest is not present in the State or political subdivision, a risk analysis or other scientific data showing that the biological control organism, noxious weed, or plant pest could enter the State or political subdivision and become established;*

The 2009 Light Brown Apple Moth National Survey Guidelines state that South Carolina is in the “High Risk” category. High risk states are states that are at an increased risk of introduction of LBAM due to climate and/or major crops of production. According to the authors, LBAM would have abundant host commodities in South Carolina, and would always have the degree-days required to pass through five generations in a season. [http://origin-www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/lba\\_moth/downloads/lbam-natlsurveyguidelines.pdf](http://origin-www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/downloads/lbam-natlsurveyguidelines.pdf)

Evidence that LBAM could become established in South Carolina is provided by Vennette et. al. (2003). The authors state that, “Based on the distribution of climate zones in the U.S., we estimate that approximately 80% of the continental U.S. may be climatically suitable for *E. postvittana*.” Should light brown apple moth enter South Carolina, the insect could become established on the large number of hosts present in this state’s favorable environment. [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/download\\_s/prae/postvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/download_s/prae/postvittanapra.pdf)

The two documents referenced above were developed for or by USDA APHIS, and indicate that South Carolina is at risk for both the introduction and establishment of light brown apple moth.

- 3) *Specific information showing that, if introduced into or allowed to spread within the State or political subdivision, the biological control organism, noxious weed, or plant pest would harm or injure the environment or agricultural resources in the State or political subdivision. The request should contain detailed information, including quantitative estimates, if available, about what harm or injury would result from the introduction or dissemination of the biological control organism, noxious weed, or plant pest in the State or political subdivision;*

In 2003, Venette et. al. considered light brown apple moth highly likely to become established in the United States. The consequences of LBAM establishment were judged to be serious for agricultural and natural ecosystems. *E. postvittana* is a pest of economic importance to many ornamental and fruit crops throughout its range. Feeding by the larvae deforms, stunts, or destroys seedlings, which results in economic damage. It also spoils the appearance of ornamental plants and injures tree and small fruit crops. Chemical control of *E. postvittana* is difficult because of its leaf-rolling ability, and because there is evidence of resistance due to overuse of sprays in Australia and New Zealand.

The Mini Risk Assessment by Venette et. al. (2003) rated the economic impact potential to be high. Bailey et. al. (1995) report that in southern Australia in 1992, 70,000 LBAM larvae/ha were documented, which caused a loss of 4.7 tons of chardonnay fruit. Damage in the 1992-93 Chardonnay season in the Coonawarra region of Australia cost \$2,000/ha, with mature larvae the most difficult stage to control (Lay-Yee et. al., 1997). Each larva can destroy up to 30 g of mature grapes (Bailey, 1997). Damage to apples appears as either pinpricks up to about 3 mm deep into the fruit, or entry holes extending deeper than 3 mm into the fruit that leave some frass and webbing at the surface (van Den Broek, 1975). The first generation (in spring) causes the most damage to apples while the second generation damages fruit harvested later in the season (Terauds, 1977). Some varieties of apples such as 'Sturmer Pippin,' 'Granny Smith,' and 'Fuji' can have up to 20% damage (Suckling and Ioriatti, 1996), while severe attacks can damage up to 75% of a crop (USDA, 1984). Peaches are damaged by feeding that occurs on the shoots and fruit (Lo et. al., 1995). Feeding damage in fruit of many host plants provides entry points to pathogens which can cause secondary damage. An example is *Botrytis cinerea*, which causes grey mold on grapes (Nair, 1985).

Fowler et. al. (2007) provided additional information in their economic analysis of the risk from the light brown apple moth to U.S. apple, grape, orange, and pear production. Their analysis had two components: 1) a geospatial analysis of the United States to identify areas at risk for LBAM introduction based upon host and climate, and 2) a quantitative analysis estimating the economic losses due to LBAM if introduced to the identified areas. Trade effects were not considered. Their analysis indicated that LBAM could become established throughout the majority of the United States with the west coast, southwestern, and southeastern States at the highest risk. The quantitative model estimated that if LBAM were introduced in the at-risk areas, the mean annual costs would be \$105 million. The combined results of the geospatial and quantitative analyses showed that

significant economic losses due to LBAM would occur throughout the U.S. The authors note that, because LBAM is highly polyphagous, additional economic damage would occur to other crops, as well as to domestic and international trade. The fact that LBAM hosts include common nursery stock, the nursery trade would provide a pathway for introduction of the pest to uninfested areas outside of currently-quarantined areas. This is corroborated by USDA APHIS in its Treatment Program for Light Brown Apple Moth in California, Environmental Assessment (2008), which speculates that the movement of nursery stock is responsible for the spread of LBAM throughout the quarantined areas of California.

In addition to direct losses from crop damage and control costs, the economic impact from the loss of trade revenues is an indirect cost of light brown apple moth. The presence of light brown apple moth has prompted domestic and foreign trade limitations from the quarantined counties in California. In 2007, both Mexico and Canada imposed restrictions on the movement of plants and crops grown in the LBAM quarantined counties of California in an effort to prevent the movement of the insect to those countries. Chile followed with similar trade restrictions in 2008 (CDFA, 2008; USDA, February 2008; USDA, May 2008). Many countries, including Korea, China, Peru and South Africa, list light brown apple moth as a quarantine pest and may require certification verifying that certain host commodities are pest-free (Varela et. al., 2008). Implementation of quarantines by other countries, as well as other states, was a concern expressed by the California Department of Food and Agriculture in its 2008 Report To The Legislature: The Light Brown Apple Moth Program (CDFA, 2008).

Agriculture and Forestry in South Carolina together have an impact of nearly \$40 billion per year to South Carolina's economy. Traditional agriculture and forestry combined form the "agribusiness" industry, which represents the largest sector of the state's economy (The Economic Impact of the Agribusiness Industry in South Carolina, 2008). The direct economic impacts of important agricultural commodities include timber at \$870 million annually (Attachment 1) and greenhouse/nursery/floriculture at \$271 million annually (Attachment 2). The complete host list for light brown apple moth is extensive and contains over 2,000 plant species, including many common forest trees, nursery plants, and food crops. South Carolina plants on the LBAM host list include forest trees such as oaks, pines, and cypress; food crops such as peaches, strawberries, blueberries, and tomatoes; and numerous ornamentals, including the South Carolina state flower, the Carolina jasmine. Examples of those common hosts include oaks, roses, camellias, *Viburnum* sp., and *Rhododendron* sp. (USDA, February 2008).

Reports from New Zealand reveal that light brown apple moth causes a 5 to 20 percent crop yield loss (USDA, May 2008). Using the New Zealand crop loss results, South Carolina's agribusiness industry could experience extreme losses each year if LBAM were to become established in SC. The annual direct loss in

the greenhouse/nursery/floriculture industry alone could reach as high as \$54 million. Economic loss in forestry could reach \$174 million annually, not including loss of jobs and impacts on related industries such as sawmills and manufacturing.

The South Carolina peach crop is the crop most at risk from light brown apple moth. South Carolina ranks second to California in peach production in the United States. Over 1000 workers across South Carolina are involved in the production, harvesting, packing, transporting, and sale of peaches, which is the number one fruit crop in the state. The farm gate value of the SC peach crop is more than \$50 million annually. The introduction and establishment of LBAM into the SC peach crop could cause direct losses as high as \$10 million annually (Martin Eubanks, South Carolina Department of Agriculture, Personal Communication, 2010).

Loss of trade revenues would be an additional economic impact from the presence of LBAM. Since 2008, South Carolina and Georgia peach growers have collaborated in an intensive effort to develop an export market to Mexico for peaches from both states. South Carolina and its peach industry cannot afford to jeopardize the years of survey and negotiation that have been invested into this program by neglecting to take every possible precaution to prevent the introduction of LBAM into this state.

Should light brown apple moth become established in South Carolina, it would directly and detrimentally impact the most important industry in the state. In addition, it could devastate the most significant plant agriculture sectors: forestry, the greenhouse/nursery/floriculture industry, and the peach industry.

- 4) *Specific information showing that the State or political subdivision has characteristics that make it particularly vulnerable to the biological control organism, noxious weed, or plant pest, such as unique plants, diversity of flora, historical concerns, or any other special basis for the request for additional restrictions or prohibitions;*

The document, “Mini Risk Assessment Light brown apple moth, *Epiphyas postvittana* (Walker) [Lepidoptera: Tortricidae]” (Venette et. al., 2003) evaluated such factors as ecological suitability, host availability, entry potential, and establishment potential to determine the risk of LBAM entering and becoming established in the United States. It is noteworthy that *Epiphyas postvittana* has a host range in excess of 2000 plant species of 120 plant genera in over 50 families with a large number of them present in South Carolina. In the host plants listing in “Host Specificity/Availability”, over 90% of the host plants are grown in South Carolina, either in commercial production or in backyard gardens.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/praeostvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/praeostvittanapra.pdf)

In the listing of 147 horticultural and 51 agricultural host plants on the California Department of Food and Agriculture's website, again over 90% of the host plants are grown in South Carolina.

[http://www.cdfa.ca.gov/phpps/PDEP/target\\_pest\\_disease\\_profiles/LBAM\\_HostList.pdf](http://www.cdfa.ca.gov/phpps/PDEP/target_pest_disease_profiles/LBAM_HostList.pdf)

Both Venette et. al. (2003) and Fowler et. al. (2007) determined that *Epiphyas postvittana* could establish throughout the majority of the conterminous United States. This establishment range included the majority of the growing area for the analyzed crops, and the entire state of South Carolina.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/lba\\_moth/downloads/lba\\_mecconomicanalysis.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/downloads/lba_mecconomicanalysis.pdf)

As stated in Element 3 above, the host list for LBAM is extremely wide and includes a vast array of crops, native plants, and ornamentals. In fact, the host range is so broad, and includes so many plants, that the list of regulated articles in the federal order is defined by exemptions to the regulation, rather than by the regulated articles themselves. Regulated articles, which may not be moved interstate from a quarantined area except in accordance with the federal order, are nursery stock, cut flowers, garlands, wreaths or greenery of any plant, cut trees and shrubs (including Christmas trees), green waste, fruits and vegetables (see exemptions), green hay, bulk fresh herbs and spices. The list of regulated articles also includes “[a]ny other products, articles, or means of conveyance of any character whatsoever, when it is determined by an inspector that they present a hazard of spread of LBAM” (USDA, 2007).

Of the nationally-ranked South Carolina crop commodities (Attachment 2), only peaches, cucumbers, and cantaloupes have been determined specifically to be hosts of *Epiphyas postvittana* (Venette et. al., 2003; USDA, February 2008). However, peanuts and tobacco may prove to be hosts if they are exposed to LBAM, particularly since plant species in the same families are known hosts of LBAM. For example, South Carolina is the #6 producer of peanuts in the U.S. Peanuts are not specifically listed as a proven host of LBAM, but Leguminosae is one of the families that LBAM shows a preference for, and many legumes are recognized hosts for LBAM. Likewise, close relatives of tobacco, such as tomato and potato, are known hosts of LBAM, although tobacco itself is not listed.

Specific LBAM hosts of particular concern for South Carolina due to their presence in the forests and natural environment, frequent use in urban and residential landscapes, or importance as a crop commodity include oak, pine, poplar, cedar, walnut, locust, cypress, cedar, willow, walnut, *Rhododendron* sp., *Camellia* sp., *Pieris* sp., *Viburnum* sp., honeysuckle, English ivy, Virginia creeper, *Clematis* sp., *Forsythia* sp., *Buddleia* sp., *Cotoneaster* sp., *Salvia* sp., Queen Anne's lace, privet, holly, *Chrysanthemum* sp., jasmine, roses, peaches, plums, apples, strawberries, blueberries, blackberries, cole crops, peppers, tomatoes, cucumbers, and grapes, among many others (Venette et. al., 2003).

Unique characteristics of South Carolina relative to the plants listed above will be described in paragraphs below to illustrate the state's unique vulnerability to *Epiphyas postvittana*.

The Eastern U.S. forests, including those in South Carolina, contain many trees and common understory plants that are hosts for light brown apple moth. Many of these natural areas are protected sites due to rare or endangered plant species.

South Carolina has 80,000 acres of unique protected lands comprising 46 state parks, 11 state and national forests, and one national park.  
([www.southcarolinaparks.com](http://www.southcarolinaparks.com))

The Congaree National Park is the largest intact old-growth floodplain forest in North America. The near-virgin southern hardwood forest is one of the most diverse forest communities on the continent. The park has been designated both a National Natural Landmark and an International Biosphere Reserve.  
(<http://www.nps.gov/cong/index.htm>)

The management of the Andrew Pickens District of the Sumter National Forest emphasizes habitat restoration of wildlife and plant species, with emphasis on numerous rare, threatened, endangered, and sensitive species. The forest is located at the southernmost part of the Appalachian Mountains and has numerous *Rhododendron* sp., ferns, and native holly plants in the understory.  
(<http://www.fs.fed.us/r8/fms/>)

The nation's only tea plantation is located in South Carolina as well. Tea is a product of the *Camellia sinensis* plant. *Camellia* spp. are proven hosts of light brown apple moth.

Ten percent of the registered nurseries and dealers in South Carolina received nursery stock from California in 2009, and many of those were among the larger nurseries and dealers in the state. It is generally accepted that the most significant and high-risk pathway for artificial spread of plant pests is the movement of plants through the nursery trade. In its 2008 report to the California legislature, CDFA stated that the nursery trade would provide a significant pathway for the spread of light brown apple moth to non-infested areas (CDFA, 2008). In fact, the movement of nursery stock was probably responsible for the spread of LBAM throughout the quarantined area of California (USDA, February 2008). The large host range for LBAM as well as the pathway potential of the nursery industry, places South Carolina at significant risk for the introduction and spread of LBAM. Given South Carolina's unique environmental features, agricultural commodities and the volume of nursery stock that is moved into South Carolina from areas with existing populations of LBAM, it is imperative that additional safeguards be in place for the nursery/greenhouse industry.

- 5) *Information detailing the proposed additional prohibitions or restrictions and scientific data demonstrating that the proposed additional prohibitions or restrictions are necessary and adequate, and that there is no less drastic action that is feasible and that would be adequate, to prevent the introduction or spread of the biological control organism, noxious weed, or plant pest in the State or political subdivision.*

Agriculture officials, farmers, nurserymen, and foresters in South Carolina are extremely concerned about the possibility that light brown apple moth could move from infested areas in California to this state through the nursery trade or other pathways. This concern has been articulated by various individuals in California as the insect spread from county to county in that state, and it mirrors the worry that many feel in South Carolina today.

Since light brown apple moth, *Epiphyas postvittana*, was detected in California in February of 2007, agriculturists and government officials in California and at USDA have expressed alarm about the effect that the insect could have on agriculture in that state as well as nationwide. Some of those comments follow.

*“A risk assessment review conducted by the University of Minnesota in 2003 concluded that establishment of LBAM in the United States posed significant consequences to agriculture production and our natural landscape. Given these risks, it’s vital that we continue momentum against the spread of this pest now, while the population level in California is relatively low. Continued action against LBAM will protect California’s agricultural and natural resources, as well as those across the country.”*

USDA APHIS Administrator Cindy Smith on June 20, 2008, regarding the Updated Eradication Plan for Light Brown Apple Moth

<http://www.aphis.usda.gov/newsroom/content/2008/06/lbam.shtml>

*“The crisis is immediate, and this is an environmental emergency requiring quick action by the state and federal governments. Left unchecked, the light brown apple moth would spread rapidly, threatening more than 2,000 plants; our beloved Central Coast cypress, redwoods and oaks; and more than 250 agricultural crops. The threat is so widespread that international scientists with experience with the pest call it the light brown ‘everything’ moth. ...*

*When discussing the food supply, it is important to recognize that, left unchecked, the light brown apple moth could cause damage as high as \$640 million annually in the nine-county infested area. If the pest becomes generally established statewide, annual losses could run into the billions.”*

California Commissioner of Agriculture A. G. Kawamura, *Marin Independent Journal* (A.G. Kawamura. 2008).

*“If we let this thing get into the central valley [California’s main agricultural area], this is Armageddon for agriculture.”*

Tom Berryhill, California State Assembly Agriculture Commissioner (Robinson 2008, *The Ecologist*)

*“Although eradication from its present California distribution may seem difficult and expensive, the effort is worthwhile given the possible economic and ecological ramifications should the species establish itself and proliferate throughout agricultural acreage in California and the United States.”*

Lucia G. Varela, Integrated Pest Management (IPM) Advisor, UC Statewide IPM Program and UC Cooperative Extension (UCCE), Sonoma County (Varela, et. al. 2008)

*“The obvious damage in Santa Cruz County raises the likelihood of further and perhaps unpredictable harm across the United States. This experience also suggests there may be other as-yet-unidentified host commodities across the nation that will be susceptible to LBAM, and the authorities and growers in those areas have no voice in California’s decision to allow LBAM to spread.”*

Jason Smith, Director, Monterey County Farm Bureau

(Monterey Co. Farm Bureau Environmental Impact Report, (July 31, 2009)

[http://www.montereycountyfarmbureau.org/Issues/light\\_brown\\_apple\\_moth.htm](http://www.montereycountyfarmbureau.org/Issues/light_brown_apple_moth.htm))

The concerns expressed in the statements above were well-founded. As of December 2, 2009, the number of counties in California where LBAM moths have been trapped has grown to 18. There are a total of 27,956 (December 2, 2009 counts) pheromone-baited traps in and around retail and production nurseries, at ports of entry, and in the open environment and are being inspected bi-weekly. Trap counts have yielded 257,907 *Epiphyas postvittana* that have been confirmed as LBAM (USDA APHIS 2009 LBAM situation report 12/2/2009). In addition, According to USDA APHIS PPQ’s NAPIS Data Notification, on March 3, 2010, three California counties were re-quarantined due to the reintroduction of LBAM into those counties since eradication (Attachment 3).

Even with regulatory limits in place, light brown apple moth has now spread to 2,700 square miles of California. Despite the extreme concern expressed by agriculture officials in the comments above about the risk that LBAM poses to agriculture both in California and across the United States, the focus of USDA’s LBAM program in California has changed from eradication to suppression and control. Even so, the regulatory framework will not change. The objective will be to maintain trade and interstate commerce by focusing on controlling the moth in agricultural, rather than urban, areas. This decision will clearly put states outside California at higher risk of acquiring LBAM through interstate commerce. (Information from NPB/PPQ Management Team Conference Call, March 16, 2010)

## **I. Inadequacy of Current Mitigation Measures**

Although the early regulatory strategies have been comprehensive, additional regulatory measures are needed to address those risks associated with movement of nursery stock to ensure adequate safeguarding of the non-infested states. Specific inadequacies of current mitigation efforts directed primarily at the movement of nursery stock to prevent dispersal of *Epiphyas postvittana* are:

1. Based on the extremely broad host list, it is very likely that not all hosts of the insect have been identified. Countless numbers of South Carolina crops, ornamentals, and even weeds have not been evaluated as hosts for LBAM and pose an unknown risk for establishment of LBAM if the insect should be introduced to the state.
2. Although trapping for LBAM is mandated in and near areas where the moth has been found, the practice is useful only for delimiting the insect, and does nothing to prevent its movement to other areas.
3. Nurseries and cut flower producers in quarantined areas are not required to be enclosed by screening and double doors to prevent entry of light brown apple moth, even when the business is in close proximity to active infestations.
4. Shipments already loaded and inspected are not required to be covered overnight prior to shipping, even though LBAM is active at night and may infect a shipment after inspection.
5. The shift in the California LBAM regulatory program from eradication to suppression and control with no corresponding change in the regulatory framework increases the risk that LBAM will be introduced into South Carolina and other states through interstate commerce.

## **Conclusion**

South Carolina has unique agricultural and environmental features and a significant economic reliance upon forestry, crop agriculture, and nursery/greenhouse/floriculture. The mini pest risk assessment, the economic analysis and many other scientific and regulatory documents clearly agree and demonstrate that *Epiphyas postvittana* presents a high risk of spread to and successful colonization in other states, particularly via the nursery pathway. What is striking is that the regulatory requirements range from only slight enhancements to even less than normal phytosanitary requirements for interstate shipment of nursery stock, all despite the high risk rating for this plant pest to establish elsewhere in a majority of the rest of United States.

## **II. Recommendations**

Based on a thorough review of the regulatory procedures currently utilized in California, there appear to be critical and major inadequacies in the program. As such, it is anticipated these inadequacies hold the potential for the introduction of *Epiphyas postvittana* to states such as South Carolina which are not currently found to be infested.

Therefore, the State of South Carolina recommends the following changes to impose restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by USDA APHIS PPQ. These apply to any area under state or federal quarantine for *Epiphyas postvittana*. Regulated articles will include host plants for *Epiphyas postvittana* and any other product, articles, or any other means of conveyance, when it is determined by a quarantine officer of a state or federal plant pest regulatory agency that they present a hazard of spreading *Epiphyas postvittana*. A complete listing of host material may be found at:

[http://www.cdffa.ca.gov/phpps/PDEP/target\\_pest\\_disease\\_profiles/LBAM\\_HostList.pdf](http://www.cdffa.ca.gov/phpps/PDEP/target_pest_disease_profiles/LBAM_HostList.pdf)  
and  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/pr/epostvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/pr/epostvittanapra.pdf)

Regulated articles may not be moved into or within South Carolina from areas under state or federal quarantine except as outlined hereafter:

- A. A State Phytosanitary Certificate indicating inspection of each shipment is required for interstate shipments of plant material. The current Quarantine Compliance Certificate is not an acceptable substitute. The former provides a higher level of inspection efforts by the state regulatory authorities. The phytosanitary certificate must list the type and quantity of plants, the shipper's address, the recipient's name and address, and contact number(s) of the shipper and recipient. Commodities shipped in violation of the requirements may be returned to their point of origin or destroyed at the expense of the owner. Proof of insecticide treatment must accompany the phytosanitary certificate.
- B. Prior notification for *Epiphyas postvittana* host plant material is required. The shipper shall send a copy of the State Phytosanitary Certificate by mail, facsimile or e-mail to: Clemson University Department of Plant Industry, 511 Westinghouse Road, Pendleton, SC 29670; facsimile 864-646-2178; email nedward@clemson.edu.
- C. Plant material destined for interstate shipping shall be held a minimum of five weeks in an approved enclosed structure, treated with an approved insecticide, monitored with pheromone traps at a density adequate to the enclosure space and undergo a 100% inspection before being shipped interstate. If an *Epiphyas postvittana* life stage is detected then re-treatment, 100% re-inspection and another minimum five-week hold are required before interstate movement occurs.

**D. A certified USDA-approved quality management system for the production of host plants of *Epiphyas postvittana* destined for interstate movement must be developed and implemented.**

(b)(6)

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**Associate Vice President, Public Service and Agriculture  
Director, Regulatory Services  
Clemson University**

(b)(6)

---

**Assistant Director, Regulatory Services  
Interim Department Head, Plant Industry  
Clemson University**

(b)(6)

---

**State Plant Regulatory Official (SPRO)  
Assistant Department Head, Plant Industry  
Clemson University**

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NAPIS LBAM Map: <http://pest.ceris.purdue.edu/searchmap.php?selectName=ITBUBPA>

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NAPPFASST LBAM Risk Map

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NAPPFASST LBAM Host Map

[http://www.nappfast.org/caps\\_pests/maps/Host/Epiphyas%20postvittana.pdf](http://www.nappfast.org/caps_pests/maps/Host/Epiphyas%20postvittana.pdf)

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## Attachment 1

# The State of South Carolina's Forests



### FOREST AREA



- South Carolina has 12.9 million acres of forestland. This is 67% of the state's total land area.
- Hardwood timber types occupy over 54% of the state's forestland. Pines types occupy 46%.
- South Carolina's forestland acreage remains stable, averaging 12.6 million acres since 1968.
- The 2006 forest inventory found that there are over 2 million more acres of forestland than there were in the first inventory in 1936.

### ECONOMIC IMPACT



- Forestry is #1 among manufacturing industries in jobs (44,708) and payroll (\$2.4 billion).
- The total economic impact of South Carolina's forest industry is \$17.45 billion annually.
- South Carolina exports about \$1 billion in forest products each year.
- Timber is the state's #1 agricultural commodity at \$870 million annually.

### FOREST OWNERSHIP



- 88% of South Carolina's forests are privately owned.
- 67% of private forests are family-owned.
- The average "family forest" is 65 acres. 74% of these owners live on the land.
- In 2006, forest industries owned 1.4 million acres, down 29% since 2001 and continuing to decrease.
- Public agencies control 12% of South Carolina's forests.

### FOREST INVENTORY



- South Carolina's forests now contain 21.5 billion cubic feet of wood, more than at any time in the past century.
- The state's forests, both hardwood and softwood, are growing significantly more wood than is being harvested.
- Net annual softwood growth is double pre-hurricane Hugo growth rates. The present annual growth of 817 million cubic feet per year is the highest ever recorded.
- Net annual hardwood growth rates have steadily increased since Hurricane Hugo. The present annual growth of 387 million cubic feet per year is approaching the highest ever recorded.

### FOREST ECOSYSTEM HEALTH



- The state's forested watersheds fulfill a critical resource role as the primary supplier of clean public water.
- South Carolina's forested watersheds are well managed as documented by a 98% compliance rating with state water quality guidelines.
- The state's forests produce timber and jobs while simultaneously serving as a backdrop for a desirable quality of life. In addition to beautiful landscapes, forests provide clean water, abundant wildlife, recreation, carbon storage and soil protection.

Sources: South Carolina Forestry Commission (SCFC) and USDA Forest Service Forest Inventory and Analysis (FIA)

For more information about South Carolina's Forest Inventory Analysis, contact the SC Forestry Commission: 803-896-8800.

[www.trees.sc.gov](http://www.trees.sc.gov)

4/21/08

The South Carolina Forestry Commission and the USDA Forest Service are equal opportunity employers and providers.



### Attachment 3

**From:** caps-dnall-bounces@ceris.purdue.edu [mailto:caps-dnall-bounces@ceris.purdue.edu] **On Behalf Of** Virginia Russell  
**Sent:** Wednesday, March 03, 2010 8:42 AM  
**To:** CAPS-dnall@ceris.purdue.edu  
**Subject:** NAPIS Data Notification

#### USDA/APHIS/PPQ DATA NOTIFICATION REPORT 02/26/2010 04:00 EST

This report includes data which have been entered into the National Agricultural Pest Information System (NAPIS) by members of the Cooperative Agricultural Pest Survey (CAPS). Best efforts are made to enter accurate and complete data, however, neither the USDA nor Purdue University certify as to the accuracy or completeness of the data.

Record Selection Criteria  
Process-Date : 02/25/2010

=====

USER-ID: **CALIFORNIA** PDCA209

Light Brown Apple Moth , Epiphyas postvittana  
Pest was designated 'New in County'  
Pest has been reintroduced to the county since eradication  
Observation-Date: 20090716 State-County: CA-Los Angeles  
Observation-Date: 20090709 State-County: CA-San Luis Obispo  
Observation-Date: 20091102 State-County: CA-Santa Barbara  
Pest-Status description: POSITIVE (PRESENT)  
NEW OR REINTRODUCED IN THE COUNTY  
KNOWN TO BE ESTABLISHED

Light Brown Apple Moth , Epiphyas postvittana  
Pest was designated 'New in County'  
Observation-Date: 20090330 State-County: CA-Yolo  
Observation-Date: 20090608 State-County: CA-San Joaquin  
Pest-Status description: POSITIVE (PRESENT)  
KNOWN TO BE ESTABLISHED

[map link](#)

USER-ID: **CALIFORNIA** PDCA211

Drosophilid Fly , Drosophila suzukii  
Sweet Orange , Citrus sinensis  
Pest was designated 'New in County'  
Observation-Date: 20090614 State-County: CA-Alameda  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

USER-ID: **COLORADO** PDCO202

Longhorned Beetle , Saperda discoidea  
Pest was designated 'New in State'

Observation-Date: 20090819 State-County: CO-Arapahoe  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

Longhorned Beetle , Parelaphidion aspersum

Pest was designated 'New in State'

Observation-Date: 20090819 State-County: CO-Arapahoe  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

Record Selection Criteria

Process-Date : 02/24/2010

=====

USER-ID: **CALIFORNIA** PDCA211

Drosophilid Fly , Drosophila suzukii

Cherry , Prunus spp., Stone Fruits , Prunus spp.,  
Grapefruit , Citrus paradisi, Common Fig , Ficus carica  
Oval Kumquat (Chinese Orange) , Fortunella margarita, Raspberry , Rubus  
idaeus  
Loquat , Eriobotrya japonica, Walnut, Juglans spp. Avocado , Persea  
americana

Pest was designated 'New in County'

Observation-Date: 20090610 State-County: CA-Contra Costa  
Observation-Date: 20090618 State-County: CA-Fresno  
Observation-Date: 20090527 State-County: CA-Los Angeles  
Observation-Date: 20090629 State-County: CA-Napa  
Observation-Date: 20090603 State-County: CA-Orange  
Observation-Date: 20090605 State-County: CA-Riverside  
Observation-Date: 20090610 State-County: CA-Sacramento  
Observation-Date: 20090607 State-County: CA-San Benito  
Observation-Date: 20090602 State-County: CA-San Bernardino  
Observation-Date: 20090602 State-County: CA-San Diego  
Observation-Date: 20090616 State-County: CA-San Joaquin  
Observation-Date: 20090608 State-County: CA-San Luis Obispo  
Observation-Date: 20090603 State-County: CA-Santa Barbara  
Observation-Date: 20090609 State-County: CA-Santa Clara  
Observation-Date: 20090527 State-County: CA-Santa Cruz  
Observation-Date: 20090603 State-County: CA-Ventura

Pest-Status description: POSITIVE (PRESENT)  
NEW OR REINTRODUCED IN THE COUNTY  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

USER-ID: **PUERTO RICO** PDPR203

Citrus Greening Huanglongbing (Asian) , Candidatus Liberibacter asiaticus

Key Lime , Citrus aurantifolia

Pest is first positive NAPIS data entry for the county  
Observation-Date: 20091103 State-County: PR-Ceiba

Observation-Date: 20091201 State-County: PR-Mayaguez  
Observation-Date: 20091102 State-County: PR-Patillas  
Observation-Date: 20091207 State-County: PR-Yabucoa  
Pest-Status description: POSITIVE (PRESENT)  
KNOWN TO BE ESTABLISHED

map link

USER-ID: **SOUTH DAKOTA** PDS202

Saltcedar , Tamarix ramosissima

Pest is first positive NAPIS data entry for the county  
Observation-Date: 20090714 State-County: SD-Kingsbury  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED  
ERADICATION IN PROGRESS

map link

--

Virginia Russell  
vrussell@ceris.purdue.edu  
765-494-6382



**United States  
Department of  
Agriculture**

Animal and Plant  
Health Inspection  
Service  
Plant Protection and  
Quarantine

1400 Independence  
Avenue SW  
Room 302-E

Washington, DC  
20250

(b)(6)

Assistant Department Head  
Plant Industry  
Clemson University  
511 Westinghouse Road  
Pendleton, SC 29670  
864-646-2135

Dear (b)(6)

Thank you for your letter and accompanying Special Needs Request of March 17, 2010, concerning the Animal and Plant Health Inspection Service's (APHIS) Light Brown Apple Moth program. Please know we share your concerns regarding the seriousness of this invasive pest.

APHIS is currently evaluating your request. Our review will include an analysis to determine if it meets the special needs criteria listed in the special needs request regulations (7 CFR Part 301.1). I am hopeful this determination can be made within the next few weeks.

Thank you for your interest in ensuring we have the strongest program possible in place.

Sincerely,

Rebecca Bech  
Deputy Administrator  
Plant Protection and Quarantine



*Safeguarding American Agriculture*

APHIS is an agency of USDA's Marketing and Regulatory Programs  
An Equal Opportunity Provider and Employer

Federal Relay Service  
(Voice/TTY/ASCII/Spanish)  
1-800-877-8339

November 24, 2009

Ms. Rebecca Bech  
Deputy Administrator for  
Plant Protection and Quarantine  
USDA-APHIS  
Jamie L. Whitten Federal Building  
14<sup>th</sup> Street and Independence Avenue, SW  
Room 301-E  
Washington, DC 20250

Dear Ms. Bech:

The purpose of this correspondence is to transmit a Special Need Request for the State of South Carolina regarding *Phytophthora ramorum* as permitted under the Plant Protection Act (PPQ, 7 U.S.C. 7701).

This special need request is based on sound scientific data and clearly details risk assessments documenting that the subject pathogen does not currently exist in South Carolina and that current federal regulations have not prevented repeated introductions of that pathogen into the State. The petition also describes a unique agricultural crop and ecosystem in South Carolina that are particularly vulnerable to *Phytophthora ramorum*. Finally, the economic importance of forestry and agriculture to South Carolina's economy is discussed.

Should you need additional information relating to these submissions, please feel free to contact me. I sincerely appreciate the opportunity to submit this special need request to you for review and prompt action.

Sincerely,

(b)(6)  
Assistant Department Head  
864-646-2135  
(b)(6) clemson.edu

Attach  
c:

(b)(6)

## **South Carolina Petition for Special Need Request to USDA APHIS PPQ Regarding *Phytophthora ramorum***

**This petition is organized according to “Special Need Requests Under the Plant Protection Act”, 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). Following the specific data required by that process, the following is presented with respect to the USDA-APHIS-PPQ *Phytophthora ramorum* regulations and mitigation measures:**

- I. Inadequacy of the Current Mitigation Measures for Nurseries and**
- II. Recommendation to Impose Prohibitions or Restrictions on the Movement in Interstate Commerce of Specific Articles that are in Addition to the Prohibitions and Restrictions Imposed by APHIS PPQ**

USDA APHIS PPQ amended its domestic quarantine regulations to establish a process by which a State could request approval to impose prohibitions or restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by APHIS PPQ. The Plant Protection Act provides that States may make such special need requests. The process is described in “Special Need Requests Under the Plant Protection Act,” 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). All special need requests must be submitted to the Deputy Administrator for Plant Protection and Quarantine, APHIS, USDA, Jamie L. Whitten Federal Building, 14<sup>th</sup> Street and Independence Avenue, SW., Room 301-E, Washington, DC 20250.

Specific criteria for Special Need Requests are identified in §301.1-2 Criteria. These five elements are listed below, along with commentary specific to South Carolina’s petition for change.

- 1) *Data drawn from a scientifically sound detection survey, showing that the biological control organism, noxious weed, or plant pest of concern does not exist in the State or political subdivision or, if already present in the State or political subdivision, the distribution of the biological control organism, noxious weed, or plant pest of concern;*

The reported status of *Phytophthora ramorum* as entered into NAPIS is available at: <http://pest.ceris.purdue.edu/searchmap.php?selectName=FGHEPWN>  
It is important to note that the map is based upon survey data conducted in nurseries in South Carolina. The county in South Carolina where *P. ramorum* is indicated as “Being Eradicated” on the subject map is so designated only on the basis of regulatory incidents in which containerized nursery plants were shipped to nurseries in this county from other states and subsequently tested positive for the pathogen. No *Phytophthora ramorum* has been detected in plants in the environment of South Carolina despite extensive survey by Clemson University Department of Plant Industry (DPI), the Clemson University Department of Plant Pathology, and the USDA Forest Service.

DPI has conducted nursery and environmental surveys for *Phytophthora ramorum* for several years without ever detecting the pathogen in the environment. To date in 2009, DPI has surveyed 83 nursery growers and dealers for *P. ramorum* with a

focus on nurseries that purchase plant material from the regulated area in the West. Three types of surveys were conducted at each nursery: 1) nursery interior, 2) nursery perimeter, and 3) surrounding forest. Results show a total of 531 HAP observations collecting 73 suspect foliar samples and over 250 soil samples. No samples have tested positive for *P. ramorum*. (Attachment 1)

The USDA Forest Service has conducted forest and stream baiting studies in the waterways and on the perimeters of positive nurseries throughout the Southeast. No positive samples have been found in South Carolina. (S. Oak, 2009)

- 2) *If the biological control organism, noxious weed, or plant pest is not present in the State or political subdivision, a risk analysis or other scientific data showing that the biological control organism, noxious weed, or plant pest could enter the State or political subdivision and become established;*

South Carolina has had seven trace-forwards from positive nurseries in other states since 2004, which provides ample data that the pathogen can enter this state. Positive plants were found and destroyed in 5 of the 7 trace-forward surveys. Those events are listed below. Through diligent efforts of DPI and USDA APHIS PPQ in South Carolina, the establishment of *P. ramorum* in the environment has been so far prevented.

2004, Monrovia, California

2005, Nuncio, California

2005, Skinner, Georgia

2006, Leo Gentry, Oregon (No positive plants detected.)

2008, Growers Outlet, North Carolina (Under EIS Investigation; Pre-notification from nursery under CNP in effect.)

2009, Greer Gardens, Oregon (No positive plants detected.)

2009, Hammond's Acres of Rhodys, Washington (Possible EU1 positive)

There are numerous studies and forecasts that indicate that *Phytophthora ramorum* can become established in the natural environment of South Carolina and other eastern states.

Historical risk assessment data is provided in the document "Risk Analysis for Phytophthora ramorum Werres, de Cock & Man in't Veld, Causal Agent of Sudden Oak Death, Ramorum Leaf Blight, and Ramorum Dieback." Revision 1. November 19, 2007. USDA.

<http://nature.berkeley.edu/comtf/pdf/Bibliography/werres2001a.pdf>

Roger Magarey of USDA APHIS PPQ has been refining the NAPPFAST plant pest forecasting system for several years. In a paper presented at the third Sudden Oak Death Science Symposium in 2007, he stated that "the risk maps indicate both the west coast and the eastern third of the United States, especially the Appalachian Mountains, are at similar risk for infection." (Magarey, *et al.*, 2008)

Koch and Smith (2008) locate the highest risk of establishment of *P. ramorum* in the Southern and Central Appalachian Mountain regions. This is higher than other researchers rank this area due in part to the authors' consideration of the presence of susceptible oaks and critical understory species, such as *Rhododendron spp.*

- 3) *Specific information showing that, if introduced into or allowed to spread within the State or political subdivision, the biological control organism, noxious weed, or plant pest would harm or injure the environment or agricultural resources in the State or political subdivision. The request should contain detailed information, including quantitative estimates, if available, about what harm or injury would result from the introduction or dissemination of the biological control organism, noxious weed, or plant pest in the State or political subdivision;*

Agriculture and Forestry in South Carolina together have an impact of nearly \$40 billion per year to South Carolina's economy. Traditional agriculture and forestry combined form the "agribusiness" industry, which represents the largest sector of the state's economy. (The Economic Impact of the Agribusiness Industry in South Carolina, 2008) The total economic impact of the forest industry is nearly \$18 billion annually (Appendix 2), while the impact of the greenhouse/nursery/floriculture industry is \$271 million annually (Appendix 3).

The industry with the second-greatest impact to the South Carolina economy is tourism. Many of the features that attract visitors to South Carolina are related to the agribusiness sector. Hunting, fishing and hiking in the state's numerous parks and forests; visits to historic plantations featuring magnolia, camellia, and azalea; and relaxing under the stately live oaks are all activities enjoyed by citizens and tourists alike. (The Economic Impact of the Agribusiness Industry in South Carolina, 2008)

Should *P. ramorum* become established in South Carolina, it would directly and detrimentally impact the two most important industries in the state. In addition, it could devastate the most significant plant agriculture sectors: forestry and the greenhouse/nursery/floriculture industry.

- 4) *Specific information showing that the State or political subdivision has characteristics that make it particularly vulnerable to the biological control organism, noxious weed, or plant pest, such as unique plants, diversity of flora, historical concerns, or any other special basis for the request for additional restrictions or prohibitions;*

The risk map developed for the East Coast by Magarey *et al.* (2004, 2008) shows greater risk on the basis of climate match than where the pathogen has now established on the West Coast. According to this model, the impact of *P. ramorum* would be much worse in the East than in the Western US. In addition, the Eastern U.S. forests, including those in South Carolina, contain many common understory plants that are susceptible to *P. ramorum* and are capable of producing

inoculum. Under the right conditions this may result in forest epidemics of *P. ramorum* (Tooley and Browning, 2009).

South Carolina has 80,000 acres of unique protected lands comprising 46 state parks, 11 state and national forests, and one national park.  
([www.southcarolinaparks.com](http://www.southcarolinaparks.com))

The Congaree National Park is the largest intact old-growth floodplain forest in North America. The near-virgin southern hardwood forest is one of the most diverse forest communities on the continent. The park has been designated both a National Natural Landmark and an International Biosphere Reserve.

(<http://www.nps.gov/cong/index.htm>)

The management of the Andrew Pickens District of the Sumter National Forest emphasizes habitat restoration of wildlife and plant species, with emphasis on numerous rare, threatened, endangered, and sensitive species. The forest is located at the southernmost part of the Appalachian Mountains and has numerous *Rhododendron* and *Kalmia* plants in the understory.

(<http://www.fs.fed.us/r8/fms/>)

The South Carolina Forestry Commission developed a summary of the net volume and stumpage value of all of the species of oaks existing in the forest and timberland of South Carolina. That data is shown in Attachment 4 of this document.

The nation's only tea plantation is located in South Carolina as well. Tea is a product of the *Camellia sinensis* plant. All species, hybrids and cultivars of *Camellia spp.* are proven hosts of *Phytophthora ramorum*. The APHIS list of host and associated plants can be found at

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_file\\_s/usdaprlist.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_file_s/usdaprlist.pdf)

A risk assessment is provided in the document "Risk Analysis for *Phytophthora ramorum* Werres, de Cock & Man in't Veld, Causal Agent Phytophthora Canker (Sudden Oak Death), Ramorum Leaf Blight, and Ramorum Dieback." Revision 1. May 5, 2005. USDA APHIS PPQ. That risk assessment indicated that there are many areas, both east and west of the Mississippi River, where *P. ramorum* would encounter favorable climates and potential hosts.

[http://168.68.129.70/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pramorumpra05-05-05.pdf](http://168.68.129.70/plant_health/plant_pest_info/pram/downloads/pdf_files/pramorumpra05-05-05.pdf)

Several researchers have suggested that eastern forests are at greater risk for establishment of *P. ramorum* than originally thought. (Venette and Cohen, 2006; Tooley and Kyde, 2007; Lindermann *et al.*, 2008; Spaine *et al.*, 2007)

Of the registered nurseries and dealers in South Carolina, 23% received nursery stock from areas regulated for *P. ramorum* in 2009. Given the previous trace-forwards experienced by South Carolina, as well as its unique environmental features, a significant risk exists in bringing ¼ of the plants purchased by the state's nursery/greenhouse industry from regulated areas without additional safeguards in place.

- 5) *Information detailing the proposed additional prohibitions or restrictions and scientific data demonstrating that the proposed additional prohibitions or restrictions are necessary and adequate, and that there is no less drastic action that is feasible and that would be adequate, to prevent the introduction or spread of the biological control organism, noxious weed, or plant pest in the State or political subdivision.*

In May 2005, USDA-APHIS-PPQ issued Revision 1 of the Risk Analysis for *Phytophthora ramorum*, Causal Agent of Phytophthora Canker (Sudden Oak Death), Ramorum Leaf Blight, and Ramorum Dieback. A revised rule pertaining to this disease was published in the Federal Register Vol. 72 No. 38: 8585-8604 on Feb 27, 2007. The Risk Assessment and the federal rule can be consulted for background information and specific language.  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/01-064-3.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/01-064-3.pdf)

Although the risk assessment itself was as comprehensive and accurate as possible in its evaluation of risks at the time it was developed, the mitigation measures specified to address those risks associated with movement of nursery stock were far below levels necessary to be effective. This is more evident when considered in light of current scientific knowledge of the pathogen.

The current regulations pertaining to *P. ramorum* and nursery risks dictate that 1) Nurseries in CA, OR and WA must undergo an annual inspection and be certified free of the pathogen, 2) Individual shipments of known hosts from quarantined counties entering interstate commerce are also subject to inspection prior to being certified for movement, and 3) Non-hosts are not subject to the inspection of individual shipments.

These requirements are only slight enhancements to normal phytosanitary requirements for interstate shipment of nursery stock despite the high risk rating for this pathogen in every category of the overall risk rating. In fact, it is difficult to imagine a pest of greater risk potential for uninfested states in the US. Ordinary trade-facilitating mitigation measures are simply inadequate and not in proportion to the risks being assumed in non-infested areas. In contrast, best management practices (BMPs) for *P. ramorum* actually attain a higher level of mitigation, but these measures are voluntary (Suslow, 2008).

A major concern is movement of *P. ramorum* on asymptomatic plants. Logic alone would indicate that trace-forwards would not occur if asymptomatic positive

plants did not exist. Current understanding of the biology of *Phytophthora ramorum* confirms that soilborne inoculum can move along with asymptomatic plants (Lewis *et al.*, 2004; Shishkoff & Tooley, 2004) and that spore production can occur on asymptomatic leaves of many hosts (Denman *et al.*, 2008). However, the federal regulatory plan has not changed to accommodate current scientific knowledge of the pathogen. Visual inspection remains the foundation of the *P. ramorum* regulatory program.

The fact that South Carolina has repeatedly received positive host and associated plants from nurseries legally shipping under the current federal regulations shows that those regulations are not adequate to prevent the introduction of *Phytophthora ramorum* into South Carolina.

## **I. Inadequacy of Current Mitigation Measures**

Specific reasons on the inadequacy of current mitigation efforts directed primarily at the movement of nursery stock to prevent dispersal of *P. ramorum* are:

1. Based on the continually enlarging host and associated host list, it is very likely that not all hosts of the pathogen have been identified, or ever will be identified using only symptoms as the primary indicator of infection.  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/usdap\\_rlist.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/usdap_rlist.pdf)
2. Infected host plants may not exhibit symptoms of infection. Some host plants do not show symptoms even though inoculum is being produced from infected leaves and fruit. (Dart and Chastagner, 2007; Denman *et al.*, 2008) Root infections by *P. ramorum* with production of inoculum have been demonstrated on both rhododendrons and tanoaks with no evidence of root rot. Only sophisticated lab testing on virtually every plant in a shipment could detect such invisible infections and eliminate the risks (Dart and Chastagner, 2007).

In addition, even when foliar disease symptoms are present, symptoms of *P. ramorum* infection can be too subtle and ambiguous to accurately diagnose by visual inspection. The universal phytosanitary standard “apparently free of pests and pathogens” has proven repeatedly to be an inadequate basis for phytosanitary determination and subsequent declaration of a *Phytophthora ramorum* - free status. If this phytosanitary inspection technique was truly effective, there would be no shipments of infected plants to other states from regulated areas such have occurred numerous times since 2004. (Shishkoff, 2006) Beginning with infected wholesale *Camellia* from Monrovia Nursery in 2004 through the mail order host and associated plants from Greer Gardens in 2009, the Clemson University Department of Plant Industry in South Carolina has had to follow up on seven major trace-forwards of plants from *P. ramorum* positive nurseries during this time period.

In fact, the risk assessment by Cave, *et al.* (2005) states on p.14 that *Phytophthora* has been intercepted only seven times since 1985 at US ports of entry, where visual detection methods are the standard and scrutiny should be at the highest level.

[http://168.68.129.70/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pramorump\\_ram05-05-05.pdf](http://168.68.129.70/plant_health/plant_pest_info/pram/downloads/pdf_files/pramorump_ram05-05-05.pdf)

Visual survey is a useful inspection tool in that foliar symptoms are a manifestation of the pathogen. However, while all symptomatic plants are diseased, all non-symptomatic plants are not disease-free.

Therefore, visual inspection should be used as a tool to augment more definitive diagnostic and preventative programs, such as more frequent nursery sampling and a clean stock program. Visual inspection prior to shipment of host and associated plants is an additional safeguard to ensure that all plants being shipped exhibit no disease symptoms.

**3.** The risk map for the East Coast as depicted by Magarey *et al.* shows much greater risk on the basis of climate match than where the pathogen has now established on the West Coast (Magarey, *et al.*, 2004, 2008). If this map is accurate, the impact of *P. ramorum* would be much worse in the East than in the Western US. Recent information suggests that many common understory species in Eastern U.S. forests are susceptible to *P. ramorum* and capable of producing inoculum, which under the right conditions may result in forest epidemics (Tooley and Browning, 2009).

**4.** Recent observations have indicated that holding soil samples for several weeks is essential to better detect the presence or absence of *P. ramorum*. This protocol is not used operationally in areas regulated for *P. ramorum*, even though it provides essential information when the causal organism is momentarily in a ‘non-cultural’ but viable state. (Jeffers, 2005, 2009)

**5.** Current certification standards do not provide sufficient safeguarding to prevent the movement of *Phytophthora ramorum* from quarantined to regulated areas.

Although the number of positive nurseries have decreased, that number seems to have leveled off, indicating current certification standards are not sufficient to prevent the movement of *P. ramorum* through nursery stock shipments. Both new positive nurseries and repeat positive nurseries continue to occur in both quarantined and regulated counties. The number of repeat positives is higher in quarantined counties than in regulated counties. Since *P. ramorum* has not been identified in the environment in regulated counties, and there continues to be new positive nurseries in those counties, it is logical to believe that the organism is moving from the quarantined counties to nurseries in the regulated counties. If the argument is made that the organism just hasn't been found yet in regulated counties, then perhaps those counties should be quarantined as well. The primary difference in requirements between quarantined areas and regulated areas is monthly inspections. However, if no symptoms are observed, no samples are taken. There is new information regarding persistence in soil/media that needs to be addressed. Best management practices have been developed, but are not required. We

believe that there should be stricter requirements for certification of all nursery stock moving from quarantined areas through mandatory implementation of best management practices.

6. Require a more rigorous sampling (much more than 40 sample minimum) of a nursery in annual surveys.

With a very large nursery, such as the Plant Board representatives saw on the July 2009 National Plant Board tour, 40 samples just aren't enough! It would make sense to sample ALL symptomatic hosts, no matter how many. In other words, sample till you can't anymore. In many states, more than 40 samples are routinely collected from production nurseries, no matter the size of the nursery.

## Conclusions

South Carolina has unique agricultural and environmental features and a significant economic reliance upon the forestry and nursery/greenhouse/floriculture industries. The state has also had to contend with seven significant trace-forwards from *P. ramorum* positive nurseries over the past five years. Due to these factors, South Carolina is at considerable risk for establishment of *Phytophthora ramorum* unless additional restrictions on the movement of *P. ramorum* host and associated plants are put in place.

## II. Recommendations

Therefore, the State of South Carolina recommends the following changes to impose restrictions (#1 below) and prohibitions (#2 below) on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by APHIS PPQ. This applies to any area under state or federal quarantine or regulation for *Phytophthora ramorum*. Regulated articles will include host and associated plants for *Phytophthora ramorum* and any other product, articles, or any other means of conveyance when it is determined by a quarantine officer of a state or federal plant pest regulatory agency that they present a hazard of spreading *Phytophthora ramorum*. A complete listing of host material may be found at: [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/usdap\\_rlist.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/usdap_rlist.pdf)

Regulated articles may not be moved into or within South Carolina from federally quarantined or regulated areas except as outlined hereafter:

1. Prior notification of *Phytophthora ramorum* host and associated plant material is required. The shipper shall send by mail, facsimile or e-mail a copy of the State Phytosanitary Certificate, issued immediately prior to shipment, to Clemson University Department of Plant Industry, 511 Westinghouse Road, Pendleton, SC 29670; facsimile 864-646-2178; email (b)(6) @clemson.edu. The phytosanitary certificate must list the type and quantity of plants, the shipper's address, the recipient's name and address, the date and results of the most recent nursery test (e.g., PCR, culturing in media and DNA sequence analysis) for *Phytophthora ramorum*, and contact number(s) of the shipper and

recipient. Notice must arrive at least 24 hours prior to scheduled shipment arrival. Commodities shipped in violation of the requirements may be returned to their point of origin or destroyed at the expense of the owner

2. High-risk host plants (*Camellia, Rhododendron, Viburnums, Kalmia, Pieris*) are prohibited unless produced through a USDA-certified clean plant stock program. The Clemson University Department of Plant Industry must be pre-notified as described above, and each shipment must be accompanied by appropriate certification documents.

While a USDA-certified clean plant program for *P. ramorum* does not exist at this time, such a program must incorporate standards including or similar to the following: Propagative material must come from parent plants that have been inspected and or tested and found free of *P. ramorum*; Participating nurseries must be inspected at least monthly and tested for *P. ramorum* at least quarterly; Adequate record keeping procedures must be established and monitored; Footbaths must be present at all entrances/exits; All equipment entering the nursery must be clean and decontaminated in an appropriate manner.

(b)(6)

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e President, Public Service and Agriculture  
Director, Regulatory Services  
Clemson University

(b)(6)

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nt Head, Plant Industry  
Clemson University

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## Attachment 2

# SOUTH CAROLINA AGRICULTURE

## 2008 U.S. Ranking of South Carolina Commodities



<u>Rank:</u>	<u>Commodity:</u>
2 <sup>nd</sup>	Peaches
3 <sup>rd</sup>	Flue-Cured Tobacco
5 <sup>th</sup>	All Tobacco
6 <sup>th</sup>	Peanuts and Cantaloupes
7 <sup>th</sup>	Cucumbers for Pickles and Watermelon
8 <sup>th</sup>	Cucumbers for Fresh Market and Sweet Potatoes



### COMMODITY      2008      Cash Receipts (Million Dollars)

	<i>Broilers</i>	713	
	<i>Greenhouse/Floriculture/Nursery</i>	271	
	<i>Turkeys</i>	267	
	<i>Cattle and Calves</i>	126	
	<i>Corn</i>	120	
	<i>Soybeans</i>	111	
	<i>Eggs</i>	104	
	<i>Wheat</i>	76.3	
	<i>Tobacco</i>	69.4	
	<i>Dairy Products</i>	67.9	
	<i>Other Crops (1)</i>	328	
	<i>Other Livestock (2)</i>	106	
	<i>State Total (3)</i>	2,360	

(1) Peanuts, rice, oats, wheat, sorghum, vegetables, sweet potatoes, peaches, pecans, apples, other fruits, and nuts, etc., minor seed crops, miscellaneous field crops, and forest products.

(2) Farm chickens, hogs, other poultry, sheep, and wool, goats and goats' milk, aquaculture, honey, and beeswax, horses, lambs, and miscellaneous.

(3) Sum of commodities may not add to State total due to rounding.

For additional information: Contact Rhonda L. Brandt, Director, 803 765 3333 or visit us online at [www.nass.usda.gov/sc](http://www.nass.usda.gov/sc)  
Published by the USDA NASS, South Carolina Field Office, 1551 Assembly Street, Room 1005, Columbia, SC 29202-1511

## Attachment 3

# The State of South Carolina's Forests



### FOREST AREA



- South Carolina has 12.9 million acres of forestland. This is 67% of the state's total land area.
- Hardwood timber types occupy over 54% of the state's forestland. Pine types occupy 46%.
- South Carolina's forestland acreage remains stable, averaging 12.6 million acres since 1968.
- The 2006 forest inventory found that there are over 2 million more acres of forestland than there were in the first inventory in 1936.

### ECONOMIC IMPACT



- Forestry is #1 among manufacturing industries in jobs (44,708) and payroll (\$2.4 billion).
- The total economic impact of South Carolina's forest industry is \$17.45 billion annually.
- South Carolina exports about \$1 billion in forest products each year.
- Timber is the state's #1 agricultural commodity at \$870 million annually.

### FOREST OWNERSHIP



- 88% of South Carolina's forests are privately owned.
- 67% of private forests are family-owned.
- The average "family forest" is 65 acres. 74% of these owners live on the land.
- In 2006, forest industries owned 1.4 million acres, down 29% since 2001 and continuing to decrease.
- Public agencies own 12% of South Carolina's forests.

### FOREST INVENTORY



- South Carolina's forests now contain 21.5 billion cubic feet of wood, more than at any time in the past century.
- The state's forests, both hardwood and softwood, are growing significantly more wood than is being harvested.
- Net annual softwood growth is double pre-Hurricane Hugo growth rates. The present annual growth of \$17 million cubic feet per year is the highest ever recorded.
- Net annual hardwood growth rates have steadily increased since Hurricane Hugo. The present annual growth of 387 million cubic feet per year is approaching the highest ever recorded.

### FOREST ECOSYSTEM HEALTH



- The state's forested watersheds fulfill a critical resource role as the primary supplier of clear public water.
- South Carolina's forested watersheds are well managed as documented by a 98% compliance rating with state water quality guidelines.
- The state's forests produce timber and jobs while simultaneously serving as a backdrop for a desirable quality of life. In addition to beautiful landscapes, forests provide clean water, abundant wildlife, recreation, carbon storage and soil protection.

Sources: South Carolina Forestry Commission (SCFC) and USDA Forest Service Forest Inventory and Analysis (FIA)

For more information about South Carolina's Forest Inventory Analysis, contact the SC Forestry Commission: 803-896-8800.

[www.trees.sc.gov](http://www.trees.sc.gov)

4/21/08

The South Carolina Forestry Commission and the USDA Forest Service are equal opportunity employers and providers.

## **Appendix 4**

### **Net Volume and Stumpage Value of All Species of Oaks in Forest and Timberland in South Carolina**

White oak, Swamp white oak, Scarlet oak, Southern red oak, Cherrybark oak, Scrub oak, Turkey oak, Laurel oak, Overcup oak, Blackjack oak, Swamp chestnut oak, Chinkapin oak, Water oak, Willow oak, Chestnut oak, Northern red oak, Shumard oak, Post oak, Black oak, Live oak, Dwarf post oak, Bluejack oak, Oglethorpe oak

Compiled by  
The South Carolina Forestry Commission  
5500 Broad River Rd.  
Columbia, SC 29212  
November, 2009

	<sup>1</sup> Net Volume (CuFt) of All Live Trees 5.0" to 10.9" DBH	
<b>County</b>	<b>Total</b>	<b>Total Cords<sup>2</sup></b>
Abbeville (1)	\$26,200,002.00	\$371,631.23
Aiken (3)	\$26,094,345.00	\$370,132.55
Allendale (5)	\$14,575,663.00	\$206,746.99
Anderson (7)	\$23,661,161.00	\$335,619.30
Bamberg (9)	\$13,452,471.00	\$190,815.19
Barnwell (11)	\$16,952,518.00	\$240,461.25
Beaufort (13)	\$13,727,693.00	\$194,719.05
Berkeley (15)	\$46,011,150.00	\$652,640.43
Calhoun (17)	\$13,202,270.00	\$187,266.24
Charleston (19)	\$26,018,911.00	\$369,062.57
Cherokee (21)	\$14,936,533.00	\$211,865.72
Chester (23)	\$18,288,182.00	\$259,406.84
Chesterfield (25)	\$15,688,803.00	\$222,536.21
Clarendon (27)	\$21,428,111.00	\$303,944.84
Colleton (29)	\$36,737,221.00	\$521,095.33
Darlington (31)	\$15,795,667.00	\$224,052.01
Dillon (33)	\$7,245,154.00	\$102,768.14
Dorchester (35)	\$19,812,754.00	\$281,031.97
Edgefield (37)	\$9,204,570.00	\$130,561.28
Fairfield (39)	\$25,171,778.00	\$357,046.50
Florence (41)	\$23,483,619.00	\$333,100.98
Georgetown (43)	\$14,663,135.00	\$207,987.73
Greenville (45)	\$25,979,458.00	\$368,502.95
Greenwood (47)	\$16,436,107.00	\$233,136.27
Hampton (49)	\$18,161,721.00	\$257,613.06
Horry (51)	\$26,123,074.00	\$370,540.06
Jasper (53)	\$21,514,322.00	\$305,167.69
Kershaw (55)	\$25,459,235.00	\$361,123.90
Lancaster (57)	\$27,264,306.00	\$386,727.74
Laurens (59)	\$24,291,597.00	\$344,561.66
Lee (61)	\$6,237,806.00	\$88,479.52
Lexington (63)	\$28,842,626.00	\$409,115.26
McCormick (65)	\$11,539,289.00	\$163,677.86
Marion (67)	\$15,476,158.00	\$219,519.97
Marlboro (69)	\$10,228,177.00	\$145,080.52
Newberry (71)	\$22,508,960.00	\$319,276.03
Oconee (73)	\$50,949,124.00	\$722,682.61

<b><sup>1</sup>Net Volume (CuFt) of All Live Trees 5.0" to 10.9" DBH</b>		
<b>County</b>	<b>Total</b>	<b>Total Cords<sup>2</sup></b>
Orangeburg (75)	\$34,194,008.00	\$485,021.39
Pickens (77)	\$26,035,134.00	\$369,292.68
Richland (79)	\$24,862,694.00	\$352,662.33
Saluda (81)	\$9,266,057.00	\$131,433.43
Spartanburg (83)	\$30,179,655.00	\$428,080.21
Sumter (85)	\$21,574,797.00	\$306,025.49
Union (87)	\$13,873,027.00	\$196,780.52
Williamsburg (89)	\$28,030,508.00	\$397,595.86
York (91)	\$34,191,279.00	\$484,982.68
<b>Totals:</b>	<b>\$995,570,821.00</b>	<b>\$14,121,571.93</b>

<sup>1</sup>Net volume of all live trees 5.0" to 10.9" DBH to a 4.0" DOB top.

<sup>2</sup>Total Cords based on merchantable oak species. Turkey oak, blackjack oak, live oak, and bluejack oak species not included based on lack of merchantability.

Source: USDA Forest Service, Forest Inventory and Analysis - Forest Inventory Data Online (FIDO) database.

Values may not equal totals due to rounding.

Data: South Carolina 2007

<b>Stumpage Value of Sawtimber and Pulpwood of Oak Species<sup>1</sup></b>				
<b>County</b>	<b>Sawtimber Value</b>	<b>Topwood Value</b>	<b>Pulpwood Value</b>	<b>Total Value</b>
Abbeville (1)	\$51,284,769	\$3,896,000.07	\$9,461,731.22	\$64,642,500.06
Aiken (3)	\$29,059,849	\$1,980,898.93	\$9,342,145.64	\$40,382,893.82
Allendale (5)	\$29,852,804	\$1,731,078.42	\$5,218,294.10	\$36,802,176.79
Anderson (7)	\$38,739,343	\$2,726,192.88	\$8,544,867.50	\$50,010,403.70
Bamberg (9)	\$10,303,309	\$1,019,891.83	\$4,816,175.43	\$16,139,376.71
Barnwell (11)	\$36,719,524	\$2,398,473.78	\$6,069,241.91	\$45,187,240.10
Beaufort (13)	\$13,429,841	\$1,139,574.54	\$4,914,708.81	\$19,484,124.35
Berkeley (15)	\$72,333,147	\$4,301,067.13	\$16,472,644.34	\$93,106,858.07
Calhoun (17)	\$9,301,486	\$707,464.31	\$16,472,644.34	\$26,481,594.85
Charleston (19)	\$45,434,509	\$2,110,992.69	\$4,726,599.93	\$52,272,101.59
Cherokee (21)	\$44,502,235	\$3,113,538.43	\$5,394,101.14	\$53,009,874.12
Chester (23)	\$34,592,033	\$2,648,653.02	\$6,547,428.56	\$43,788,115.06
Chesterfield (25)	\$20,382,785	\$1,158,859.34	\$5,616,814.01	\$27,158,458.05
Clarendon (27)	\$15,020,567	\$1,324,170.95	\$7,671,567.68	\$24,016,305.48
Colleton (29)	\$58,134,320	\$3,707,835.84	\$13,152,446.21	\$74,994,602.01
Darlington (31)	\$6,909,199	\$395,523.33	\$5,655,072.84	\$12,959,795.18

<b>Stumpage Value of Sawtimber and Pulpwood of Oak Species<sup>1</sup></b>				
<b>County</b>	<b>Sawtimber Value</b>	<b>Topwood Value</b>	<b>Pulpwood Value</b>	<b>Total Value</b>
Dillon (33)	\$23,982,006	\$1,496,132.68	\$2,593,867.90	\$28,072,006.78
Dorchester (35)	\$38,593,989	\$2,331,661.18	\$7,093,246.96	\$48,018,897.57
Edgefield (37)	\$20,512,391	\$1,849,878.98	\$3,295,366.62	\$25,657,636.64
Fairfield (39)	\$44,280,513	\$2,495,778.46	\$9,011,853.57	\$55,788,144.59
Florence (41)	\$33,168,090	\$1,779,175.83	\$8,407,468.70	\$43,354,734.35
Georgetown (43)	\$25,974,993	\$1,253,253.36	\$5,249,610.32	\$32,477,856.72
Greenville (45)	\$64,854,089	\$5,821,942.89	\$9,382,085.12	\$80,058,117.30
Greenwood (47)	\$36,354,140	\$1,882,982.76	\$5,884,359.44	\$44,121,482.31
Hampton (49)	\$27,745,843	\$1,502,608.09	\$6,502,153.73	\$35,750,604.66
Horry (51)	\$62,791,294	\$3,649,408.28	\$9,352,431.03	\$75,793,132.88
Jasper (53)	\$95,135,424	\$4,277,830.22	\$7,702,432.44	\$107,115,686.48
Kershaw (55)	\$23,563,240	\$1,807,108.46	\$9,114,767.25	\$34,485,115.56
Lancaster (57)	\$38,231,039	\$2,695,068.49	\$9,761,008.28	\$50,687,115.61
Laurens (59)	\$57,556,465	\$4,542,429.20	\$8,696,736.29	\$70,795,630.74
Lee (61)	\$2,074,886	\$185,180.33	\$2,233,223.03	\$4,493,289.74
Lexington (63)	\$36,325,150	\$2,596,420.90	\$10,326,069.22	\$49,247,639.98
McCormick (65)	\$12,066,312	\$1,279,543.77	\$4,131,229.14	\$17,477,085.31
Marion (67)	\$34,808,325	\$1,740,521.40	\$5,540,684.08	\$42,089,530.61
Marlboro (69)	\$17,352,305	\$824,427.90	\$3,661,832.45	\$21,838,565.75
Newberry (71)	\$66,012,044	\$3,965,017.83	\$8,058,526.96	\$78,035,588.31
Oconee (73)	\$67,544,168	\$5,417,802.77	\$18,399,499.25	\$91,361,469.86
Orangeburg (75)	\$71,064,714	\$4,349,304.17	\$12,241,939.89	\$87,655,957.63
Pickens (77)	\$74,373,932	\$5,631,110.26	\$9,402,191.65	\$89,407,234.15
Richland (79)	\$18,386,008	\$1,836,093.65	\$8,901,197.11	\$29,123,299.11
Saluda (81)	\$43,238,565	\$2,040,677.63	\$3,317,379.84	\$48,596,622.41
Spartanburg (83)	\$103,185,229	\$7,393,412.46	\$10,898,922.22	\$121,477,564.16
Sumter (85)	\$13,388,488	\$989,437.36	\$7,724,083.35	\$22,102,008.39
Union (87)	\$32,163,764	\$2,796,974.21	\$5,010,032.16	\$39,970,770.70
Williamsburg (89)	\$55,893,657	\$3,156,652.24	\$10,035,319.46	\$69,085,628.94
York (91)	\$50,697,879	\$4,572,248.00	\$12,347,659.05	\$67,617,785.98
<b>Totals:</b>	<b>\$1,807,318,664</b>	<b>\$120,520,299.25</b>	<b>\$364,353,660.19</b>	<b>\$2,292,192,623.16</b>

<sup>1</sup>All oak species with the exception of turkey oak, blackjack oak, live oak, and bluejack oak due to their lack of merchantability.

Values may not equal totals due to rounding.

# CLEMSON

UNIVERSITY

March 17, 2010

Ms. Rebecca Bech  
Deputy Administrator for  
Plant Protection and Quarantine  
USDA-APHIS  
Jamie L. Whitten Federal Building  
14<sup>th</sup> Street and Independence Avenue, SW  
Room 301-E  
Washington, DC 20250

Dear Ms. Bech:

The purpose of this correspondence is to transmit a Special Need Request for the State of South Carolina regarding light brown apple moth (*Epiphyas postvittana*) as permitted under the Plant Protection Act (PPQ, 7 U.S.C. 7701).

This special need request is based on sound scientific data and clearly details risk assessments documenting that the subject insect does not currently exist in South Carolina. The document also illustrates how the introduction and establishment of light brown apple moth would harm the environment and agricultural industries of South Carolina, and cause economic damage through loss of trade revenues. The petition also describes a unique agricultural crop and ecosystem in South Carolina that are particularly vulnerable to *Epiphyas postvittana*. Finally, the importance of forestry and agriculture to South Carolina's economy is discussed.

Should you need additional information relating to this submission, please feel free to contact me. I sincerely appreciate the opportunity to submit this special need request to you for review and prompt action.

(b)(6)

Assistant Department Head  
864-646-2135  
(b)(6) [jd@clermson.edu](mailto:jd@clermson.edu)

Attachments

C:

(b)(6)



## South Carolina Petition for Special Need Request to USDA APHIS PPQ Regarding Light Brown Apple Moth, *Epiphyas postvittana* (Walker)

This petition is organized according to “Special Need Requests Under the Plant Protection Act”, 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). Following the specific data required by that process, the following is presented with respect to the USDA-APHIS-PPQ *Epiphyas postvittana* regulations and mitigation measures:

- I. Inadequacy of the Current Mitigation Measures for Nurseries and
- II. Recommendation to Impose Prohibitions or Restrictions on the Movement in Interstate Commerce of Specific Articles that are in Addition to the Prohibitions and Restrictions Imposed by APHIS PPQ

USDA APHIS PPQ amended its domestic quarantine regulations to establish a process by which a State could request approval to impose prohibitions or restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by APHIS PPQ. The Plant Protection Act provides that States may make such special need requests. The process is described in “Special Need Requests Under the Plant Protection Act,” 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). All special need requests must be submitted to the Deputy Administrator for Plant Protection and Quarantine, APHIS, USDA, Jamie L. Whitten Federal Building, 14<sup>th</sup> Street and Independence Avenue, SW., Room 301-E, Washington, DC 20250.

Specific criteria for Special Need Requests are identified in §301.1-2 Criteria. These five elements are listed below, along with commentary specific to South Carolina’s petition for change.

- 1) *Data drawn from a scientifically sound detection survey, showing that the biological control organism, noxious weed, or plant pest of concern does not exist in the State or political subdivision or, if already present in the State or political subdivision, the distribution of the biological control organism, noxious weed, or plant pest of concern;*

Current known distribution of the *Epiphyas postvittana* is available at:

<http://pest.ceris.purdue.edu/searchmap.php?selectName=ITBUBPA>

and <http://www.cdfa.ca.gov/phpps/PDEP/lbam/quarantine.html>. In 2008, USDA APHIS PPQ conducted a national detection survey for light brown apple moth to demonstrate areas free of the insect and to find any additional areas that might be infested. To date, no state outside of California in the continental U.S. has been found to have any population of LBAM. The methodology involved in surveying for LBAM involved an evaluation of states that would be considered to have crops that would be high to medium risk and also to look at nursery stock. The criteria utilized in surveying for LBAM in nurseries were to look at nurseries that received stock from California first. The results of the national light brown apple moth survey confirm the absence of LBAM in states other than California. These data are reported as entered into NAPIS in:

<http://pest.ceris.purdue.edu/pdf/pdfdata.php?pestcode=ITBUBPA&startdate=20070101>

USDA APHIS PPQ and the Clemson University Department of Plant Industry (DPI) have conducted nursery and orchard surveys for light brown apple moth (LBAM) for two years with no detection of the insect in nursery stock, peach fruit or foliage, or the environment.

Beginning in 2008, two types of surveys for LBAM have been conducted in South Carolina. USDA APHIS PPQ in SC conducted an LBAM survey at nurseries that purchase plant material from California, recording 369 negative observations. South Carolina and Georgia peach growers have collaborated in an effort to develop an export market to Mexico for peaches from both states. To confirm the absence of target pests, the Clemson University Department of Plant Industry conducted an intensive insect trapping survey at commercial peach orchards in South Carolina. Targeted insects included LBAM among other pests of concern to Mexico. From 2008 to 2009, no LBAM have been detected in 396 observations in peach orchards. Data from the 2008 survey are presented in Horton et. al. (2009). South Carolina LBAM surveys will be repeated in 2010 in order to confirm that the insect is not present in this state.

- 2) *If the biological control organism, noxious weed, or plant pest is not present in the State or political subdivision, a risk analysis or other scientific data showing that the biological control organism, noxious weed, or plant pest could enter the State or political subdivision and become established;*

The 2009 Light Brown Apple Moth National Survey Guidelines state that South Carolina is in the “High Risk” category. High risk states are states that are at an increased risk of introduction of LBAM due to climate and/or major crops of production. According to the authors, LBAM would have abundant host commodities in South Carolina, and would always have the degree-days required to pass through five generations in a season. [http://origin-www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/lba\\_moth/downloads/lbam-natlsurveyguidelines.pdf](http://origin-www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/downloads/lbam-natlsurveyguidelines.pdf)

Evidence that LBAM could become established in South Carolina is provided by Vennette et. al. (2003). The authors state that, “Based on the distribution of climate zones in the U.S., we estimate that approximately 80% of the continental U.S. may be climatically suitable for *E. postvittana*.” Should light brown apple moth enter South Carolina, the insect could become established on the large number of hosts present in this state’s favorable environment. [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/praeostvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/praeostvittanapra.pdf)

The two documents referenced above were developed for or by USDA APHIS, and indicate that South Carolina is at risk for both the introduction and establishment of light brown apple moth.

- 3) *Specific information showing that, if introduced into or allowed to spread within the State or political subdivision, the biological control organism, noxious weed, or plant pest would harm or injure the environment or agricultural resources in the State or political subdivision. The request should contain detailed information, including quantitative estimates, if available, about what harm or injury would result from the introduction or dissemination of the biological control organism, noxious weed, or plant pest in the State or political subdivision;*

In 2003, Venette et. al. considered light brown apple moth highly likely to become established in the United States. The consequences of LBAM establishment were judged to be serious for agricultural and natural ecosystems. *E. postvittana* is a pest of economic importance to many ornamental and fruit crops throughout its range. Feeding by the larvae deforms, stunts, or destroys seedlings, which results in economic damage. It also spoils the appearance of ornamental plants and injures tree and small fruit crops. Chemical control of *E. postvittana* is difficult because of its leaf-rolling ability, and because there is evidence of resistance due to overuse of sprays in Australia and New Zealand.

The Mini Risk Assessment by Venette et. al. (2003) rated the economic impact potential to be high. Bailey et. al. (1995) report that in southern Australia in 1992, 70,000 LBAM larvae/ha were documented, which caused a loss of 4.7 tons of chardonnay fruit. Damage in the 1992-93 Chardonnay season in the Coonawarra region of Australia cost \$2,000/ha, with mature larvae the most difficult stage to control (Lay-Yee et. al., 1997). Each larva can destroy up to 30 g of mature grapes (Bailey, 1997). Damage to apples appears as either pinpricks up to about 3 mm deep into the fruit, or entry holes extending deeper than 3 mm into the fruit that leave some frass and webbing at the surface (van Den Broek, 1975). The first generation (in spring) causes the most damage to apples while the second generation damages fruit harvested later in the season (Terauds, 1977). Some varieties of apples such as 'Sturmer Pippin,' 'Granny Smith,' and 'Fuji' can have up to 20% damage (Suckling and Ioriatti, 1996), while severe attacks can damage up to 75% of a crop (USDA, 1984). Peaches are damaged by feeding that occurs on the shoots and fruit (Lo et. al., 1995). Feeding damage in fruit of many host plants provides entry points to pathogens which can cause secondary damage. An example is *Botrytis cinerea*, which causes grey mold on grapes (Nair, 1985).

Fowler et. al. (2007) provided additional information in their economic analysis of the risk from the light brown apple moth to U.S. apple, grape, orange, and pear production. Their analysis had two components: 1) a geospatial analysis of the United States to identify areas at risk for LBAM introduction based upon host and climate, and 2) a quantitative analysis estimating the economic losses due to LBAM if introduced to the identified areas. Trade effects were not considered. Their analysis indicated that LBAM could become established throughout the majority of the United States with the west coast, southwestern, and southeastern States at the highest risk. The quantitative model estimated that if LBAM were introduced in the at-risk areas, the mean annual costs would be \$105 million. The combined results of the geospatial and quantitative analyses showed that

significant economic losses due to LBAM would occur throughout the U.S. The authors note that, because LBAM is highly polyphagous, additional economic damage would occur to other crops, as well as to domestic and international trade. The fact that LBAM hosts include common nursery stock, the nursery trade would provide a pathway for introduction of the pest to uninfested areas outside of currently-quarantined areas. This is corroborated by USDA APHIS in its Treatment Program for Light Brown Apple Moth in California, Environmental Assessment (2008), which speculates that the movement of nursery stock is responsible for the spread of LBAM throughout the quarantined areas of California.

In addition to direct losses from crop damage and control costs, the economic impact from the loss of trade revenues is an indirect cost of light brown apple moth. The presence of light brown apple moth has prompted domestic and foreign trade limitations from the quarantined counties in California. In 2007, both Mexico and Canada imposed restrictions on the movement of plants and crops grown in the LBAM quarantined counties of California in an effort to prevent the movement of the insect to those countries. Chile followed with similar trade restrictions in 2008 (CDFA, 2008; USDA, February 2008; USDA, May 2008). Many countries, including Korea, China, Peru and South Africa, list light brown apple moth as a quarantine pest and may require certification verifying that certain host commodities are pest-free (Varela et. al., 2008). Implementation of quarantines by other countries, as well as other states, was a concern expressed by the California Department of Food and Agriculture in its 2008 Report To The Legislature: The Light Brown Apple Moth Program (CDFA, 2008).

Agriculture and Forestry in South Carolina together have an impact of nearly \$40 billion per year to South Carolina's economy. Traditional agriculture and forestry combined form the "agribusiness" industry, which represents the largest sector of the state's economy (The Economic Impact of the Agribusiness Industry in South Carolina, 2008). The direct economic impacts of important agricultural commodities include timber at \$870 million annually (Attachment 1) and greenhouse/nursery/floriculture at \$271 million annually (Attachment 2). The complete host list for light brown apple moth is extensive and contains over 2,000 plant species, including many common forest trees, nursery plants, and food crops. South Carolina plants on the LBAM host list include forest trees such as oaks, pines, and cypress; food crops such as peaches, strawberries, blueberries, and tomatoes; and numerous ornamentals, including the South Carolina state flower, the Carolina jasmine. Examples of those common hosts include oaks, roses, camellias, *Viburnum* sp., and *Rhododendron* sp. (USDA, February 2008).

Reports from New Zealand reveal that light brown apple moth causes a 5 to 20 percent crop yield loss (USDA, May 2008). Using the New Zealand crop loss results, South Carolina's agribusiness industry could experience extreme losses each year if LBAM were to become established in SC. The annual direct loss in

the greenhouse/nursery/floriculture industry alone could reach as high as \$54 million. Economic loss in forestry could reach \$174 million annually, not including loss of jobs and impacts on related industries such as sawmills and manufacturing.

The South Carolina peach crop is the crop most at risk from light brown apple moth. South Carolina ranks second to California in peach production in the United States. Over 1000 workers across South Carolina are involved in the production, harvesting, packing, transporting, and sale of peaches, which is the number one fruit crop in the state. The farm gate value of the SC peach crop is more than \$50 million annually. The introduction and establishment of LBAM into the SC peach crop could cause direct losses as high as \$10 million annually (Martin Eubanks, South Carolina Department of Agriculture, Personal Communication, 2010).

Loss of trade revenues would be an additional economic impact from the presence of LBAM. Since 2008, South Carolina and Georgia peach growers have collaborated in an intensive effort to develop an export market to Mexico for peaches from both states. South Carolina and its peach industry cannot afford to jeopardize the years of survey and negotiation that have been invested into this program by neglecting to take every possible precaution to prevent the introduction of LBAM into this state.

Should light brown apple moth become established in South Carolina, it would directly and detrimentally impact the most important industry in the state. In addition, it could devastate the most significant plant agriculture sectors: forestry, the greenhouse/nursery/floriculture industry, and the peach industry.

- 4) *Specific information showing that the State or political subdivision has characteristics that make it particularly vulnerable to the biological control organism, noxious weed, or plant pest, such as unique plants, diversity of flora, historical concerns, or any other special basis for the request for additional restrictions or prohibitions;*

The document, "Mini Risk Assessment Light brown apple moth, *Epiphyas postvittana* (Walker) [Lepidoptera: Tortricidae]" (Venette et. al., 2003) evaluated such factors as ecological suitability, host availability, entry potential, and establishment potential to determine the risk of LBAM entering and becoming established in the United States. It is noteworthy that *Epiphyas postvittana* has a host range in excess of 2000 plant species of 120 plant genera in over 50 families with a large number of them present in South Carolina. In the host plants listing in "Host Specificity/Availability", over 90% of the host plants are grown in South Carolina, either in commercial production or in backyard gardens.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/download\\_s/prae/postvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/download_s/prae/postvittanapra.pdf)

In the listing of 147 horticultural and 51 agricultural host plants on the California Department of Food and Agriculture's website, again over 90% of the host plants are grown in South Carolina.

[http://www.cdfa.ca.gov/phpps/PDEP/target\\_pest\\_disease\\_profiles/LBAM\\_HostList.pdf](http://www.cdfa.ca.gov/phpps/PDEP/target_pest_disease_profiles/LBAM_HostList.pdf)

Both Venette et. al. (2003) and Fowler et. al. (2007) determined that *Epiphyas postvittana* could establish throughout the majority of the conterminous United States. This establishment range included the majority of the growing area for the analyzed crops, and the entire state of South Carolina.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/lba\\_moth/downloads/lba\\_mecconomicanalysis.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/downloads/lba_mecconomicanalysis.pdf)

As stated in Element 3 above, the host list for LBAM is extremely wide and includes a vast array of crops, native plants, and ornamentals. In fact, the host range is so broad, and includes so many plants, that the list of regulated articles in the federal order is defined by exemptions to the regulation, rather than by the regulated articles themselves. Regulated articles, which may not be moved interstate from a quarantined area except in accordance with the federal order, are nursery stock, cut flowers, garlands, wreaths or greenery of any plant, cut trees and shrubs (including Christmas trees), green waste, fruits and vegetables (see exemptions), green hay, bulk fresh herbs and spices. The list of regulated articles also includes "[a]ny other products, articles, or means of conveyance of any character whatsoever, when it is determined by an inspector that they present a hazard of spread of LBAM" (USDA, 2007).

Of the nationally-ranked South Carolina crop commodities (Attachment 2), only peaches, cucumbers, and cantaloupes have been determined specifically to be hosts of *Epiphyas postvittana* (Venette et. al., 2003; USDA, February 2008). However, peanuts and tobacco may prove to be hosts if they are exposed to LBAM, particularly since plant species in the same families are known hosts of LBAM. For example, South Carolina is the #6 producer of peanuts in the U.S. Peanuts are not specifically listed as a proven host of LBAM, but Leguminosae is one of the families that LBAM shows a preference for, and many legumes are recognized hosts for LBAM. Likewise, close relatives of tobacco, such as tomato and potato, are known hosts of LBAM, although tobacco itself is not listed.

Specific LBAM hosts of particular concern for South Carolina due to their presence in the forests and natural environment, frequent use in urban and residential landscapes, or importance as a crop commodity include oak, pine, poplar, cedar, walnut, locust, cypress, cedar, willow, walnut, *Rhododendron* sp., *Camellia* sp., *Pieris* sp., *Viburnum* sp., honeysuckle, English ivy, Virginia creeper, *Clematis* sp, *Forsythia* sp., *Buddleia* sp., *Cotoneaster* sp., *Salvia* sp., Queen Anne's lace, privet, holly, *Chrysanthemum* sp., jasmine, roses, peaches, plums, apples, strawberries, blueberries, blackberries, cole crops, peppers, tomatoes, cucumbers, and grapes, among many others (Venette et. al., 2003).

Unique characteristics of South Carolina relative to the plants listed above will be described in paragraphs below to illustrate the state's unique vulnerability to *Epiphyas postvittana*.

The Eastern U.S. forests, including those in South Carolina, contain many trees and common understory plants that are hosts for light brown apple moth. Many of these natural areas are protected sites due to rare or endangered plant species.

South Carolina has 80,000 acres of unique protected lands comprising 46 state parks, 11 state and national forests, and one national park.  
([www.southcarolinaparks.com](http://www.southcarolinaparks.com))

The Congaree National Park is the largest intact old-growth floodplain forest in North America. The near-virgin southern hardwood forest is one of the most diverse forest communities on the continent. The park has been designated both a National Natural Landmark and an International Biosphere Reserve.  
(<http://www.nps.gov/cong/index.htm>)

The management of the Andrew Pickens District of the Sumter National Forest emphasizes habitat restoration of wildlife and plant species, with emphasis on numerous rare, threatened, endangered, and sensitive species. The forest is located at the southernmost part of the Appalachian Mountains and has numerous *Rhododendron* sp., ferns, and native holly plants in the understory.  
(<http://www.fs.fed.us/r8/fms/>)

The nation's only tea plantation is located in South Carolina as well. Tea is a product of the *Camellia sinensis* plant. *Camellia spp.* are proven hosts of light brown apple moth.

Ten percent of the registered nurseries and dealers in South Carolina received nursery stock from California in 2009, and many of those were among the larger nurseries and dealers in the state. It is generally accepted that the most significant and high-risk pathway for artificial spread of plant pests is the movement of plants through the nursery trade. In its 2008 report to the California legislature, CDFA stated that the nursery trade would provide a significant pathway for the spread of light brown apple moth to non-infested areas (CDFA, 2008). In fact, the movement of nursery stock was probably responsible for the spread of LBAM throughout the quarantined area of California (USDA, February 2008). The large host range for LBAM as well as the pathway potential of the nursery industry, places South Carolina at significant risk for the introduction and spread of LBAM. Given South Carolina's unique environmental features, agricultural commodities and the volume of nursery stock that is moved into South Carolina from areas with existing populations of LBAM, it is imperative that additional safeguards be in place for the nursery/greenhouse industry.

- 5) *Information detailing the proposed additional prohibitions or restrictions and scientific data demonstrating that the proposed additional prohibitions or restrictions are necessary and adequate, and that there is no less drastic action that is feasible and that would be adequate, to prevent the introduction or spread of the biological control organism, noxious weed, or plant pest in the State or political subdivision.*

Agriculture officials, farmers, nurserymen, and foresters in South Carolina are extremely concerned about the possibility that light brown apple moth could move from infested areas in California to this state through the nursery trade or other pathways. This concern has been articulated by various individuals in California as the insect spread from county to county in that state, and it mirrors the worry that many feel in South Carolina today.

Since light brown apple moth, *Epiphyas postvittana*, was detected in California in February of 2007, agriculturists and government officials in California and at USDA have expressed alarm about the effect that the insect could have on agriculture in that state as well as nationwide. Some of those comments follow.

*“A risk assessment review conducted by the University of Minnesota in 2003 concluded that establishment of LBAM in the United States posed significant consequences to agriculture production and our natural landscape. Given these risks, it’s vital that we continue momentum against the spread of this pest now, while the population level in California is relatively low. Continued action against LBAM will protect California’s agricultural and natural resources, as well as those across the country.”*

USDA APHIS Administrator Cindy Smith on June 20, 2008, regarding the Updated Eradication Plan for Light Brown Apple Moth

<http://www.aphis.usda.gov/newsroom/content/2008/06/lbam.shtml>

*“The crisis is immediate, and this is an environmental emergency requiring quick action by the state and federal governments. Left unchecked, the light brown apple moth would spread rapidly, threatening more than 2,000 plants; our beloved Central Coast cypress, redwoods and oaks; and more than 250 agricultural crops. The threat is so widespread that international scientists with experience with the pest call it the light brown ‘everything’ moth. ...*

*When discussing the food supply, it is important to recognize that, left unchecked, the light brown apple moth could cause damage as high as \$640 million annually in the nine-county infested area. If the pest becomes generally established statewide, annual losses could run into the billions.”*

California Commissioner of Agriculture A. G. Kawamura, *Marin Independent Journal* (A.G. Kawamura. 2008).

*“If we let this thing get into the central valley [California’s main agricultural area], this is Armageddon for agriculture.”*

Tom Berryhill, California State Assembly Agriculture Commissioner (Robinson 2008, The Ecologist)

*“Although eradication from its present California distribution may seem difficult and expensive, the effort is worthwhile given the possible economic and ecological ramifications should the species establish itself and proliferate throughout agricultural acreage in California and the United States.”*

Lucia G. Varela, Integrated Pest Management (IPM) Advisor, UC Statewide IPM Program and UC Cooperative Extension (UCCE), Sonoma County (Varela, et. al. 2008)

*“The obvious damage in Santa Cruz County raises the likelihood of further and perhaps unpredictable harm across the United States. This experience also suggests there may be other as-yet-unidentified host commodities across the nation that will be susceptible to LBAM, and the authorities and growers in those areas have no voice in California’s decision to allow LBAM to spread.”*

Jason Smith, Director, Monterey County Farm Bureau

(Monterey Co. Farm Bureau Environmental Impact Report, (July 31, 2009)

[http://www.montereycountymonoculturebureau.org/Issues/light\\_brown\\_apple\\_moth.htm](http://www.montereycountymonoculturebureau.org/Issues/light_brown_apple_moth.htm))

The concerns expressed in the statements above were well-founded. As of December 2, 2009, the number of counties in California where LBAM moths have been trapped has grown to 18. There are a total of 27,956 (December 2, 2009 counts) pheromone-baited traps in and around retail and production nurseries, at ports of entry, and in the open environment and are being inspected bi-weekly. Trap counts have yielded 257,907 *Epiphyas postvittana* that have been confirmed as LBAM (USDA APHIS 2009 LBAM situation report 12/2/2009). In addition, According to USDA APHIS PPQ’s NAPIS Data Notification, on March 3, 2010, three California counties were re-quarantined due to the reintroduction of LBAM into those counties since eradication (Attachment 3).

Even with regulatory limits in place, light brown apple moth has now spread to 2,700 square miles of California. Despite the extreme concern expressed by agriculture officials in the comments above about the risk that LBAM poses to agriculture both in California and across the United States, the focus of USDA’s LBAM program in California has changed from eradication to suppression and control. Even so, the regulatory framework will not change. The objective will be to maintain trade and interstate commerce by focusing on controlling the moth in agricultural, rather than urban, areas. This decision will clearly put states outside California at higher risk of acquiring LBAM through interstate commerce. (Information from NPB/PPQ Management Team Conference Call, March 16, 2010)

## **I. Inadequacy of Current Mitigation Measures**

Although the early regulatory strategies have been comprehensive, additional regulatory measures are needed to address those risks associated with movement of nursery stock to ensure adequate safeguarding of the non-infested states. Specific inadequacies of current mitigation efforts directed primarily at the movement of nursery stock to prevent dispersal of *Epiphyas postvittana* are:

1. Based on the extremely broad host list, it is very likely that not all hosts of the insect have been identified. Countless numbers of South Carolina crops, ornamentals, and even weeds have not been evaluated as hosts for LBAM and pose an unknown risk for establishment of LBAM if the insect should be introduced to the state.
2. Although trapping for LBAM is mandated in and near areas where the moth has been found, the practice is useful only for delimiting the insect, and does nothing to prevent its movement to other areas.
3. Nurseries and cut flower producers in quarantined areas are not required to be enclosed by screening and double doors to prevent entry of light brown apple moth, even when the business is in close proximity to active infestations.
4. Shipments already loaded and inspected are not required to be covered overnight prior to shipping, even though LBAM is active at night and may infect a shipment after inspection.
5. The shift in the California LBAM regulatory program from eradication to suppression and control with no corresponding change in the regulatory framework increases the risk that LBAM will be introduced into South Carolina and other states through interstate commerce.

## **Conclusion**

South Carolina has unique agricultural and environmental features and a significant economic reliance upon forestry, crop agriculture, and nursery/greenhouse/floriculture. The mini pest risk assessment, the economic analysis and many other scientific and regulatory documents clearly agree and demonstrate that *Epiphyas postvittana* presents a high risk of spread to and successful colonization in other states, particularly via the nursery pathway. What is striking is that the regulatory requirements range from only slight enhancements to even less than normal phytosanitary requirements for interstate shipment of nursery stock, all despite the high risk rating for this plant pest to establish elsewhere in a majority of the rest of United States.

## II. Recommendations

Based on a thorough review of the regulatory procedures currently utilized in California, there appear to be critical and major inadequacies in the program. As such, it is anticipated these inadequacies hold the potential for the introduction of *Epiphyas postvittana* to states such as South Carolina which are not currently found to be infested.

Therefore, the State of South Carolina recommends the following changes to impose restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by USDA APHIS PPQ. These apply to any area under state or federal quarantine for *Epiphyas postvittana*. Regulated articles will include host plants for *Epiphyas postvittana* and any other product, articles, or any other means of conveyance, when it is determined by a quarantine officer of a state or federal plant pest regulatory agency that they present a hazard of spreading *Epiphyas postvittana*. A complete listing of host material may be found at:

[http://www.cdfa.ca.gov/phpps/PDEP/target\\_pest\\_disease\\_profiles/LBAM\\_HostList.pdf](http://www.cdfa.ca.gov/phpps/PDEP/target_pest_disease_profiles/LBAM_HostList.pdf)  
and  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/pr/epostvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/pr/epostvittanapra.pdf)

Regulated articles may not be moved into or within South Carolina from areas under state or federal quarantine except as outlined hereafter:

- A. A State Phytosanitary Certificate indicating inspection of each shipment is required for interstate shipments of plant material. The current Quarantine Compliance Certificate is not an acceptable substitute. The former provides a higher level of inspection efforts by the state regulatory authorities. The phytosanitary certificate must list the type and quantity of plants, the shipper's address, the recipient's name and address, and contact number(s) of the shipper and recipient. Commodities shipped in violation of the requirements may be returned to their point of origin or destroyed at the expense of the owner. Proof of insecticide treatment must accompany the phytosanitary certificate.
- B. Prior notification for *Epiphyas postvittana* host plant material is required. The shipper shall send a copy of the State Phytosanitary Certificate by mail, facsimile or e-mail to: Clemson University Department of Plant Industry, 511 Westinghouse Road, Pendleton, SC 29670; facsimile 864-646-2178; email nedward@clemson.edu.
- C. Plant material destined for interstate shipping shall be held a minimum of five weeks in an approved enclosed structure, treated with an approved insecticide, monitored with pheromone traps at a density adequate to the enclosure space and undergo a 100% inspection before being shipped interstate. If an *Epiphyas postvittana* life stage is detected then re-treatment, 100% re-inspection and another minimum five-week hold are required before interstate movement occurs.

- D. A certified USDA-approved quality management system for the production of host plants of *Epiphyas postvittana* destined for interstate movement must be developed and implemented.

(b)(6)

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Director, Regulatory Services  
Clemson University

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Clemson University

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NAPIS Pest Tracker

<http://pest.ceris.purdue.edu/searchpest.php?selectName=ITBUBPA>

NAPIS LBAM Map: <http://pest.ceris.purdue.edu/searchmap.php?selectName=ITBUBPA>

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NAPPFASST LBAM Risk Map

[http://www.nappfast.org/caps\\_pests/maps/NAPPFASST/Epiphyas%20postvittana.pdf](http://www.nappfast.org/caps_pests/maps/NAPPFASST/Epiphyas%20postvittana.pdf)

NAPPFASST LBAM Host Map

[http://www.nappfast.org/caps\\_pests/maps/Host/Epiphyas%20postvittana.pdf](http://www.nappfast.org/caps_pests/maps/Host/Epiphyas%20postvittana.pdf)

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## Attachment 1

# The State of South Carolina's Forests



### FOREST AREA

- South Carolina has 12.9 million acres of forestland. This is 67% of the state's total land area.
- Hardwood timber types occupy over 54% of the state's forestland. Pines types occupy 46%.
- South Carolina's forestland acreage remains stable, averaging 12.6 million acres since 1968.
- The 2006 forest inventory found that there are over 2 million more acres of forestland than there were in the first inventory in 1936.

### ECONOMIC IMPACT

- Forestry is #1 among manufacturing industries in jobs (44,708) and payroll (\$2.4 billion).
- The total economic impact of South Carolina's forest industry is \$17.45 billion annually.
- South Carolina exports about \$1 billion in forest products each year.
- Timber is the state's #1 agricultural commodity at \$870 million annually.

### FOREST OWNERSHIP

- 88% of South Carolina's forests are privately owned.
- 67% of private forests are family-owned.
- The average "family forest" is 65 acres. 74% of these owners live on the land.
- In 2006, forest industries owned 1.4 million acres, down 29% since 2001 and continuing to decrease.
- Public agencies control 12% of South Carolina's forests.

### FOREST INVENTORY

- South Carolina's forests now contain 21.5 billion cubic feet of wood, more than at any time in the past century.
- The state's forests, both hardwood and softwood, are growing significantly more wood than is being harvested.
- Net annual softwood growth is double pre-hurricane Hugo growth rates. The present annual growth of 817 million cubic feet per year is the highest ever recorded.
- Net annual hardwood growth rates have steadily increased since Hurricane Hugo. The present annual growth of 387 million cubic feet per year is approaching the highest ever recorded.

### FOREST ECOSYSTEM HEALTH

- The state's forested watersheds fulfill a critical resource role as the primary supplier of clean public water.
- South Carolina's forested watersheds are well managed as documented by a 98% compliance rating with state water quality guidelines.
- The state's forests produce timber and jobs while simultaneously serving as a backdrop for a desirable quality of life. In addition to beautiful landscapes, forests provide clean water, abundant wildlife, recreation, carbon storage and soil protection.

*Sources: South Carolina Forestry Commission (SCFC) and USDA Forest Service Forest Inventory and Analysis (FIA)*

*For more information about South Carolina's Forest Inventory Analysis, contact the SC Forestry Commission: 803-896-8800.*

[www.trees.sc.gov](http://www.trees.sc.gov)

4/21/08

*The South Carolina Forestry Commission and the USDA Forest Service are equal opportunity employers and providers.*



**Attachment 3**

**From:** caps (b)(6) ices@ceris.purdue.edu [mailto:caps-dnall-bounces@ceris.purdue.edu] **On Behalf Of** (b)(6)  
**Sent:** Wednesday, March 03, 2010 8:42 AM  
**To:** CAF (b)(6) ceris.purdue.edu  
**Subject:** NAPIS Data Notification

**USDA/APHIS/PPQ DATA NOTIFICATION REPORT 02/26/2010 04:00 EST**

This report includes data which have been entered into the National Agricultural Pest Information System (NAPIS) by members of the Cooperative Agricultural Pest Survey (CAPS). Best efforts are made to enter accurate and complete data, however, neither the USDA nor Purdue University certify as to the accuracy or completeness of the data.

Record Selection Criteria  
Process-Date : 02/25/2010

=====

USER-ID: **CALIFORNIA** PDCA209

Light Brown Apple Moth , Epiphyas postvittana  
Pest was designated 'New in County'  
Pest has been reintroduced to the county since eradication  
Observation-Date: 20090716 State-County: CA-Los Angeles  
Observation-Date: 20090709 State-County: CA-San Luis Obispo  
Observation-Date: 20091102 State-County: CA-Santa Barbara  
Pest-Status description: POSITIVE (PRESENT)  
NEW OR REINTRODUCED IN THE COUNTY  
KNOWN TO BE ESTABLISHED

Light Brown Apple Moth , Epiphyas postvittana  
Pest was designated 'New in County'  
Observation-Date: 20090330 State-County: CA-Yolo  
Observation-Date: 20090608 State-County: CA-San Joaquin  
Pest-Status description: POSITIVE (PRESENT)  
KNOWN TO BE ESTABLISHED

map link

USER-ID: **CALIFORNIA** PDCA211

Drosophilid Fly , Drosophila suzukii  
Sweet Orange , Citrus sinensis  
Pest was designated 'New in County'  
Observation-Date: 20090614 State-County: CA-Alameda  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED

map link

USER-ID: **COLORADO** PDCO202

Longhorned Beetle , Saperda discoidea  
Pest was designated 'New in State'

Observation-Date: 20090819 State-County: CO-Arapahoe  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

Longhorned Beetle , Parelaphidion aspersum  
Pest was designated 'New in State'  
Observation-Date: 20090819 State-County: CO-Arapahoe  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

Record Selection Criteria  
Process-Date : 02/24/2010

=====

USER-ID: CALIFORNIA PDCA211

Drosophilid Fly , Drosophila suzukii  
Cherry , Prunus spp., Stone Fruits , Prunus spp.,  
Grapefruit , Citrus paradisi, Common Fig , Ficus carica  
Oval Kumquat (Chinese Orange) , Fortunella margarita, Raspberry , Rubus  
idaeus  
Loquat , Eriobotrya japonica, Walnut, Juglans spp. Avocado , Persea  
americana  
Pest was designated 'New in County'  
Observation-Date: 20090610 State-County: CA-Contra Costa  
Observation-Date: 20090618 State-County: CA-Fresno  
Observation-Date: 20090527 State-County: CA-Los Angeles  
Observation-Date: 20090629 State-County: CA-Napa  
Observation-Date: 20090603 State-County: CA-Orange  
Observation-Date: 20090605 State-County: CA-Riverside  
Observation-Date: 20090610 State-County: CA-Sacramento  
Observation-Date: 20090607 State-County: CA-San Benito  
Observation-Date: 20090602 State-County: CA-San Bernardino  
Observation-Date: 20090602 State-County: CA-San Diego  
Observation-Date: 20090616 State-County: CA-San Joaquin  
Observation-Date: 20090608 State-County: CA-San Luis Obispo  
Observation-Date: 20090603 State-County: CA-Santa Barbara  
Observation-Date: 20090609 State-County: CA-Santa Clara  
Observation-Date: 20090527 State-County: CA-Santa Cruz  
Observation-Date: 20090603 State-County: CA-Ventura  
Pest-Status description: POSITIVE (PRESENT)  
NEW OR REINTRODUCED IN THE COUNTY  
NOT KNOWN TO BE ESTABLISHED

[map link](#)

USER-ID: PUERTO RICO PDPR203

Citrus Greening Huanglongbing (Asian) , Candidatus Liberibacter asiaticus  
Key Lime , Citrus aurantifolia  
Pest is first positive NAPIS data entry for the county  
Observation-Date: 20091103 State-County: PR-Ceiba

Observation-Date: 20091201 State-County: PR-Mayaguez  
Observation-Date: 20091102 State-County: PR-Patillas  
Observation-Date: 20091207 State-County: PR-Yabucoa  
Pest-Status description: POSITIVE (PRESENT)  
KNOWN TO BE ESTABLISHED

map link

USER-ID: **SOUTH DAKOTA** PDSD202

Saltcedar , Tamarix ramosissima

Pest is first positive NAPIS data entry for the county  
Observation-Date: 20090714 State-County: SD-Kingsbury  
Pest-Status description: POSITIVE (PRESENT)  
NOT KNOWN TO BE ESTABLISHED  
ERADICATION IN PROGRESS

map link

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(b)(6)

(b)(6) ceris.purdue.edu  
765-494-6382

**Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)  
Submitted as a Multi-State Petition to USDA-APHIS- PPQ**

- I. Background and Official Data as Required in Special Need Request
  - II. General Risk Assessment
  - III. Recommendation to Impose Prohibitions and Restrictions on the Movement in Interstate Commerce of Specific Articles that are in Addition to the Prohibitions and Restrictions Imposed by USDA-APHIS-PPQ
- 

- I. Background and Official Data as Required in a Request  
USDA-APHIS-PPQ amended its domestic quarantine regulations to establish a process by which a state could request approval to impose prohibitions or restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by USDA-APHIS-PPQ. The Plant Protection Act provides that states may make such special need requests. The process is described in “Special Need Requests Under the Plant Protection Act”, 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). All special need requests must be submitted to the Deputy Administrator for Plant Protection and Quarantine, APHIS, USDA, Jamie L. Whitten Federal Building, 14<sup>th</sup> Street and Independence Avenue, SW., Room 301-E, Washington, DC 20250.

Specific criteria for Special Need Requests are identified in §301.1-2 Criteria. These five elements are listed below with commentary representative of the multi-states petitioning for change.

A special need request, as described in §301.1, may be generated by a state or a political subdivision of a state. If the request is generated by a political subdivision of a state, the request must be submitted to APHIS through the state. States may also collaborate with other states to submit multi-state special need requests. However, if submitted, the multi-state special need request must include information in sufficient detail to allow APHIS to analyze the impacts on each state on an individual basis. All special need requests must be signed by the executive official or officials or by a plant protection official or officials of the state(s) making the request and must contain the following:

- A. Survey-Data drawn from a scientifically sound detection survey, showing that the biological control organism, noxious weed, or plant pest of concern does not exist in the state or political subdivision or, if already present in the state or political subdivision, the distribution of the biological control organism, noxious weed, or plant pest of concern.

Current known distribution of the *Epiphyas postvittana* is available at:

<http://pest.ceris.purdue.edu/searchmap.php?selectName=ITBUBPA> and <http://www.cdfr.ca.gov/phpps/PDEP/lbam/quarantine.html> . A USDA-APHIS-PPQ – CAPS national survey conducted from July – November, 2008 revealed that, to date, *Epiphyas postvittana* is known only from California in continental United States.

- B. Risk of Entry-If the biological control organism, noxious weed, or plant pest is not present in the state or political subdivision, a risk analysis or other scientific data showing that the biological control organism, noxious weed, or plant pest could enter the state or political subdivision and become established .

This is provided in the document: Mini Risk Assessment Light Brown Apple Moth, *Epiphyas postvittana* (Walker) [Lepidoptera: Tortricidae] Robert C. Venette, Erica E. Davis, Michelle DaCosta, Holly Heisler, and Margaret Larson, Department of Entomology, University of Minnesota, St. Paul, MN 55108. September 21, 2003. “Based on the distribution of climate zones in the U.S., we estimate that approximately 80% of the continental U.S. may be climatically suitable for *E. postvittana*.” [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/prae/postvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/prae/postvittanapra.pdf)

Statement by USDA-APHIS-PPQ Administrator regarding updated eradication plan for Light Brown Apple Moth, June 20, 2008:

*“A risk assessment review conducted by the University of Minnesota in 2003 concluded that establishment of LBAM in the United States posed significant consequences to agriculture production and our natural landscape. Given these risks, it’s vital that we continue momentum against the spread of this pest now, while the population level in California is relatively low. Continued action against LBAM will protect California’s agricultural and natural resources, as well as those across the country.”*

<http://www.aphis.usda.gov/newsroom/content/2008/06/lbam.shtml>

- C. Harm or Injury-Specific information showing that, if introduced into or allowed to spread within the state or political subdivision, the biological control organism, noxious weed, or plant pest would harm or injure the environment or agricultural resources in the state or political subdivision. The request should contain detailed information, including quantitative estimates, if available, about what harm or injury would result from the introduction or dissemination of the biological control organism, noxious weed, or plant pest in the state or political subdivision .

This is provided in the document: Mini Risk Assessment Light Brown Apple Moth, *Epiphyas postvittana* (Walker) [Lepidoptera: Tortricidae] Robert C. Venette, Erica E. Davis, Michelle DaCosta, Holly Heisler, and Margaret Larson, Department of Entomology, University of Minnesota, St. Paul, MN 55108. September 21, 2003. Some key statements include:

- *Epiphyas postvittana* was considered highly likely of becoming established in the U.S.; the consequences of its establishment for U.S. agricultural and natural ecosystems were judged to be high (i.e., severe) (Lightfield 1995).

- *E. postvittana* is reported as a pest of economic importance to many ornamental and fruit crops throughout its range (Zhang 1994). According to Geier (Geier and Briese 1981) "Economic damage results from feeding by caterpillars, which may:

- destroy, stunt or deform young seedlings...
- spoil the appearance of ornamental plants
- injure deciduous fruit-tree crops, citrus, and grapes".

- *E. postvittana* is difficult to control with sprays because of its leaf-rolling ability, and because there is evidence of resistance due to overuse of sprays (Geier and Briese 1981).

- In 1992, 70,000 larvae/ha were documented which caused a loss of 4.7 tons of chardonnay fruit (Bailey et al. 1995). Damage in the 1992-93 Chardonnay season at Coonawarra (southern Australia) cost \$2,000/ha (Bailey et al. 1996). Mature larvae are the most difficult stage to control (Lay-Yee et al. 1997). A single larva can destroy about 30 g of mature grapes (Bailey 1997 BAM control options). Damage to apples is in the form of either pinpricks, which are flask-shaped holes about 3 mm deep into the fruit, or entries, which are holes extending deeper than 3 mm into the fruit that leave some frass and webbing at the surface (van Den Broek 1975). The first generation (in spring) causes the most damage to apples while the second generation damages fruit harvested later in the season (Terauds 1977). Some varieties of apples such as 'Sturmer Pippin' (an early variety), 'Granny Smith' and 'Fuji' (late varieties) can have up to 20% damage (Suckling and Ioriatti 1996), while severe attacks can damage up to 75% of a crop (USDA 1984). Peaches are damaged by feeding that occurs on the shoots and fruit (Lo et al. 1995). Following feeding damage, fruits of many host plants such as grapes are susceptible to secondary damage such as grey mold caused by *Botrytis cinerea* (Nair 1985).

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/prae/postvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/prae/postvittanapra.pdf)

Additional information is provided in Economic Analysis: Risk to U.S. Apple, Grape, Orange and Pear Production from the Light Brown Apple Moth, *Epiphyas postvittana* (Walker) USDA-APHIS-PPQ-CPHST PERAL. G. Fowler, L. Garret, A. Neely, D. Borchert, and B. Spears. November 2007. Therein they state, "Our economic analysis

had two components: 1) a geospatial analysis that identified areas at risk for LBAM introduction based on climate and host and 2) a quantitative analysis, using a probabilistic modeling approach, which estimated the economic losses LBAM could cause if introduced into these areas due to damage, control, quarantines and research. Economic effects outside of the agricultural crop (apple, grape, orange and pear) production sector, e.g. trade effects, are beyond the scope of this analysis and are not provided.

Our geospatial analysis estimated that LBAM could establish throughout the majority of the conterminous United States. This establishment range included the majority of the growing area for the analyzed crops. Our quantitative model estimated the mean total annual costs if *Epiphyas postvittana* were introduced in the at-risk areas to be \$105 million. The 5<sup>th</sup> and 95<sup>th</sup> percentile values were: \$77 million and \$134 million, i.e.. 95 percent of the time, total annual costs exceeded \$77 million. The combined results of our geospatial and quantitative analyses indicate that *Epiphyas postvittana* could cause substantial economic losses to U.S. apple, grape, orange and pear crops if introduced throughout the conterminous United States. We note *Epiphyas postvittana* is highly polyphagous and would probably cause additional economic damage to other crops and sectors of the U.S. economy, e.g. domestic and international trade. Also, because *Epiphyas postvittana* can occur in nursery stock, this industry could provide another pathway for its introduction outside of the quarantined area in addition to movement on agricultural commodities.”

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/lba\\_moth/downloads/lbameconomicanalysis.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/downloads/lbameconomicanalysis.pdf)

- D. Special Basis-Specific information showing that the state or political subdivision has characteristics that make it particularly vulnerable to the biological control organism, noxious weed, or plant pest, such as unique plants, diversity of flora, historical concerns, or any other special basis for the request for additional restrictions or prohibitions.

This is provided in the document: Mini Risk Assessment Light brown apple moth, *Epiphyas postvittana* (Walker) [Lepidoptera: Tortricidae] Robert C. Venette, Erica E. Davis, Michelle DaCosta, Holly Heisler, and Margaret Larson, Department of Entomology, University of Minnesota, St. Paul, MN 55108. September 21, 2003. It is noteworthy that *Epiphyas postvittana* has a host range in excess of 120 plant genera in over 50 families with a large number of them present in the Southern states. In the host plant listing in “Host Specificity/Availability”, ca. 93% of the host plants occur in one or more of the petitioning states.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/praeostvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/praeostvittanapra.pdf)

In the listing of horticultural (147) and agricultural (51) host plants listed by the California Department of Food and Agriculture, again over 90% of the host plants occur within the petitioning states.

[http://www.cdfa.ca.gov/phpps/PDEP/target\\_pest\\_disease\\_profiles/LBAM\\_HostList.pdf](http://www.cdfa.ca.gov/phpps/PDEP/target_pest_disease_profiles/LBAM_HostList.pdf)

This is provided as well in the document: Economic Analysis: Risk to U.S. Apple, Grape, Orange and Pear Production from the Light Brown Apple Moth, *Epiphyas postvittana* (Walker) USDA-APHIS-PPQ-CPHST PERAL. G. Fowler, L. Garret, A. Neely, D. Borchert, and B. Spears. November 2007. They noted their geospatial analysis estimated that *Epiphyas postvittana* could establish throughout the majority of the conterminous United States. This establishment range included the majority of the growing area for the analyzed crops.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/lba\\_moth/downloads/lbameconomicanalysis.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/downloads/lbameconomicanalysis.pdf)

- E. Requested Restrictions-Information detailing the proposed additional prohibitions or restrictions and scientific data demonstrating that the proposed additional prohibitions or restrictions are necessary and adequate, and that there is no less drastic action that is feasible and that would be adequate, to prevent the introduction or spread of the biological control organism, noxious weed, or plant pest in the state or political subdivision.

Although the early regulatory strategies have been comprehensive, additional regulatory measures are needed to address those risks associated with movement of nursery stock to ensure adequate safeguarding of the non-infested states.

It is useful to note that the following USDA regulatory protocol was adopted based on recommendations from the *Epiphyas postvittana* Technical Working Group (TWG) in 2007 to initiate or remove conditions required for interstate movement of regulated articles in response to new detections or the elimination of incipient *Epiphyas postvittana* populations. The specific language is as follows:

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***Regulatory conditions will be implemented if:***

- 1. A total of two or more LBAM adults are trapped within 3 miles of each other and during the timeframe of one lifecycle as determined by the degree-day phenology model; or*
- 2. A mated female is trapped; or*
- 3. One or more immature LBAMs are confirmed through DNA analysis. An exception to this condition would occur in the event that it could be determined*

*that the presence of the immature LBAM was the result of a regulatory incident. For example, a larva is transported (hitchhiker) into an area on nursery stock.*

**Regulatory conditions will be removed and trapping will revert to normal detection levels after the last detection if:**

1. A trapping protocol of 100 traps per square mile within a 0.5 mile radius and 25 traps per square mile in an additional 1 mile radius is applied for three generations; and
2. No additional moths are trapped; and
3. One of the following:
  - a. No pheromone treatments (mating disruption) were applied during the same period; or
  - b. If pheromone products (e.g., ISOMATE twist ties) were applied in the 200 meter radius for the first two generations, and were completely removed for one additional generation.

**The following are actions to be taken to determine the need for regulatory action:**  
*Single finds that are more than 3 miles from any other find can be delimited using the following protocols:*

1. A trapping protocol of 100 traps per square mile within a 0.5 mile radius and 25 traps per square mile in an additional 1 mile radius is applied for three generations; or
2. A trapping protocol of 25 traps per square mile within a 1.5 mile radius is applied for four generations; and
3. If no additional moths are found after the prescribed number of generations, then trapping would revert to normal detection levels.

Next, more specific regulations are described in the document:

**Light Brown Apple Moth Regulatory Procedures Manual Chapter 1.  
1-4 Rev. 08/20/2008 COOPERATIVE LIGHT BROWN APPLE  
MOTH QUARANTINE PROJECT COUNTY AGRICULTURAL  
COMMISSIONER / Cdfa / USDA Pest Exclusion Branch, Plant  
Health and Pest Prevention Services Division. California Department  
of Food and Agriculture, 1220 N Street, Room A-372, Sacramento,  
CA 95814:**

***Nurseries and other producers located inside the Light Brown Apple Moth (LBAM)  
State Interior Quarantine area or within 1.5 miles of a LBAM detection***

*The procedures outlined in this chapter apply to production nurseries, retail nurseries and producers of cut flowers, garlands, wreaths or greenery, and cut Christmas trees located inside the State Interior Quarantine (CCR 3434) or within 1.5 miles of a LBAM detection.*

**Section 1: Trapping and Inspection**

***An Interstate and Intrastate Shipping Nurseries and Growing Locations  
(Production and Retail)***

- (i) Trapping:
  - (a) Place LBAM traps at the rate of one per five acres or at least one trap if nursery is less than five acres
  - (b) Service traps biweekly

(c) Nursery or growing ground must implement a robust Integrated Pest Management (IPM) program

(ii) Inspection:

(a) Biweekly visual inspection of all plants intended for movement within two weeks, **OR**

(b) Monthly visual inspections of all plants intended for movement within one month if produced and maintained in an enclosed growing facility- adequacy of the enclosure to be determined by the LBAM Project, **OR**

(c) Per shipment inspection

**B Non-Shipping Retail Nurseries**

(i) No LBAM trapping is required

(ii) Monthly visual inspection of all plants or storage of plants indoors during the hours between dusk and dawn

(iii) Nursery must implement an IPM program targeting tortricid larvae

**Section 2: Procedures for SUSPECT LBAM collections**

Use the following procedures when suspect LBAM specimens are collected at a nursery or growing location.

(i) If suspect adult (male/female, trapped or otherwise caught) is collected, **no action is required** until moth is identified by CDFA PPDB lab

(ii) If suspect larva, pupa or egg mass is collected, **infested plants or lots** must be placed on hold

(iii) No holding action is required for non-infested plants until genetic or morphological evaluation of the specimen is completed by the CDFA PPDB lab

**Section 3: Procedures for “Confirmed” LBAM collections**

Use the following procedures when LBAM has been confirmed from a nursery or growing location.

(i) If adult male is confirmed, **no action is required**

(ii) If adult female, or larva, pupa, or egg mass, or “possible LBAM” larva, pupa, or egg mass is confirmed through genetic or morphological analysis, **all plants on premises** must be placed on hold. One or more of the options below must be conducted:

(a) Treat all plants at nursery with product efficacious against LBAM eggs and larvae (CDFA PHPPS extranet site). Plants must be 100% re-inspected after treatment with negative findings before release, **OR**

(b) All plants intended for shipment in two weeks must be treated with product efficacious against LBAM eggs **and** larvae (CDFA PHPPS extranet site). Plants must be 100% re-inspected after treatment with negative findings before release, **OR**

(c) All plants intended for shipment in two weeks must be treated with product efficacious against LBAM larvae (CDFA PHPPS extranet site). Treated plants must be safeguarded in an approved enclosure for ten days. Adequacy of the enclosure to be determined by the LBAM Project. LBAM detection traps must be placed in the enclosure at a rate of one trap per five acres or one trap per nursery if less than five acres. Treated plants must be 100% re-inspected after ten-days with negative findings before release, **OR**

(d) All plants intended for shipment within 30 days must be safeguarded in an approved enclosure for 30 days. Adequacy of the enclosure to be determined by the LBAM Project. LBAM traps must be placed in the enclosure at a rate of one trap per five acres or one trap per nursery if less than five acres. Safeguarded plants must be 100% reinspected after 30-days with negative findings before release, **OR**

(e) Special protocol for infested **retail** nursery inside State Interior Quarantine:

- Place entire nursery on HOLD
- Nursery may opt to destroy all infested plants (plants only; not lots)
- Treat all remaining plants with an approved larvacide
- Begin robust IPM program that may include the use of mating disruption wicks and treatment of in-ground plantings that may be a source of contamination
- 100% re-inspection of all nursery stock with negative results prior to release
- Post or distribute LBAM flyer in location visible to all customers directing them not to remove plants from LBAM State Interior Quarantine
- Post or distribute current LBAM State Interior Quarantine map in location visible to all customers

(iii) If live LBAM female, larvae, pupae, or egg masses are detected after treatment and re-inspection, infested plants or lot(s) must be held or re-treated and re-inspected with negative findings before release. All non-infested plants may be release

#### **Section 4: Certification and Compliance Agreements**

Use the following procedures to issue a compliance agreement for any nursery or growing location shipping **intrastate** from a State Interior Quarantine.

(i) Quarantine certification must accompany all shipments of nursery stock, cut flowers, garlands, wreaths or greenery, and cut Christmas trees (interstate and intrastate from and within the area covered by the State Interior Quarantine)

(ii) In lieu of an original certificate, shipping nurseries and growing locations may be issued a compliance agreement by the county agricultural commissioner or the LBAM Project (**Exhibit A1**) (CDFA PHPPS extranet site)

(iii) Retail nurseries that do not ship may be issued a compliance agreement with **Exhibit B**. Such nurseries must make the informational LBAM flyers and quarantine maps available to all customers who purchase plant material (CDFA PHPPS extranet site)

(iv) **Non-producers** of cut flowers, garlands, wreaths, greenery and cut Christmas trees located in a regulated county shipping **interstate and intrastate** may enter into a compliance agreement with the county agricultural commissioner or the LBAM Project (**Exhibit J**) and may be authorized to use a master quarantine certificate or federal shield under one of the following conditions:

(a) Shipping locations may only receive commodities from quarantined areas if accompanied by a federal shield (**Exhibit F**) or other quarantine compliance certificate **OR**

*(b) Shipping locations must make commodities available for periodic inspections as determined necessary by the county agricultural commissioner or the LBAM Project. [http://www.sonoma-county.org/agcomm/pdf/lbam\\_reg\\_manual.pdf](http://www.sonoma-county.org/agcomm/pdf/lbam_reg_manual.pdf)*

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Several questions and comments are raised regarding these protocols. For instance, in “*Section 1: Trapping and Inspection A Interstate and Intrastate Shipping Nurseries and Growing Locations (Production and Retail) (i) Trapping.....(b) Monthly visual inspections of all plants intended for movement within one month if produced and maintained in an enclosed growing facility- adequacy of the enclosure to be determined by the LBAM Project,*” **Comment:** It is unclear what are the minimum standards used by the CDFA LBAM project in regards to establishing the adequacy of an enclosed growing facility? What exactly constitutes an approved enclosure? It is unclear as to who specifically certifies an enclosure as well as conducts inspections within any enclosure.

In “*Section 3: Procedures for “Confirmed” LBAM collections Use the following procedures when LBAM has been confirmed from a nursery or growing location. (i) If adult male is confirmed, no action is required.*” **Comment:** What is the basis that no action is required if a male moth is caught? Is this a presumption that it is always a long distance solitary male and there is no chance of a female moth or other life stages being present in the area? On what scientific evidence was this conclusion based? What is a “shipping location” compared to production nursery, retail nursery or producer of cut flowers, etc.?

In “*Section 4: Certification and Compliance Agreements Use the following procedures to issue a compliance agreement for any nursery or growing location shipping intrastate from a State Interior Quarantine..... “(i) Quarantine certification must accompany all shipments of nursery stock, cut flowers, garlands, wreaths or greenery, and cut Christmas trees (interstate and intrastate from and within the area covered by the State Interior Quarantine.” and “(ii) In lieu of an original certificate, shipping nurseries and growing locations may be issued a compliance agreement by the county agricultural commissioner or the LBAM Project (Exhibit A1) (CDFA PHPPS extranet site).”*”

**Comment:** Producers shipping interstate should be required to have a Phytosanitary Certificate, not a master quarantine certificate or federal shield. A higher level of inspection is required which comes from a phytosanitary certificate versus a compliance agreement or federal shield.

In subsection “*(iii) If live LBAM female, larvae, pupae, or egg masses are detected after treatment and re-inspection, infested plants or lot(s) must be held or re-treated and re-inspected with negative findings before release...*” **Comment:** No period of time is specified for the hold; however, this is essential when the life cycle is 4-6 weeks.

In subsection: “*(iv) Non-producers of cut flowers, garlands, wreaths, greenery and cut Christmas trees located in a regulated county shipping interstate and intrastate may enter into a compliance agreement with the county agricultural commissioner or the*

*LBAM Project.*” **Comment:** This should read as “PRODUCERS” in that this is what the Chapter references.

In “Section 4: Certification and Compliance Agreements Use the following procedures to issue a compliance agreement for any nursery or growing location shipping intrastate from a State Interior Quarantine.” **Comment:** This should be a Phytosanitary Certificate which is much more responsible statement of work effort to ensure a negative finding and this should read INTERSTATE and intrastate if one reads the information that follows in the procedures.

## II. General Risk Assessment

The light brown apple moth (LBAM) (*Epiphyas postvittana* (Walker)) is a highly polyphagous insect native to Australia that is considered to be a serious pest of stone fruits as well as ornamental plants (Danthanarayana 1975, 1983; Zhang 1994; Mo et al. 2006). Current distribution of *Epiphyas postvittana* includes northern Europe, southern Australia, New Zealand, Hawaii and portions of California. Prior to 2007, *Epiphyas postvittana* had not been reported from the mainland of the United States. In February 2007, *Epiphyas postvittana* was found in Alameda County near Berkeley by a private citizen. Since this initial introduction, *Epiphyas postvittana* has been collected in twelve counties in California. It has been documented that *Epiphyas postvittana* can readily spread over large distances by movement of infested commerce. Geier and Briese (1981) indicated that *Epiphyas postvittana* had spread within and beyond Australia due to commerce by man. Because *Epiphyas postvittana* can be transported via agricultural and nursery stock pathways (Johnson *et al.*, 2000; USDA-APHIS, 2007a), it has the potential to spread long distances outside of the quarantined area and cause additional economic losses. Lightfield (1995) indicated that *Epiphyas postvittana* had a high probability of establishing in the United States and impacting U.S. agriculture and natural ecosystems. *Epiphyas postvittana* does pose a serious threat for agriculture and horticulture in North America if allowed to establish in California and spread beyond its borders.

### ***Current situation***

On February 6, 2007, a private citizen near Berkley in Alameda County, California reported two suspect moths that had been caught in a black light trap on his property. In response, pheromone baited traps were placed in Alameda and Contra Costa Counties on March 1, 2007. On March 16, 2007 the Systematic Entomology Laboratory (USDA-ARS) confirmed that the first two samples were light brown apple moth. The California Department of Food and Agriculture quarantined portions of Alameda, Contra Costa, San Francisco, Marin and Santa Clara Counties.

On May 2, 2007 the administrator of APHIS established a Federal Domestic Quarantine Order for *Epiphyas postvittana* (Light Brown Apple Moth) DA-2007-42. Under this quarantine, certain counties in California as well as all counties in

Hawaii were listed as quarantined areas. Under this quarantine, certain regulated articles could not be moved out of the quarantined areas. The definition of quarantine is any plant material found to have the presence of *Epiphyas postvittana* eggs, larvae or adults. The counties listed in the quarantine were Alameda, Contra Costa, Marin, Monterey, San Francisco, San Mateo, Santa Clara, Santa Cruz and Solano. The number of counties has grown to 15 as of January 2009.

Regulated articles include nursery stock, cut flowers, garlands, wreaths or greenery of any plant, cut trees and shrubs (including Christmas trees), green waste, fruits and vegetables (see exemptions), green hay, bulk fresh herbs and spices. In order to be eligible for interstate movement of the above mentioned materials, trapping for *Epiphyas postvittana* is required on each premises or farm that ships regulated articles interstate. Inspection of traps by an inspector must occur biweekly; nurseries and cut flower farms are required to implement an IPM program consisting of regular inspection and approved treatments designed to target *Epiphyas postvittana*; each shipment of articles intended for interstate movement is to be inspected by an inspector and certificate issued for interstate movement only if the articles are found free of any life stages of *Epiphyas postvittana*.

There have been a total of 52,033 (November 21, 2008 counts) pheromone-baited traps in and around retail and production nurseries, at ports of entry, and in the open environment and are being inspected bi-weekly. Visual inspections of all nurseries within 1.5 miles from any traps with confirmed *Epiphyas postvittana* are conducted for the presence of any life stages.

Trap counts have yielded 67,769 *Epiphyas postvittana* that have been confirmed (February 6, 2009). Immature stages have been found in a total of 98 nurseries, cut flower or greenery farms in 12 counties: Alameda, Contra Costa, Marin, Monterey, San Benito, San Francisco, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano and Sonoma. A total of 15 counties have recorded one or more trapped moths.

### **Economic Impact**

There are over 250 known hosts for *Epiphyas postvittana*. This polyphagous pest would present a serious potential impact to the Southern region's citrus and grape production, as well as apple orchards. It would likely become well established wherever it is introduced inasmuch as it can alternate to so many other hosts that abound everywhere, such as weeds like plantain, whenever economic plants are not available. In Australia, *Epiphyas postvittana* causes citrus fruit drop and scarring (Mo et al. 2006). In New Zealand, *Epiphyas postvittana* does attack kiwifruit and avocados-both of which are grown in Homestead. In Hawaii, *Epiphyas postvittana* attacks *Acacia*, *Citrus*, *Curcubita*, *Dodonaea*, *Euphorbia*, *Pipturus*, *Rubus*, *Ulex Santalum*, *Vaccinium*, *Wikstroemia*, and *Wilkseia* (Zimmerman 1978). Southern states would also see some impact on hardwoods

such as poplar and also possibly pines (Wearing et al. 1991). The pest can have from 3 to 4 generations per year (Buchanan 1977, Danthanarayana 1975, 1983; Wearing et al. 1991), indicating that in mild climates such as California and Florida, it could also produce multiple generations.

In a economic risk analysis (Fowler et al. 2007) conducted by the USDA, it was noted that *Epiphyas postvittana* could readily establish throughout the majority of the United States and could cause substantial economic losses to apple, grape, orange and pear crops. In addition to the direct damage to the above mentioned crops, *Epiphyas postvittana* would also likely cause additional economic damage to other non-primary crops. Also, because *Epiphyas postvittana* can occur in nursery stock, this industry could provide another pathway for its introduction outside of the quarantined area in addition to movement on agricultural commodities (Johnson et al. 2007; USDA-APHIS, 2007a).

### **Biology**

There are three to four generations of *Epiphyas postvittana* per year in Australia and New Zealand (Wearing et al. 1991). Egg masses are deposited on the upper surface of smooth-leaved host plants. Early larval instars feed on leaf tissue on the underside of leaves in silken webs and later larval instars feed on tissue within a leaf roll (Thomas 1991). There are typically six to seven larval instars before pupation and pupation occurs within the rolled leaves. In Australia and New Zealand, the overwintering stage is the larval stage but they do not undergo diapause.

### **Detection**

A sex pheromone has been identified for *Epiphyas postvittana* (Two key components of the pheromone are (*E*)-11-tetradecenylacetate and (*E,E*)-(9,11)-tetradecadienyl acetate (Bellas et al. 1983). Delta traps have been used for regional surveys and also in detecting male flights in stone fruits. Typically traps are placed 5 feet above ground and lures changed once every six weeks (Thomas and Shaw 1982; Suckling and Shaw 1992). In vineyards, traps are placed at a density of one trap per five acres (Glenn and Hoffman 1997). Blacklight traps have been used to monitor adults of *E. postvittana* (Thwaite 1976).

In 2008, USDA-APHIS- PPQ conducted a national detection survey for *Epiphyas postvittana* to demonstrate areas free of *Epiphyas postvittana* and to find any additional areas that might be infested. To date, no state outside of California in the continental U.S. has been found to have any population of *Epiphyas postvittana*. The methodology involved in surveying for *Epiphyas postvittana* involved an evaluation of states that would be considered to have crops that would be high to medium risk and also to look at nursery stock. The criteria utilized in surveying for *Epiphyas postvittana* in nurseries was to look at nurseries that received stock from California first.

Visual inspection of plant material in nurseries, parks, or residential areas can be surveyed for larval infestations of *Epiphyas postvittana*; however it is noted that

there are no morphological characters that can be used to definitively identify *Epiphyas postvittana* larvae. In California, *Epiphyas postvittana* larvae are identified through molecular techniques. Also, it was noted that the molecular techniques are only to differentiate *Epiphyas postvittana* from native California tortricids and may not be reliable in differentiating *Epiphyas postvittana* from other native tortricids found in the U.S.

#### ***Use of sticky traps***

Traps baited with *Epiphyas postvittana* pheromone will catch other tortricids and other moths in general. There are four color forms to *Epiphyas postvittana* some of which do resemble other tortricids. In the field, the first round of screening involves the separation of possible candidates by size, shape and color. First level of screening is to sort out traps containing tortricids; the second level is to select those as being highly likely of being *Epiphyas postvittana* based on external characteristics.

#### **Conclusion**

The mini pest risk assessment, the economic analysis and many other scientific and regulatory documents clearly agree and demonstrate that *Epiphyas postvittana* presents a high risk of spread to and successful colonization in other states. What is striking is that the regulatory requirements range from only slight enhancements to even less than normal phytosanitary requirements for interstate shipment of nursery stock, all despite the high risk rating for this plant pest to establish elsewhere in a majority of the rest of United States.

### **III. Recommendation to Impose Prohibitions and Restrictions on the Movement in Interstate Commerce of Specific Articles that are in Addition to the Prohibitions and Restrictions Imposed by USDA-APHIS-PPQ**

Based on a thorough review of the regulatory procedures currently utilized in California, there appear to be critical and major inconsistencies in the outlined document. As such, it is anticipated these inconsistencies may well lead to the potential for the introduction of *Epiphyas postvittana* in those states not currently found to be infested.

Therefore, the states represented in this multi-state petition recommend the following changes to impose restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by USDA-APHIS-PPQ. These apply to any area under state or federal quarantine for *Epiphyas postvittana*. Regulated articles will include host plants for *Epiphyas postvittana* and any other product, articles, or any other means of conveyance, when it is determined by a quarantine officer of a state or federal plant pest regulatory agency that they present a hazard of spreading *Epiphyas postvittana*. A complete listing of host material may be found at:

[http://www.cdfa.ca.gov/phpps/PDEP/target\\_pest\\_disease\\_profiles/LBAM\\_HostList.pdf](http://www.cdfa.ca.gov/phpps/PDEP/target_pest_disease_profiles/LBAM_HostList.pdf) and  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/praeostvittanapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/praeostvittanapra.pdf)

Regulated articles may not be moved into or within the petitioning states from the following areas except as outlined hereafter:

- A. Prior notification for *Epiphyas postvittana* host plant material is required. The shipper shall send by mail, facsimile or e-mail a copy of the State Phytosanitary Certificate to the respective state regulatory offices. The phytosanitary certificate must list the type and quantity of plants, the shipper's address, the recipient's name and address, and contact number(s) of the shipper and recipient. Commodities shipped in violation of the requirements may be returned to their point of origin or destroyed at the expense of the owner.
- B. A Phytosanitary Certificate is required for interstate shipments of plant material as opposed to the current Quarantine Compliance Certificate. The former provides a higher level of inspection efforts by the state regulatory authorities. Proof of insecticide treatment must accompany the phytosanitary certificate.
- C. Plant material destined for interstate shipping shall be held a minimum of five weeks in an approved enclosed structure, treated with an approved insecticide, monitored with pheromone traps at a density adequate to the enclosure space and undergo a 100% inspection before being shipped interstate. If an *Epiphyas postvittana* life stage is detected then re-treatment, 100% re-inspection and another minimum five-week hold are required before interstate movement occurs.
- D. A certified USDA-approved systems approach for the production of host plants of *Epiphyas postvittana* destined for interstate movement must be developed for review and approval by the petitioning states.

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Attachment:

Signature Pages from those States Participating in the Multi-State Petition

**Alabama Department of Agriculture and Industries-Division of Plant Industry**

**Individual State Attachment to the *Multi-State Petition for Special Need Request* for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)**

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request* for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)

(b)(6)

2-13-09

Date

Plant Pest Administrator  
Alabama Department of Agriculture and  
Industries-Division of Plant Industry

Arkansas State Plant Board-Division of Plant Industry

Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, Epiphyas postvittana* (Walker)

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Light Brown Apple Moth, Epiphyas postvittana* (Walker)

(b)(6)

Date

2/24/2009

Division Director  
Arkansas State Plant Board-Division of  
Plant Industry

**Florida Department of Agriculture and Consumer Services-Division of Plant Industry**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana** (Walker)**

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana** (Walker)

(b)(6)

02/16/09

(b)(6)

Date

\_\_\_\_\_  
Director, Florida Department of Agriculture  
and Consumer Services-Division of Plant  
Industry

Georgia Department of Agriculture-Plant Protection Division

Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, Epiphyas postvittana* (Walker)

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(b)(6)

\_\_\_\_\_

2/25/09  
Date

Director  
Georgia Department of Agriculture-Plant  
Protection Division

University of Kentucky-Department of Entomology

Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, Epiphyas postvittana* (Walker)

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Feb 13, 2009  
Date

State Entomologist  
University of Kentucky-Department of  
Entomology

Louisiana Department of Agriculture and Forestry-Horticulture and Quarantine Programs

Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)*

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(b)(6)

\_\_\_\_\_

2/25/09  
Date

Director  
Louisiana Department of Agriculture and  
Forestry—Horticulture and Quarantine Programs

Mississippi Department of Agriculture and Commerce-Bureau of Plant Industry

Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, Epiphyas postvittana* (Walker)

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(b)(6)

\_\_\_\_\_

2/13/09  
Date

State Entomologist  
Mississippi Department of Agriculture and  
Commerce-Bureau of Plant Industry

North Carolina Department of Agriculture and Consumer Services-Plant Industry Division

Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, Epiphyas postvittana* (Walker)

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(b)(6)

2/13/09  
Date

Plant Pest Administrator  
North Carolina Department of Agriculture  
and Consumer Services-Plant Industry Division



**State of Oklahoma**  
**Department of Agriculture, Food, and Forestry**

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Brad Henry  
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**Oklahoma Department of Agriculture, Food, & Forestry**  
**Consumer Protection Services Division**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)***

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)*

(b)(6)

Feb 13, 2009  
Date

Director  
Oklahoma Department of Agriculture, Food, Forestry  
Consumer Protection Services Division

**Puerto Rico Department of Agriculture-State Plant Quarantine Program**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)***

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)*

(b)(6)

\_\_\_\_\_

*February 26, 2007.*  
Date

Supervisor  
Puerto Rico Department of Agriculture  
State Plant Quarantine Program

Clemson University-Department of Plant Industry

Individual State Attachment to the *Multi-State Petition for Special Need Request* for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)

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(b)(6)

11/3/09

Date

Assistant Department Head  
Clemson University-Department of Plant Industry

Virginia Department of Agriculture and Consumer Services-Office of Plant and Pest Services

Individual State Attachment to the *Multi-State Petition for Special Need Request* for Light Brown Apple Moth, *Epiphyas postvittana* (Walker)

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(b)(6)

\_\_\_\_\_

2/25/09  
Date

Program Manager  
Virginia Department of Agriculture and  
Consumer Services-Office of Pest Services

**Special Need Request for *Phytophthora ramorum*-Submitted as a Multi-state Petition to  
USDA-APHIS-PPQ**

- I. Background and Official Data as Required in the Special Need Request
- II. Inadequacy of the Current Mitigation Measures for Nurseries
- III. Recommendations to Impose Prohibitions or Restrictions on the Movement in Interstate Commerce of Specific Articles in Addition to the Prohibitions and Restrictions Imposed by USDA-APHIS-PPQ

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**I. Background and Official Data as Required in the Special Need Request**

USDA-APHIS-PPQ amended its domestic quarantine regulations to establish a process by which a state could request approval to impose prohibitions or restrictions on the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by USDA-APHIS-PPQ. The Plant Protection Act provides that individual state or multiple states together may make such special need requests. The process is described in “Special Need Requests Under the Plant Protection Act”, 7 CFR Part 301; Docket No. APHIS-2005-0103 (FR Vol. 73, No. 206: 63060 – 63066). All special need requests must be submitted to the Deputy Administrator for Plant Protection and Quarantine, APHIS, USDA, Jamie L. Whitten Federal Building, 14<sup>th</sup> Street and Independence Avenue, SW., Room 301-E, Washington, DC 20250.

Specific criteria for Special Need Requests are identified in §301.1-2 Criteria. These five elements are listed below with commentary representative of the multi-state petitioning for change.

A special need request, as described in §301.1, may be generated by a state or a political subdivision of a state. If the request is generated by a political subdivision of a state, the request must be submitted to APHIS through the state. States may also collaborate with other states to submit multi-state special need requests. However, if submitted, the multi-state special need request must include information in sufficient detail to allow APHIS to analyze the impacts on each state on an individual basis. All special need requests must be signed by the executive official or officials or by a plant protection official or officials of the state(s) making the request and must contain the following:

- A. Survey-Data drawn from a scientifically sound detection survey, showing that the biological control organism, noxious weed, or plant pest of concern does not exist in the state or political subdivision or, if already present in the state or political subdivision, the distribution of the biological control organism, noxious weed, or plant pest of concern.

The reported status of *Phytophthora ramorum* as entered into NAPIS is available at: <http://pest.ceris.purdue.edu/searchmap.php?selectName=FGHEPWN>

It is important to note the map is based upon survey data conducted predominately in nurseries in Southern Plant Board states. The counties in Georgia, Mississippi, North Carolina and South Carolina where *P. ramorum* is indicated as “Found” on the subject map are so designated only on the basis of

regulatory incidents in which containerized nursery plants were shipped to nurseries in these counties from other state and subsequently tested positive for the pathogen. No *Phytophthora ramorum* has been detected in plants in the environment of any state participating in this petition.

The currently regulated area for *P. ramorum* in the United States has not changed since 2005. A map of the federally-quarantined area, showing the distribution of *Phytophthora ramorum* in plants in the environment, is available at: [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/quarantine\\_jan\\_05.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/quarantine_jan_05.pdf)

- B. Risk of Entry-If the biological control organism, noxious weed, or plant pest is not present in the state or political subdivision, a risk analysis or other scientific data showing that the biological control organism, noxious weed, or plant pest could enter the state or political subdivision and become established.

This is provided in the document “Risk Analysis for Phytophthora ramorum Werres, de Cock & Man in't Veld, Causal Agent of Sudden Oak Death, Ramorum Leaf Blight, and Ramorum Dieback” Revision 1. November 19, 2007. USDA-APHIS-PPQ.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pracphst-11-07.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/pracphst-11-07.pdf)

- C. Harm or Injury-Specific information showing that, if introduced into or allowed to spread within the state or political subdivision, the biological control organism, noxious weed, or plant pest would harm or injure the environment or agricultural resources in the state or political subdivision. The request should contain detailed information, including quantitative estimates, if available, about what harm or injury would result from the introduction or dissemination of the biological control organism, noxious weed, or plant pest in the state or political subdivision.

This is provided in the document “Risk Analysis for Phytophthora ramorum Werres, de Cock & Man in't Veld, Causal Agent of Sudden Oak Death, Ramorum Leaf Blight, and Ramorum Dieback” Revision 1. November 19, 2007. USDA-APHIS-PPQ.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pracphst-11-07.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/pracphst-11-07.pdf)

- D. Special Basis-Specific information showing that the state or political subdivision has characteristics that make it particularly vulnerable to the biological control organism, noxious weed, or plant pest, such as unique plants, diversity of flora, historical concerns, or any other special basis for the request for additional restrictions or prohibitions.

This is provided in the document “Risk Analysis for Phytophthora ramorum Werres, de Cock & Man in't Veld, Causal Agent of Sudden Oak Death, Ramorum Leaf Blight, and Ramorum Dieback” Revision 1. November 19, 2007. USDA-APHIS-PPQ.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pracphst-11-07.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/pracphst-11-07.pdf)

- E. Requested Restrictions-Information detailing the proposed additional prohibitions or restrictions and scientific data demonstrating that the proposed additional prohibitions or restrictions are necessary and adequate, and that there is no less drastic action that is feasible and that would be adequate, to prevent the introduction or spread of the biological control organism, noxious weed, or plant pest in the state or political subdivision.

In May 2005, USDA-APHIS-PPQ issued Revision 1 of the Risk Analysis for *Phytophthora ramorum*, Causal Agent of Phytophthora Canker (Sudden Oak Death), Ramorum Leaf Blight, and Ramorum Dieback. A revised rule pertaining to this disease was published in the Federal Register Vol. 72 No. 38: 8585-8604 on Feb 27, 2007. The Risk Assessment and the federal rule may be consulted for background information and specific language.

[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pracphst-11-07.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/pracphst-11-07.pdf)

Although the risk assessment itself was comprehensive and accurate in its representation of risks, the mitigation measures specified to address those risks associated with movement of nursery stock were far below levels necessary to be effective.

The present regulations pertaining to *P. ramorum* and nursery risks dictate that:

- Nurseries in California, Oregon, and Washington must undergo an annual inspection and be certified free of the pathogen;
- Individual shipments of known hosts from quarantined counties entering interstate commerce are also subject to inspection prior to being certified for movement.
- Non-hosts are not subject to the inspection of individual shipments.

The requirements are only slight enhancements to normal phytosanitary requirements for interstate shipment of nursery stock despite the high risk rating for this pathogen in every category of the overall risk rating (See Table 6-Excerpt included in conclusions section of this document). In fact, it is difficult to imagine a pest of greater risk potential for un-infested states in the U.S. Ordinary trade-facilitating mitigation measures are simply inadequate and not in proportion to the risks being assumed in non-infested areas. In contrast, best management practices (BMPs) for *P. ramorum* actually attain a higher level of mitigation, but these measures are voluntary (Suslow, 2008).

## II. Inadequacy of Current Mitigation Measures for Nurseries

Specific bullets below demonstrate the inadequacy of current mitigation efforts directed primarily at the movement of nursery stock to prevent dispersal of *P. ramorum*:

- A. Based on the continually enlarging host and associated host list, it is very unlikely that all hosts of the pathogen have been identified, or ever will be identified using only symptoms as the primary indicator of infection.  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/usdaprlist.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/usdaprlist.pdf)
- B. Some host plants do not show symptoms even though inoculum is being produced from infected leaves and fruit. (Dart and Chastagner, 2007; Denman *et al.*, 2008)
- C. Root infections by *P. ramorum* with production of inoculum have been demonstrated on both rhododendrons and tanoaks with no evidence of root rot. Only sophisticated lab testing on virtually every plant in a shipment could detect such invisible infections and eliminate the risks (Dart and Chastagner, 2007).
- D. Visual inspection of host materials for infection (the universal phytosanitary standard “apparently free of pests and pathogens”) has proven over and over again to be an inadequate basis for phytosanitary determination and subsequent declaration. Even if inspections could be 100% effective based on visual expression, symptoms of *P. ramorum* infection can be too general, too subtle and too inconspicuous to trust the technique. Failures are inevitable and likely to be frequent. If this phytosanitary inspection technique was truly as effective as current standards imply, those numerous shipments of infected *Camellia* that left Monrovia Nursery in Azusa in 2003 to 22 other states would never have taken place (Shishkoff, 2006). In fact, the risk assessment states that *Phytophthora* has only been intercepted a total of seven times since 1985 at U.S. ports of entry, where visual detection methods are the standard and scrutiny should be at the highest level. As such, visual inspection for *P. ramorum* symptoms is not adequate.  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/pracphst-11-07.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/pracphst-11-07.pdf)
- E. Suppression efforts have eliminated all visible infections for a period of several years at West Coast locations, but viable inoculum continues to be detected from those areas, and new infections are manifesting at considerable distances from the core area. (Kanaskie, *et al.*, 2008; Goheen, *et al.*, 2008)
- F. The risk map for the East Coast, as depicted by Magarey *et al.* shows much greater risk, on the basis of climate match, than where the pathogen has now established on the West Coast (Magarey, *et al.*, 2004). If this map is accurate, the impact of *P. ramorum* would be much worse in the East than in the Western U.S. Recent information suggests that many common understory species in Eastern U.S. forests are susceptible to *P. ramorum* and capable of producing inoculum which under the right conditions may result in forest epidemics (Tooley and Browning, 2009).
- G. The fact that California and the West Coast harbored this pathogen for many years before its devastating nature came to the attention of plant health regulators and acknowledged as a serious problem (Rizzo, *et al.*, 2002) portends a similar fate for the Eastern U.S. when it arrives here. This is another reflection of the inadequacy of visual inspection and survey efforts to detect new plant pests. The financial and infrastructure commitment to

surveillance is simply too small and could not be considered as an absolute protection measure even under the best of conditions. Such techniques are unreliable if absolute containment and/or local eradication is to be considered as a serious option. Detection invariably will be too late.

- H. Recent observations have indicated that cold storage of soil samples for several weeks is essential to better detect the presence or absence of *P. ramorum*. This protocol is not used operationally in California even though it provides essential information when the causal organism is momentarily in a 'non-cultural' but viable.
- I. Should the West Coast fail to contain this pathogen in the currently infested areas and new satellite infestations become established in other locations across the continent, the increase in resource expenditure for surveillance and regulatory protection, plus economic losses due to trade restrictions will be extremely high. The likelihood of failures would be even greater than exist at present with the pathogen restricted to the West Coast. Many states are simply not staffed and equipped to deal with a pathogen of this significance. The expansion of the natural host range alone as *P. ramorum* moves eastward would take years of intensive research to compile to even know what plants need regulation. Insufficient containment facilities and funding has been made available to undertake anything more than preliminary work in this area, and those results are worrisome enough (Linderman, *et al.* 2008).
- J. The idea that perhaps three or four major hosts of *P. ramorum* could be targeted for extensive mitigation measures (*i.e.*, not permitted to move at all in or out of the quarantine area) and prevent the introduction of the pathogen into new areas is a step in the right direction. Suggested host genera to put on that list are *Camellia*, *Rhododendron*, and *Viburnum*. However, such a policy creates a sense of false security and presents the opportunity for the mild foliar expressions of the disease on plants such as *Magnolia*, *Kalmia*, *Pieris*, *Heteromeles*, *Arbutus*, *Arctostaphylos*, *Quercus*, *Rhamnus* and *Vaccinium* to escape through the regulatory net. By this means, *P. ramorum* inoculum can be introduced easily to an entirely new and different ecosystem.
- K. It is relevant that several other new species of *Phytophthora* have been discovered in Europe and North America in the aftermath of the *P. ramorum* invasion on these continents, having been discovered in the intensive surveys prompted by the new pathogen (*P. nemarosa*, *P. hibernalis*, *P. kernoviae*, *P. foliorum*, *P. hedraiandra*, *P. pseudosyringae*, *P. siskyouensis* and others). One would like to think these discoveries would have been made in the ordinary course of monitoring plant health in the U.S. and probably in Europe as well, but were not. The present system of surveillance for resource protection from foreign pests simply is not up to the task, even when alerted by something as devastating as the arrival of *P. ramorum*.
- L. Measures to prevent the continued introduction of the A1 mating type from Europe are laudable, but must recognize that we are aware of the introduction of the A1 mating type already taking place, probably more than once. (Hansen *et al.*, 2003; Garbelotto, unpublished; Grunwald, 2008; Ivors, 2006). Likewise, the American A2 mating type has found its way to Europe where the A1 type predominates (Werres and De Merlier, 2003). Sexual reproduction of this heterothallic Stramenopile is likely to result in changed

properties of the pathogen, which could include enhanced virulence and greater survival potential (Boutet and Chandelier, 2007; Brasier and Kirk, 2004; Brasier *et al.*, 2006a; Rizzo *et al.*, 2002; Werres *et al.*, 2001).

- M. Even if the A1 mating type fails to establish in the vicinity of compatible A2 mating types already widespread on the West Coast, the distinct possibility that other species of *Phytophthora* could provide a suitable mating type cannot be overlooked. Hybridization among different species of *Phytophthora* is not uncommon. One would anticipate another array of new biological properties to emerge from the interspecific hybrid progeny, and long term survival of the oospores is a legitimate and reasonable expectation. Oospores are generally considered to be more robust and fit for long-term survival in the environment than chlamydospores, which would then represent the most durable form of the pathogen based on current understanding.

## **Conclusions**

The USDA *Phytophthora ramorum* risk assessment has correctly identified this pathogen as high risk overall:

### **Organism Risk Assessment**

#### Consequences of Introduction

- Risk element 1 - Climate-host interaction – High
- Risk element 2 - Host Range – High
- Risk element 3 - Dispersal potential – High
- Risk element 4 - Economic impact – High
- Risk element 5 - Environmental impact – High

#### Likelihood of Introduction

- Risk sub-element 1 – entry potential - High
- Risk sub-element 2 – establishment and spread potential- High
- Risk sub-element 3 – detection potential- High

### **Pathway Assessments**

#### Consequences of Introduction

- Risk element 1 - Climate-host interaction – High
- Risk element 2 - Host Range – High for nursery stock, media and soil, wood and wood products, compost and green waste; Medium for cut products
- Risk element 3 - Dispersal potential – High for nursery stock, media and soil, wood and wood products, compost and green waste; Medium for cut products
- Risk element 4 - Economic impact – High
- Risk element 5 - Environmental impact – High

#### Likelihood of Introduction to New Areas in U.S.

- Risk element 6 – Pest Opportunity (Survival and access to suitable habitat and hosts)
- Risk sub-element 1 – entry potential - High

- Risk sub-element 2 – establishment and spread potential- High for nursery stock, media and soil, wood and wood products, compost and green waste; lower / unknown for cut products
- Risk sub-element 3 – detection potential- High

Only in the cut trees, greens, foliage and flowers was a *medium* risk assigned (six *medium* ratings out of the 72 elements and sub-elements rated, remaining 66 elements rated *high*; see summary table below).

Table 6. *Phytophthora ramorum* comparative risk matrix for an organism assessment and for selected, nmitigated pathway assessments.

Risk Element / subelement	Organism Assessment	Pathways						
		Nursery stock	Wood/Wood Products	Cut Christmas Trees	Cut Flowers/ Foliage	Greenwaste/ Compost	Potting Media	Soil
<b>Consequences of Introduction</b>								
Climate/Host Interaction	High	High	High	High	High	High	High	High
Host Range	High	High	High	Medium	Medium	High	High	High
Dispersal Potential	High	High	High	Medium	Medium	High	High	High
Economic Environment	High	High	High	High	High	High	High	High
<b>Likelihood of Introduction</b>								
Pest Opportunity Entry Potential	High	High	High	High	High	High	High	High
	High	High	High	Medium	Medium	High	High	High
Spread/Establishment Detection Potential	High	High	High	High	High	High	High	High
Risk Potential	High	High	High	High	High	High	High	High

(Excerpt from Risk Analysis for *Phytophthora ramorum* Werres, de Cock & Man in't Veld, Causal Agent of Sudden Oak Death,

Ramorum Leaf Blight, and Ramorum Dieback, p. 46)

The categorical statement under the Exclusion heading on p. 47 in the Risk Analysis for *Phytophthora ramorum* to prevent the movement of *P. ramorum* in the inter and international nursery trade is: “Exclusion of *P. ramorum* from non-infested areas is possible by prohibiting movement of all hosts (providing all hosts have been identified) from infested areas.” Yet the mitigation measures which follow for nursery stock movement both inter and internationally are essentially an annual visual inspection for the disease and a phytosanitary inspection of each shipment of regulated articles.

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?type=simple;c=ecfr;cc=ecfr;sid=5ee80759d503a753a9e76b98e3321d7d;region=DIV1;q1=ramorum;rgn=div8;view=text;idno=7;node=7%3A5.1.1.1.2.22.12.12>

Furthermore, nothing in the regulations pertains to the intrastate movement of nursery stock between certified and non-certified nurseries within or in-out / out-in of quarantine zones, thereby adding additional risk to this already tenuous arrangement.

### III. Recommendations to Impose Prohibitions or Restrictions on the Movement in Interstate Commerce of Specific Articles that are in Addition to the Prohibitions and Restrictions Imposed by USDA-APHIS-PPQ

Therefore, the states represented in this multi-state petition recommend the

following changes to impose restrictions and prohibitions as noted below in A and B related to the movement in interstate commerce of specific articles that are in addition to the prohibitions and restrictions imposed by USDA-APHIS-PPQ. This applies to any area under state or federal quarantine for *Phytophthora ramorum*. Regulated articles will include host and associated plants for *Phytophthora ramorum* and any other product, articles, or any other means of conveyance when it is determined by a quarantine officer of a state or federal plant pest regulatory agency that they present a hazard of spreading *Phytophthora ramorum*. A complete listing of host material may be found at: [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pram/downloads/pdf\\_files/usdaprlist.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/usdaprlist.pdf)

Regulated articles may not be moved into or within the petitioning state from any area under state or federal quarantine for *Phytophthora ramorum* except as outlined hereafter:

- A. Prior notification of *Phytophthora ramorum* host and associated plant material is required. The shipper shall send by mail, facsimile or e-mail a copy of the Phytosanitary Certificate to the respective regulatory offices. The phytosanitary certificate must list the type and quantity of plants, the shipper's address, the recipient's name and address, the date and results of the most recent nursery test (e.g., PCR, culturing in media and DNA sequence analysis) for *Phytophthora ramorum*, and contact number(s) of the shipper and recipient. Commodities shipped in violation of the requirements may be returned to their point of origin or destroyed at the expense of the owner.
- B. High-risk host plants (*Camellia*, *Rhododendron*, *Viburnums*, *Kalmia*, *Pieris*, *Magnolia*, *Lorapetulum*s spp.) are prohibited unless produced through a USDA-certified clean plant stock program. Each shipment must be accompanied by appropriate certification documents.

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**Attachments:**

**Signature Pages from those States Participating in the Multi-state Petition**

Alabama Department of Agriculture and Industries-Division of Plant Industry

Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum*

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

2-13-09

Date

Plant Pest Administrator  
Alabama Department of Agriculture and  
Industries-Division of Plant Industry

**Arkansas State Plant Board-Division of Plant Industry**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum***

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

2/24/2009  
Date

Division Director  
Arkansas State Plant Board-Division of  
Plant Industry

**Florida Department of Agriculture and Consumer Services-Division of Plant Industry**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum***

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

02/16/09

(b)(6)

Date

\_\_\_\_\_  
Director, Florida Department of Agriculture  
and Consumer Services-Division of Plant  
Industry

Georgia Department of Agriculture-Plant Protection Division

Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum*

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

2/25/09  
Date

Director  
Georgia Department of Agriculture-Plant  
Protection Division

University of Kentucky-Department of Entomology

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(b)(6)

Feb 13, 2009  
Date

State Entomologist  
University of Kentucky-Department of  
Entomology

Louisiana Department of Agriculture and Forestry-Horticulture and Quarantine Programs

Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum*

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(b)(6)

2/25/09  
Date

Director  
Louisiana Department of Agriculture and  
Forestry-Horticulture and Quarantine Programs

Mississippi Department of Agriculture and Commerce-Bureau of Plant Industry

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(b)(6)

\_\_\_\_\_

2/13/09  
Date

State Entomologist  
Mississippi Department of Agriculture and  
Commerce-Bureau of Plant Industry

North Carolina Department of Agriculture and Consumer Services-Plant Industry Division

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(b)(6)

\_\_\_\_\_

Date

2/13/09

Plant Pest Administrator  
North Carolina Department of Agriculture  
and Consumer Services-Plant Industry Division



**State of Oklahoma**  
**Department of Agriculture, Food, and Forestry**

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Brad Henry  
Governor

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Secretary and Commissioner

**Oklahoma Department of Agriculture, Food, & Forestry**  
**Consumer Protection Services Division**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for***  
***Phytophthora ramorum***

By signature below, the signatory acknowledges joint submission in a *Multi-State*  
*Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

*Feb. 13, 2009*  
Date

Director  
Oklahoma Department of Agriculture, Food & Forestry  
Consumer Protection Services Division

**Puerto Rico Department of Agriculture-State Plant Quarantine Program**

**Individual State Attachment to the *Multi-State Petition for Special Need Request for *Phytophthora ramorum****

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for *Phytophthora ramorum**

(b)(6)

\_\_\_\_\_

*February 21, 2009.*  
Date

Supervisor  
Puerto Rico Department of Agriculture  
State Plant Quarantine Program

Clemson University-Department of Plant Industry

Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum*

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

*2/13/09*

Date

Assistant Department Head  
Clemson University-Department of Plant Industry

Virginia Department of Agriculture and Consumer Services-Office of Plant and Pest Services

Individual State Attachment to the *Multi-State Petition for Special Need Request for Phytophthora ramorum*

By signature below, the signatory acknowledges joint submission in a *Multi-State Petition for Special Need Request for Phytophthora ramorum*

(b)(6)

2/25/09  
Date

Program Manager  
Virginia Department of Agriculture and  
Consumer Services



United States  
Department of  
Agriculture

May 28, 2009

Animal and  
Plant Health  
Inspection  
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(b)(6)  
Office of Plant and Pest Services  
Virginia Department of Agriculture  
and Consumer Services  
P. O. Box 1163  
Richmond, Virginia 23218

Washington, DC  
20250

Dear (b)(6)

On March 6, 2009, the Animal and Plant Health Inspection Service (APHIS) received two Special Needs Requests regarding the Federal regulatory programs for the light brown apple moth (*Epiphyas postvittana*, LBAM) and for sudden oak death (*Phytophthora ramorum*, SOD).

APHIS is currently evaluating these requests. Our review will include an analysis to determine if the States' request meets the special needs criteria listed in special needs request regulations (7 CFR Part 301.1). APHIS is also considering potential alternatives to fulfill the concerns of the States.

Given the level of interest by the number of States in these requests, APHIS is assessing whether the requests reflect special needs or whether they reflect broader concerns that might affect the overall regulatory framework for the LBAM and SOD programs. As part of this process, APHIS is helping several States facilitate a site visit for a number of National Plant Board members to the LBAM and SOD programs to provide an opportunity to observe first-hand the regulatory measures currently in place.

Following the LBAM and SOD program visits, we would like to invite the petitioning States to engage in a discussion that will help us determine whether or not the same concerns remain, whether there are new or different concerns, and whether the remaining concerns are best addressed in the context of the special needs request process or in a broader, national context. We will be contacting you to discuss arrangements for the discussion soon. For additional information, contact either Mike Tadler (301) 734-0771 or Eric Huszar (301) 734-0873 or you may visit APHIS website, Plant Health, Special Needs Request Rule.

[http://www.aphis.usda.gov/plant\\_health/special\\_needs\\_request/index.shtml](http://www.aphis.usda.gov/plant_health/special_needs_request/index.shtml)

Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

Washington, DC  
20250

May 28, 2009

(b)(6)

Assistant Department Head  
Department of Plant Industry  
511 Westinghouse Road  
Pendleton, South Carolina 29670

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Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



May 28, 2009

United States  
Department of  
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Animal and  
Plant Health  
Inspection  
Service

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Supervisor  
State Plant Quarantine Program  
Puerto Rico Department of Agriculture  
P.O. Box 10163  
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Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



United States  
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Agriculture

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May 28, 2009

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Director  
Consumer Protection Services Division  
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Oklahoma City, Oklahoma 73152-8804

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Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

Washington, DC  
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May 28, 2009

(b)(6)

Plant Pest Administrator  
North Carolina Department of Agriculture  
and Consumer Services  
Plant Industry Division  
1060 Mail Service Center  
Raleigh, North Carolina 27699-1060

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Given the level of interest by the number of States in these requests, APHIS is assessing whether the requests reflect special needs or whether they reflect broader concerns that might affect the overall regulatory framework for the LBAM and SOD programs. As part of this process, APHIS is helping several States facilitate a site visit for a number of National Plant Board members to the LBAM and SOD programs to provide an opportunity to observe first-hand the regulatory measures currently in place.

Following the LBAM and SOD program visits, we would like to invite the petitioning States to engage in a discussion that will help us determine whether or not the same concerns remain, whether there are new or different concerns, and whether the remaining concerns are best addressed in the context of the special needs request process or in a broader, national context. We will be contacting you to discuss arrangements for the discussion soon. For additional information, contact either Mike Tadler (301) 734-0771 or Eric Huszar (301) 734-0873 or you may visit APHIS website, Plant Health, Special Needs Request Rule.

[http://www.aphis.usda.gov/plant\\_health/special\\_needs\\_request/index.shtml](http://www.aphis.usda.gov/plant_health/special_needs_request/index.shtml)

Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



May 28, 2009

United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

Washington, DC  
20250

(b)(6)

State Entomologist  
Bureau of Plant Industry  
Mississippi Department of Agriculture and Commerce  
P. O. Box 5207  
Mississippi Street, Mississippi 39762

Dear (b)(6)

On March 6, 2009, the Animal and Plant Health Inspection Service (APHIS) received two Special Needs Requests regarding the Federal regulatory programs for the light brown apple moth (*Epiphyas postvittana*, LBAM) and for sudden oak death (*Phytophthora ramorum*, SOD).

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Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



United States  
Department of  
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Animal and  
Plant Health  
Inspection  
Service

Washington, DC  
20250

May 28, 2009

(b)(6)

Director  
Louisiana Department of Agriculture and Forestry  
P.O. Box 3596  
Baton Rouge, Louisiana 70821-3596

Dear (b)(6)

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Sincerely,

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Deputy Administrator  
Plant Protection and Quarantine



United States  
Department of  
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Animal and  
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May 28, 2009

(b)(6)

State Entomologist  
Department of Entomology  
S-225 Agriculture Science Center North  
University of Kentucky  
Lexington, Kentucky 40546-0091

Dear (b)(6)

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United States  
Department of  
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Animal and  
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Washington, DC  
20250

May 28, 2009

(b)(6)

Director  
Plant Protection Division  
Georgia Department of Agriculture  
19 Martin Luther King Drive, Room 243  
Atlanta, Georgia 30334-4201

Dear (b)(6)

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Deputy Administrator  
Plant Protection and Quarantine



United States  
Department of  
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Animal and  
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Inspection  
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Washington, DC  
20250

May 28, 2009

(b)(6)

Director of Florida Department of Agriculture  
Division of Plant Industry  
Florida Department of Agriculture  
and Consumer Services  
P. O. Box 147100  
Gainesville, Florida 32614-7100

Dear (b)(6)

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Sincerely,

Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



United States  
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Animal and  
Plant Health  
Inspection  
Service

Washington, DC  
20250

May 28, 2009

(b)(6)

Division Director  
Division of Plant Industry  
Arkansas State Plant Board  
P. O. Box 1069  
Little Rock, Arkansas 72203

Dear (b)(6)

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Rebecca A. Bech  
Deputy Administrator  
Plant Protection and Quarantine



United States  
Department of  
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Animal and  
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Inspection  
Service

Washington, DC  
20250

May 28, 2009.

(b)(6)

Plant Pest Administrator  
Alabama Department of Agriculture and Industries  
Division of Plant Industry  
P. O. Box 3336  
Montgomery, Alabama 36109-0336

Dear (b)(6)

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