

Robert A. Haack and Therese M. Poland

USDA Forest Service, North Central Research Station,
Rm. 220, 1407 S. Harrison Rd., E. Lansing, MI 48823

ABSTRACT

Established populations of the pine shoot beetle, *Tomicus piniperda* (L.) (Coleoptera: Scolytidae), were first detected in the US in 1992. As of January 2000, *T. piniperda* was known to be established in 271 counties in 11 US states (IL, IN, MD, MI, NH, NY, OH, PA, VT, WI, WV) and 25 counties in Ontario and 8 counties in Quebec, Canada.

In a 1998 study, we found that marked and released *T. piniperda* were captured in traps up to 400 m outside of operational sawmills and simulated millyards despite the abundance of brood material present in the millyards; 400 m was the furthest distance to which traps were placed in 1998. In 1999, we investigated *T. piniperda*'s potential for longer range dispersal in the absence of suitable breeding material. In this study, traps were placed out to 2 km in an open agricultural field. Marked and released beetles were captured up to 800 m from a central release point. In a companion study conducted in Geneva, New York by Al Barak (USDA APHIS, OTIS) marked and released *T. piniperda* adults were recaptured up to 2 km from the release point. Such studies indicate that *T. piniperda* is capable of long distance flight and that adults could be carried even further by strong winds.

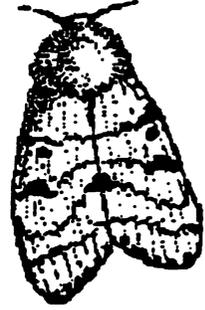
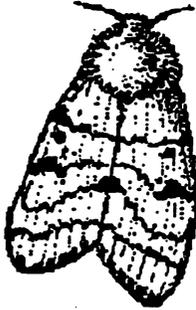
Four pheromone candidates (nonanal, myrtenol, α -pinene-oxide and *trans*-verbenol) and three host compounds (ethanol, terpinolene, and (+)-3-carene) were tested in 1999 for synergism of attraction to the standard α -pinene bait. Various combinations of these semiochemicals resulted in moderate increases in attraction to α -pinene. Further research in 2000 will focus on the most promising attractant blends.

In 1998, more than 1000 ha of scattered pine stands in southwestern Ontario were suffering high levels of mortality. *Tomicus piniperda* was implicated as the principal mortality agent involved. One question that was asked was whether the Ontario *T. piniperda* populations were different genetically from the US populations. To investigate this question, we collected adults from six US sites (IN, MI, NY, OH) and Ed Czerwinski (Ontario Ministry of Natural Resources) collected from six Ontario sites. M. Carol Carter (Portland State University) conducted the genetic relatedness studies using DNA fingerprinting by random amplified polymorphic (RAPD) DNA. Preliminary results indicate that the Ontario populations are not genetically distinct from the US populations. We hope to do a similar study in 2000 in which the Quebec populations will be compared with populations from Ontario and New York.

In Ontario in 1999, no new *T. piniperda* populations were detected from an extensive survey conducted by Ed Czerwinski along northern Lake Huron to Sault Ste. Marie east to Sudbury and North Bay, then south along Georgian Bay to the current *T. piniperda* distribution in southwestern Ontario. In the 1000-ha *T. piniperda* infestation in southwestern Ontario, severe shoot feeding has been observed on Scotch, red, white, and jack pine, and *T. piniperda* reproduction has been observed on standing live Scotch, red, and jack pine. Peter deGroot (Canadian Forest Service) initiated growth impact studies in Ontario in 1999.

PROCEEDINGS
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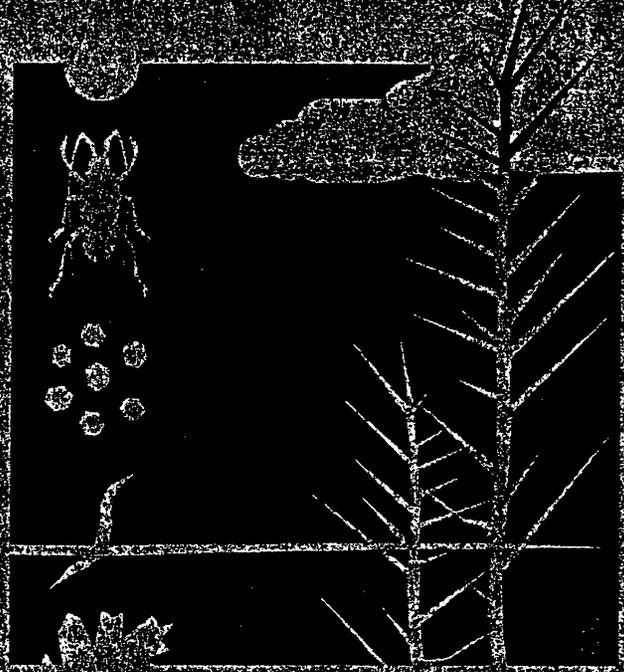


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