Technical Bulletin

Forest Health Notes #65

Wood Wasps: What's All The Buzz About?

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Introduction

Wood wasps (Order: Hymenoptera, Family: Sircidae) are widely distributed stingless wasps that bore into wood to lay their eggs. These insects are also sometimes referred to as 'horn-tails' due to a spine-like structure on the end of the abdomen. Since they do not bite or sting, wood wasps cause no direct harm to humans. Wood wasps lay their eggs in stressed trees, with larvae feeding in the wood before emergence in 1-3 years (Klass 2012). Mississippi is home to several species of native wood wasps. However, because they live the majority of their lives inside of trees and don't directly cause mortality in healthy trees, most people have probably overlooked them.

Biology

Adult wood wasps are large, cylinder-shaped insects, typically over 1-inch long, and resemble "stinging" wasps, except for their broad-waists (Fig. 1). Wood wasp coloration can appear metallic blue or black, or also in combinations of black, red, and yellow (Mussen 2010). Females have a long ovipositor (sometimes as long as the rest of their body) that they use to drill into wood

Figure 1: Adult Siricid wood wasp. Photograph by: Natasha Wright, Florida Dept. of Ag. and Consumer Services, ww.forestryimages.org.

and lay eggs. When females lay eggs, they also inject a fungus into the wood which pre-digests the wood to aid the larvae with consumption. Eggs hatch in the wood within several weeks, and larvae then feed inside the wood until they are ready to emerge as adults (Mussen 2010). Larvae are a yellowish-white color and cylindrical, often with a small spine on their rear (Fig. 2) (Gibson 2010),

Hosts and Impacts

Wood wasps can bore into hardwood or coniferous trees, but many species prefer conifers, such as pine. Most species of wood wasps are not a major concern since they attack already stressed trees or dying trees, and are generally incapable of attacking healthy, vigorously growing trees. Trees infested by wood wasps are opened up to other decay organisms and are more prone to wind damage (Klass 2012).

Figure 2: Sircid wood wasp larvae in feeding gallery. Photograph by: Stanislaw Kinelski, www.forestryimages.org.

Recently cut wood can also serve as a medium for egg laying, but wooden buildings and structures such as furniture are safe from wood wasp attack. Adults that emerge from infested wood products in buildings cause cosmetic damage, not structural, and will not re-infest the structure from which they arise (Mussen 2010). However, this is not a

common occurrence since most commercially available wood products are kiln dried, a process which kills any wood wasp larvae that may have been present in trees at harvest time.

Signs and Symptoms

When infested stems are split open, round (not oval) galleries excavated by the larval wasps are full of tightly packed sawdust. After pupation, adults exit the tree and form characteristic perfectly round emergence holes. Infestations by native wood wasps are usually indicative of an extremely unhealthy tree or branch. However, if copious resin flow or "resin beading" occurs at egg laying sites or tree crowns rapidly fade to red (in pines), contact an expert to make sure the invasive non-native Eurasian wood wasp hasn't spread to your neighborhood.

Exotic Species

The Eurasian wood wasp (*Sirex noctilio*) is an exotic species native to Europe and Asia that was first discovered in the United States in 2005 when it was found in New York (Schiff et al. 2006). This species has the potential to be much more damaging than our native wood wasps due to the mucus/fungus complex the female injects into trees when she lays her eggs. The complex severely weakens and potentially kills the tree and has been shown to cause severe damage in pine plantations on other continents (Fig. 3). Although not yet found in the southeastern U.S., we are at risk from *Sirex noctilio* damage in the future if the insect continues to spread from the northeast. Due to the long development period of the larvae contained in wood, spread of wood wasps is easily accomplished (Schiff et al. 2006).

Figure 3: Sirex noctilio damage in an Australian pine plantation - notice the fading crowns of dead and dying trees. Photograph by: Dennis Haugen, www.forestryimages.org.

Control

Kiln drying infested lumber will kill wood wasp larvae, but this process is often not economically feasible (Gibson 2010). When infested timber is used in construction, adult wood wasps may appear after emergence. In such cases, cosmetic repair of emergence holes (Fig. 4) is the most feasible repair tactic (Mussen 2010). Although our native wood wasps are relatively harmless, the invasive *Sirex noctilio* could pose a major threat to Mississippi pine plantations. Therefore controlling the spread of *Sirex noctilio* is of utmost importance, and this is most

Figure 4: Adult wood wasp emergence holes. Photograph by: Stanislaw Kinelski, www.forestryimages.org.

easily accomplished by not transporting firewood over long distances.

Direct control of native wood wasps is usually not a necessity since they primarily utilize weakened or dying trees. Conducting proper stand management practices that promote healthy, vigorously growing trees is usually all that is required to minimize impacts of native wood wasps. Native wood wasps appear to prefer un-thinnned, overstocked pine stands in Mississippi (Fig. 5). Like many other forest pests, proper silviculture and timely thinning of forest stands should minimize wood wasp problems.

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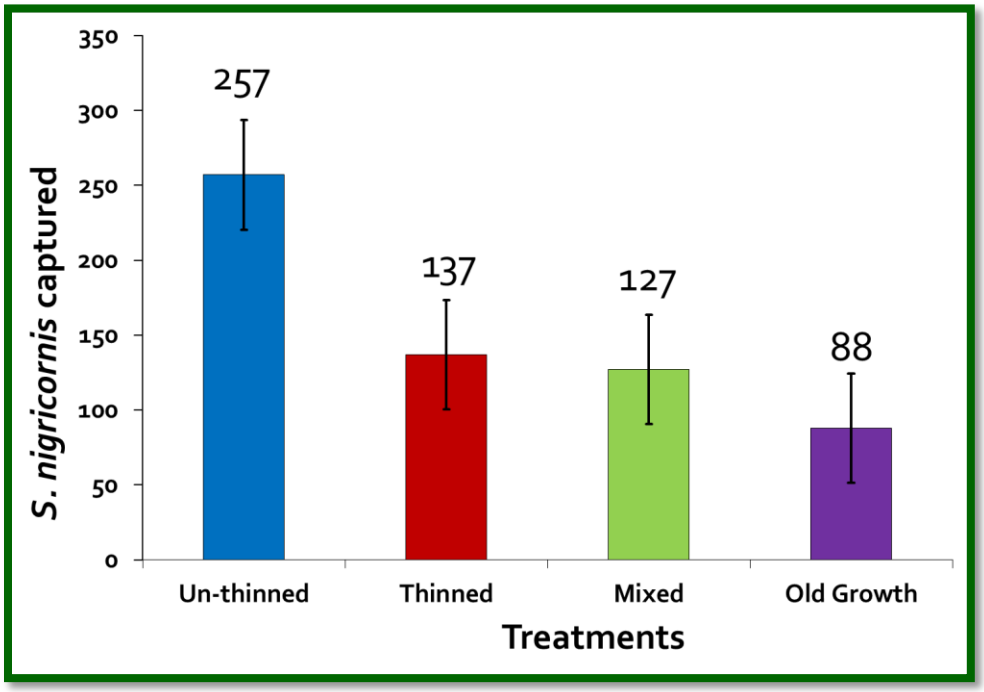

Figure 35: Abundance of native siricid wood wasps in various forest stand types of Mississippi. From Chase, 2013 (http://sun.library.msstate.edu/ETD-db/theses/available/etd-03262013-161219/).