

January 3, 2005

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The European wood wasp, *Sirex noctilio*, is the January 2006 Invader of the Month

ANNAPOLIS, MD (January 3, 2005) – As if waves of invaders are hitting our shores, one of the most recently discovered pests in the United States may be akin to a tsunami. Although prone to attack stressed pines, this Eurasian woodwasp will select and kill healthy trees as populations build.

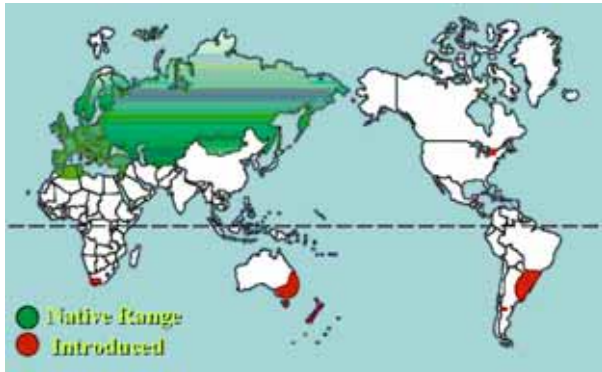


Figure 3. *Sirex noctilio*—larva and close-up of posterior spine.

The wood wasp *Sirex noctilio* is considered a secondary pest within its native range (Europe), but proved to be a very serious pest of *Pinus* when introduced into Australia, New Zealand, and South America. Much of the insect's pest status results from its association with the phytotoxic fungus *Amylostereum areolatum*, which female wasps inject into trees (along with a toxin) at the time of oviposition. Larvae burrow into the tree, but apparently derive much of their nutrition from feeding on the fungus.

Biological controls, including a complex of parasitoids and the entomophagous/mycetophagous nematode *Deladenus siricidicola* (which sterilizes and is transmitted by female wasps), help reduce damage but have not solved the problem in areas where the pest has been introduced.

Robust populations of this insect exist in Europe, southern Brazil, Uruguay, and parts of Argentina, as well as New Zealand, Australia south through Tasmania, South Africa, and (most recently) New York and Canada along the St. Lawrence Seaway. Pines and pine plantations in the southern U.S., at the least, are certainly at risk for significant economic and ecological damage from this pest. *S. noctilio* has also been reported in Estonia and even in southern portions of the Taimyr Peninsula (extends into the Arctic sea in central Siberia), suggesting that the insect could potentially survive in all areas of North America where pines are found. In cooler climates, the life cycle can extend beyond the single year that is typical in subtropical and warmer temperate climates.

Trap-tree techniques appear effective for this pest, but the "traps" are created by topping or girdling the trees or by injecting them with herbicide. As a result, trap-tree techniques probably are not practical for routine detection surveys. Early electroantennogram studies demonstrated that the wasps can sense a number of pine volatiles, but follow-up

to develop effective artificial lures has apparently never been done (or was not done successfully enough to bother publishing the results). As is the case for many wood-borers, detection survey at this point will have to rely on visual identification of the insect and its damage.

Surveys for this wasp should be conducted in conjunction with ongoing wood-borer surveys that focus on locations where imported wood materials are held. The insect is most likely to be found on recently dead or dying pine trees of various species, although spruce and firs may also be attacked successfully. Look for pines with wilting, discolored foliage. *S. noctilio* produces round exit holes that will be concentrated along mid to upper portions of the trunk. The holes will be several mm across but will be dependent on the size of the wasp, which can be quite variable, ranging (in length) from 0.9 to 3.6 cm. Unfortunately, a number of native insects also produce round exit holes of various sizes in dead or dying pine trees, including (among others) several native horntails in the genera *Sirex* and *Urocerus*. Splitting or holding sections of trunk to obtain insects will likely be required for identification unless, by chance, adult wasps are encountered and captured. Tunnels can run throughout the wood and are packed with chewed wood. Adult emergence is said to occur through the summer, with a peak in late summer or early fall.

Unlike many horntails, *S. noctilio* aggressively attacks and kills living pines (although stressed trees are preferentially attacked). Mortalities as high as 80% have been recorded in stands of North American pines in the southern hemisphere. *Sirex* reportedly killed 1.75 million trees in Australia in 1990, with total damage in the area estimated at several billion dollars.

*S. noctilio* larvae can be found at all depths in infested trees and are at risk to enter the U.S. in any relatively green untreated pine wood that originates in infested areas. Wood packing materials, logs, or lumber of most any grade could potentially harbor the insect. Interceptions of this insect by APHIS inspectors are not uncommon and have occurred within the past year.

Potential hosts are widespread and common, and *S. noctilio* appears capable of surviving climatic conditions within much of the U.S. In addition, the insect is a strong flier and can spread rapidly, which would make eradication difficult. Reports in the literature indicate that adults can travel up to 100 miles, but more likely expectations (based on experiences in Australia) suggest that an infestation would expand at 5 to 15 miles per year.



Exit holes and sap flow from a *Sirex* infested tree

Most of the information in this IOM comes from the Pest Risk Assessment by David Lance, USDA APHIS PPQ.