

Special Feature

The Regulatory Corner: Stopping Exotic Species Introductions

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This article hopefully will serve as an introductory article to highlight the “regulatory world of entomology” and to educate and keep entomologists in the Southeast updated on regulatory activities throughout the United States. Very few seminars are held and few courses are taught at universities on aspects of regulatory entomology, so hopefully articles such as this can fill the gap. I plan to follow up with future articles on specific pests of regulatory concern.

The terrorist attacks on 9/11 gave us a wake up call. “Homeland Security” really hit home. Emergency plans and plans for more plans have been generated to protect all aspects of American life, economic infrastructure and freedom. Our food and fiber supply has been taken for granted too long and the capacity to produce food and fiber is essential to our health and economic stability in the world.

State and Federal officials are now developing emergency plans to protect agriculture, including food and fiber crops, from bioterrorist attacks. Response teams of experts in every field of plant protection are being organized. Incident and unified command action protocols are being outlined in detail.

One interesting fact is that generally speaking insects are not considered a major threat for a bioterrorist attack. No insects are in the top ten “select agent list” of bioterrorist threats developed by the Department of Homeland Security (DHS) and the United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection Quarantine (USDA-APHIS-PPQ). To know more about select agents go to [APHIS Agricultural Select Agent Program](#).

But regardless of how pests are introduced, major economic threats exist from exotic insect pests. The APHIS [Regulated Plant Pest list](#) contains approximately 100 insects and 10 mites. Several significant pest introductions into the United States within the last few years are: Asian Longhorned Beetle, *Anoplophora glabripennis* (Motchulsky); Emerald Ash Borer, *Agrilus planipennis* (Fairmaire); Cactus moth, *Cactoblastus cactorum* (Berg); Cabbage Gall Midge/Swede Midge, *Contarinia nasturtii* (Kieffer); Chilli thrips, *Scirtothrips dorsalis* (Hood); Pink hibiscus mealybug, *Maconellicoccus hirsutus* (Green); Pine shoot beetle, *Tomicus piniperda* (Linnaeus); European Wood Wasp/Steel-blue horntail, *Sirex noctilio* (Fabricus); and light brown apple moth, *Epiphyas postvittana* (Walker). Federal and/or state regulatory programs are in effect, to a limited degree, to deal with these and other pests not listed. The list of newly

introduced destructive pests seems to be ever demanding and getting longer and available resources are always in short supply.

None of the above pests pose a more serious threat to our forest industry than the European wood wasp. USDA/APHIS/PPQ is trying to get a better handle on likely pathways for many wood destroying pests to get into the U.S., such as "solid wood packing material." It is used to make pallets and frameworks to ship large appliances and motorized equipment, and even includes coarse wood packing chips. The European wood wasp was recently found in an insect trap in New York in and/or near a warehouse in February 2005. According to records it must have somehow survived fumigation on a shipment that came into port. In the past it has been intercepted at ports of entry on solid wood packing materials. With hundreds of traps having been monitored since then it has been found in Pennsylvania, Michigan and Vermont.

Several species of *Sirex* are found in the United States, but none are as devastating as *Sirex noctilio*. For example, in the late 1940's, a severe drought occurred in New Zealand and by 1959 this pest had decimated 80% of the *Pinus radiata* population. For more information, see USDA Pest Alert [NA-PR-07-05](#) and the [Sirex noctilio pest report](#). It also had destroyed large acreages of *Pinus radiata* in Tasmania by 1951. *Sirex noctilio* is a very destructive insect pest of all *Pinus* species.

Sirex noctilio females carry a symbiotic fungus that debilitates the host plant when injected, along with the mucus, at oviposition. This causes even more damage than do the woodboring larvae. Trees under stress from drought or other reasons are very susceptible to attack. Larvae chew serpentine galleries in the wood and are sustained nutritionally by the fungus.

Females make their initial flights within two-miles of their rearing site. They are strong fliers, according to some sources are capable of flying over 100 miles. They would be a regulatory nightmare if it became necessary to try to eradicate or control their spread.

Adult females vary in length from 20 to 40 mm. They are metallic blue with orange legs. Adult males have a dark blue third pair of legs and an orange abdomen. They can only be distinguished from other species of *Sirex* by trained insect taxonomists. For more information readers may go to [the APHIS Sirex noctilio page](#).

Two other examples listed earlier are emerald ash borer and Asian longhorned beetle. Eradication and control programs for these two pests in the Northeast U.S. have cost the taxpayers tens of millions of dollars to date and have destroyed timber and disrupted landscapes worth much more. They both are also suspected of entering the U.S. on solid wood packaging materials.

Pathways for introduction of exotic pests are becoming unlimited with so many people immigrating, traveling overseas and even entering the country illegally. Our vast global transportation system and increasing numbers of worldwide travelers makes the introduction of exotic pests more probable and puts more pressure on our safeguarding programs for food and fiber crops. Individuals and businesses are illegally and even legally bypassing needed inspections at airports, seaports and other ports of entry. Sometimes this is due to ignorance, sometimes it is intentional. Consequently, the ability to inspect and isolate articles capable of transporting serious pests is becoming more complicated for regulatory officials.

All businesses involved in interstate and global trade must be proactive and become more self-policing to insure better protection of agriculture and food for all. Researchers studying and collecting insects in other countries must obtain the necessary USDA/APHIS/PPQ permits before bringing any live insect into the country.

So now you understand all the excitement! The whole point of this article is to introduce readers to the concerns about potentials for introduction of exotic pests and the need for everyone, especially entomologists and researchers who know bugs, to be on the lookout for different pest problems that could be the result of a new pest introduction. International commerce is big business and the border/port inspections conducted by Department of Homeland Security personnel are limited in capabilities. Early

detections of infestations are critical so they can be nipped in the bud early. Everyone has a dog (or cat) in this race; our food and fiber supply.

[*Editor's Note:* "Regulatory Corner" will be a recurring feature in future issues of *Mississippi Entomologist*.]

