

Pest Risk Assessment for the State of Oregon

***Sirex noctilio* Fabricius – European woodwasp**

Pest Identity

Scientific Name: *Sirex noctilio* Fabricius
Order: Hymenoptera
Family: Siricidae
Common Name: European woodwasp

Risk Rating Summary

Relative Risk Rating: High

Numerical Score: 19 (maximum 20)

Uncertainty: Medium

Pest Background

The European woodwasp, *Sirex noctilio* (Hymenoptera, Siricidae) is a woodwasp or horntail native to Europe, Asia and northern Africa. It is considered established in Australia, New Zealand, Uruguay, Argentina, Brazil, Chile, and South Africa (Haugen, 2002). In 2002, *Sirex noctilio* was reported for the first time in the US in Bloomington, Indiana, and in 2004 for the first time outside a port-entry facility in New York State. *Sirex noctilio* is commonly associated with solid wood packing materials and has been intercepted at least once in Oregon.

In contrast to native horntails or woodwasps, *Sirex noctilio* can attack living pines selecting suppressed, stressed or injured trees and introduces a phytotoxic fungus, *Amylostereum areolatum*, which can contribute to tree mortality. *Sirex noctilio* is generally considered a secondary pest in its native range where it attacks Scotch (*Pinus sylvestris*), Austrian (*P. nigra*) and maritime (*P. pinaster*) pines. In countries where it established, *Sirex noctilio* attacks exotic pine plantations reportedly causing up to 80% mortality of North American pine species, such as Monterey pine (*P. radiata*) and loblolly pine (*P. taeda*). Other susceptible pines species include ponderosa (*P. ponderosa*) and lodgepole (*P. contorta*) pines.

Figure 1. Adult of *Sirex noctilio*: (Photos from

Spread Potential to Oregon: High (numerical score 4)

Justification

Sirex woodwasps is the most commonly intercepted exotic woodwasp species at US ports-of-entry in solid wood packaging material. According to Hoebeke et al. (2005), *Sirex noctilio* was intercepted at least over 100 times in US ports of entry, mainly in solid wood packing material. However, *Sirex noctilio* can also be transported in nursery stock, firewood, and raw logs and saw timber. Between 1985 and 2000, one official interception of *Sirex noctilio* was reported in Oregon.

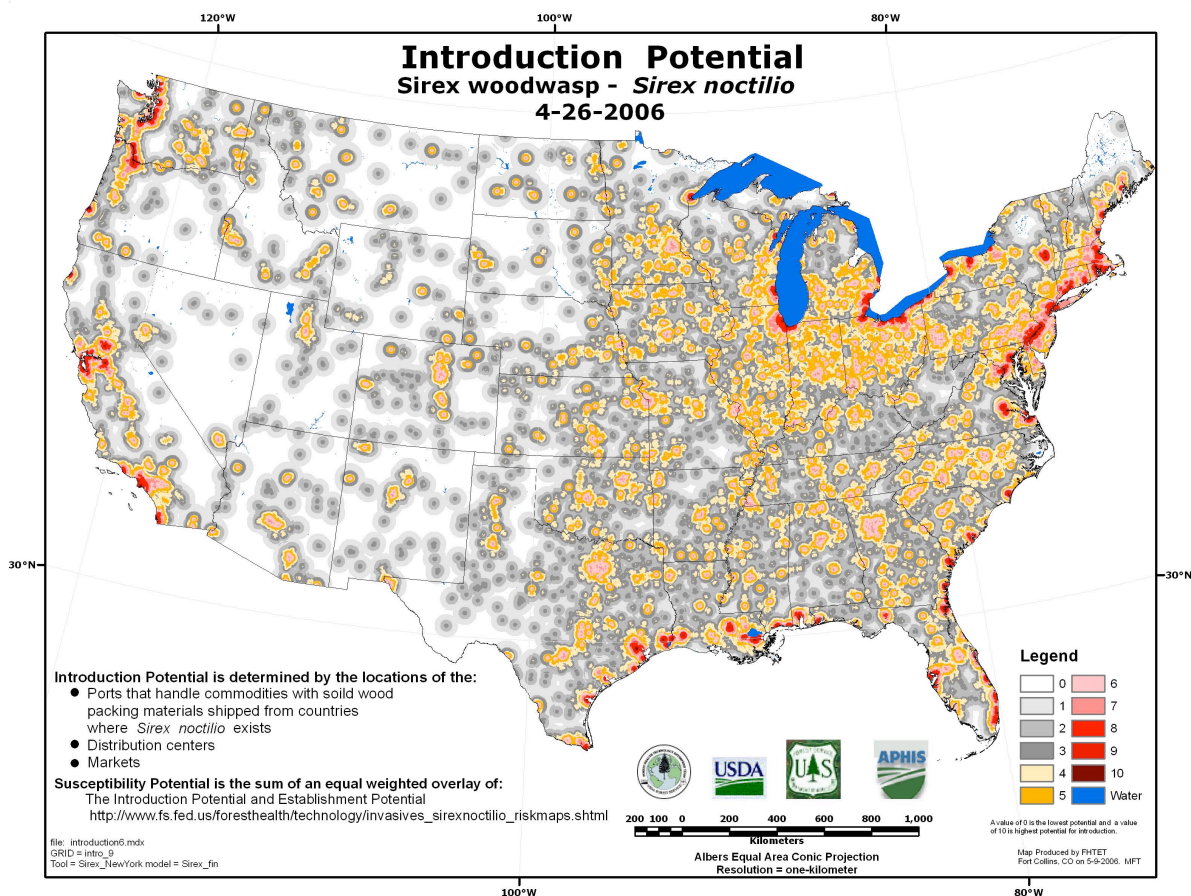


Figure 2: Introduction potential for *Sirex noctilio* (USDA Forest Service, 2006)

Establishment Potential in Oregon: High (numerical score 5)

Justification

Sirex noctilio could establish in Oregon wherever pine is found. Based on climate zones in Oregon, *Sirex noctilio* would be able to establish across the state in areas that are equivalent to USDA Plant Hardiness Zones 3 to 10. *Sirex noctilio* is a strong flier and can easily fly up to 160 km in search of suitable host material. Natural spread rates are estimated to range from 8 to 24 km per year. Passive spread can occur through nursery stock material, raw log, firewood and solid wood packaging material.

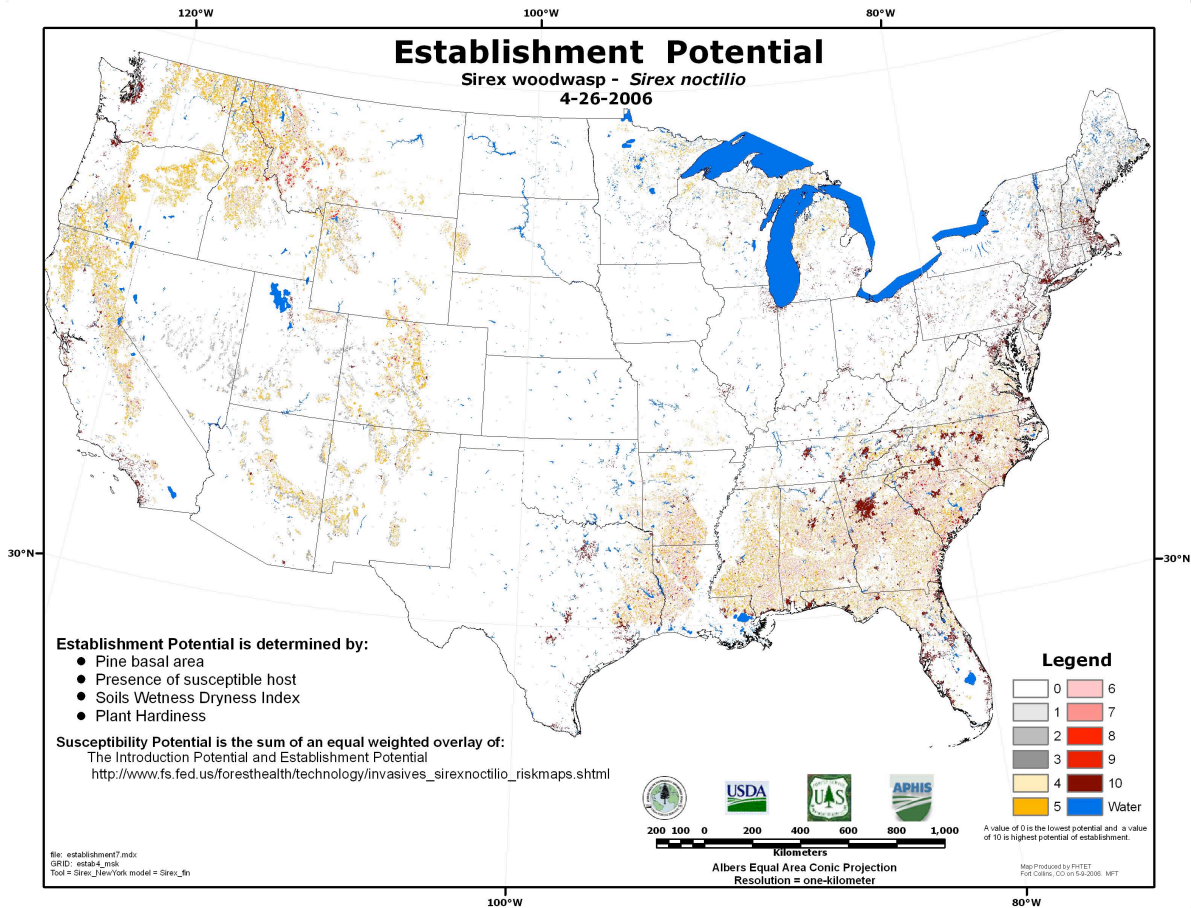


Figure 3: Establishment potential for *Sirex noctilio* (USDA Forest Service, 2006)

Environmental Impact Potential to Oregon: High (numerical score 5)

Justification

Although considered a secondary pest of little economic importance in its native range, *Sirex noctilio* has become a major pest in Australia, New Zealand, South America, and South Africa with up to 80% tree mortality in some stands and with significant economic damage to *Pinus radiata* plantations. Outside its origin, *Sirex noctilio*'s attack of stressed and diseased pine trees will significantly contribute to tree mortality also due to its association with the phytotoxic fungus *Amylostereum areolatum*, which females inject into trees along with a toxin at the time of oviposition. In general, the western region pine trees are already stressed and would be a prime target for *Sirex noctilio*. In addition, North American pines are highly susceptible to the fungus vectored by *Sirex noctilio*.

Economic Impact Potential to Oregon: High (numerical score 5)

Justification

Literature data indicate that *Sirex noctilio* can be associated with significant economic losses in countries where it has established, such as Australia where damage to forestry industry is estimated to range from \$1 to \$4 billion during each rotation cycle of *Pinus radiata* forests. If *Sirex noctilio* were to establish in Oregon, damage by this invasive pest could be in the millions for commercial pine species.



Figure 4. Green needles wilt and point straight down.



Figure 5. Needles eventually turn red.



Figure 6. Resin beads and dribbles at egg-laying site.



Figure 7. Larval galleries with tightly packed frass



Figure 8. Round exit holes

Photo Credits:
Dennis A. Haugen and
Kent Loeffler
(Dept. of Plant Pathology
Cornell University)

Conclusion

Considering the special situation of western forests with continuous stressed trees, the high probability of introduction and establishment, and adverse ecological and economic impact, *Sirex noctilio* is considered to be a high-risk invasive pest for Oregon. Although *Sirex noctilio* is no longer a federally regulated pest of concern, the presence of *Sirex noctilio* in Oregon would likely affect our economic trading relationships with other national and international trading partners.

Literature consulted

- Borchert, D. 2007.** Organism Pest Risk Analysis: Risks to the Conterminous United States Associated with the Woodwasp, *Sirex noctilio* Fabricius, and the Symbiotic Fungus, *Amylostereum areolatum* (Fries: Fries) Boidin. May 2007. USDA-APHIS-PPQ-CPHST-PERAL
- Scott, S. 2003.** *Sirex noctilio* Fabricius: Sirex Woodwasp Hymenoptera/Siricidae. NPAG Chair Approval Date: 05/12/03
- Haugen, D. A. 2002.** A Sirex Woodwasp, *Sirex noctilio* Pest Risk Potential, Appendix D in Pest Risk Assessment for the Importation of Solid Wood Packing Materials into the United States, APHIS 81-35-008. USDA APHIS and Forest Service, August 2002.
- Haugen, D.A. & Hoebeke, E.R. 2005.** Pest Alert: Sirex woodwasp – *Sirex noctilio* F. (Hymenoptera: Siricidae). United States Department of Agriculture Forest Service, Northeastern Area, State and Private Forestry. NA-PR-07-05. June 2005