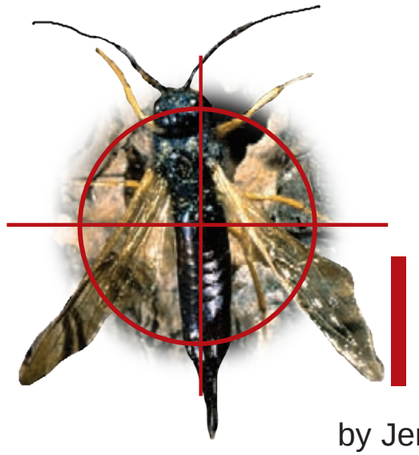


INSECT INVASION!

by Jerry Carlson and Karin Verschoor

Much as a virus or worm can infect an entire computer network, tiny insect invaders are threatening to wreak havoc on New York's forests. Two wood-boring insects, the sirex woodwasp and the emerald ash borer, have been spotted in or near New York State. Unwelcome visitors, both species are capable of quickly destroying an entire patch of forest. As such, these insects are the focus of intensive research and monitoring by the United States Department of Agriculture, the New York Department of Agriculture and Markets, and the New York State Department of Environmental Conservation (DEC).

Sirex Woodwasp

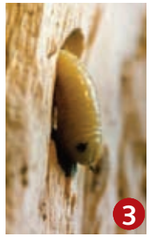
A large, wood-boring wasp, the sirex woodwasp is a devastating pest of pine trees. It is native to Europe and Asia, and has already destroyed millions of pines in Australia, South America and South Africa. Believed to have come into the U.S. in wooden packing material such as crates or pallets, this woodwasp's first known North American occurrence was in Oswego County in 2005. Since then, it has been found in Onondaga, Wayne, Seneca and Cayuga counties, and has just been detected in southern Canada.

Sirex Woodwasp (female) Adults: 2-1" long. Thick bodied; no "wasp" waist. Females: solid black body with spear-like ovipositor Males: wide orange band on abdomen

Sirex woodwasps are solitary black wasps with brownish wings and orange legs. Females lay their eggs in pine tree trunks, where the eggs hatch into white, wood-boring grubs. The grubs then tunnel through the tree, eventually emerging as adults through holes measuring 1/4 to 3/8 inch in diameter. During the egg-laying process, female woodwasps also inject a toxin to weaken the tree, and infect the tree with a fungus which softens and modifies the wood so the larva can feed on it. The toxin impairs the tree's natural ability to fight off the fungal infection, and the portion of the tree above the injection site quickly dies.

An example of an infected tree

Because of the danger that sirex woodwasps pose to New York's pines, DEC is asking the public to report any sightings of the insect or its damage. Away from its native Europe, these wasps have no natural enemies and so could spread unchecked if not detected early enough. Signs of possible infestation in pines include dying needles in the tree crown, or sudden tree death for no obvious reason. If you suspect a tree may be infected, look on the tree trunk for exit holes, often marked by oozing resin. Woodwasp exit holes will be randomly scattered on the tree, in contrast to regular rows of holes made by sapsuckers. Also, keep an eye on any cut wood with tunnels throughout the wood. The presence of white larva with a distinctive back spine or "horntail" on the rear indicates a sirex woodwasp infestation.



Detail of the charastic back "horntail" spine

Emerald Ash Borer

Native to Asia, the emerald ash borer is a small, colorful wood-boring beetle that has already destroyed millions of ash trees in the U.S. It was first detected in Michigan in 2002, and is now causing problems in Ohio and Ontario, Canada as well. Like the sirex woodwasp, the emerald ash borer is thought to have entered this country via shipping material. While it has not yet been spotted in New York, it poses a real threat to the state's ash trees.

Emerald Ash Borer Adults: 2" long Slender, golden-green iridescent beetle with large compound eyes

During summer, adult emerald ash borers emerge from small "D" shaped holes in ash tree trunks and begin eating the tree's leaves. They soon begin to disperse in search of additional food and suitable mates, flying in short spurts of up to 50 feet, though sometimes traveling miles to find host trees. Following mating, female emerald ash borers lay their eggs in the crevices on the trunks of ash trees. The larvae burrow under the bark and eat their way through the cambium (the live inner bark) leaving winding, "s" shaped tunnels. These cause the trees to lose their ability to transport nutrients, and so they slowly starve.

To combat the spread of this pest, strict quarantines have been implemented in affected areas of Michigan, prohibiting the movement of any ash trees, ash wood and all hardwood firewood from a quarantine area. Unfortunately, in a violation of the quarantine, a nursery shipped more than 100 uninspected ash trees to Maryland. A year after these trees were planted, emerald ash borers were discovered in some of the trees. Maryland quickly set up a quarantine and removed not only the suspect trees, but also 1,000 potential host trees. Today, the infestation appears to have been stopped, but scientists will monitor the area for at least three more years.

New York State's ash trees are a waiting feast for the emerald ash borer. In the past 20 years, hybrid ash have been widely planted along streets and used in commercial landscaping such as mall parking lots. Since these trees are generally somewhat stressed and also perfectly spaced for easy beetle flight from tree to tree, they make perfect targets for the emerald ash borers, who tend to attack city and suburban trees.

Affected ash first show dieback in the crown, and may have cracks in the bark over active feeding tunnels. As the inner bark is destroyed, the tree dies back and may grow sprouts from the middle or the base of the trunk. Called epicormic sprouting, this is a last-ditch effort for survival by a mortally stressed tree. If you spot these symptoms, look closely at the tree trunk for cracked or loose bark and borer holes that are characristic of emerald ash borer activity. Dieback and epicormic sprouting alone could also be signs of "ash yellows," a disease that has been killing many ash trees in New York.

Damage created by an Emarald Ash Borer

Jerry Carlson is a member of the Steering Committee for the Governor's Invasive Species Task Force, is a Research Scientist with DEC's Forest Health Program. **Karin Verschoor** works in DEC's Division of Lands and Forests.

IMAGES:
1. Stanislaw Kinelski, Polish Forest Research Institute*
2. DEC photo
3. Paula Klasmer, Instituto Nacional de Tecnologia Agropecuaria*
4. Stanislaw Kinelski, Polish Forest Research Institute*
5. James W. Smith, USDA APHIS PPQ*

* Images provided by www.forestryimages.com

SIDEBAR

You can help scientists curb the spread of invasive species, and benefit our forests. It was sharp-eyed volunteers who first spotted a similar pest, the Asian longhorned beetle, when it infected trees in New York City and Chicago. If you spot signs of either sirex woodwasp or emerald ash borer activity, contact DEC Lands and Forests' Forest Health office at: 625 Broadway, Albany 12233-4253; by e-mail at lflands@gw.dec.state.ny.us, or by phone at (518) 402-9425. Visit DEC's website at www.dec.state.ny.us for the latest information on these and other invasive species.

For more information, see *The Asian Longhorned Beetle* in the February 2001 *Conservationist*.