DO BARK BEETLES AND WOOD BORERS INFEST LUMBER FOLLOWING HEAT TREATMENT? THE ROLE OF BARK

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ABSTRACT

Wood packing material (WPM) is an important pathway for the movement of bark- and wood-infesting insects (Haack 2006). New international standards for treating WPM, often referred to as "ISPM 15," were adopted in 2002 (FAO 2002). The two approved WPM treatments are heat treatment (56° C core temperature for 30 min) and fumigation with methyl bromide. These treatments aim to kill insects and disease organisms that reside in the wood at the time of treatment. Currently, ISPM 15 allows bark to be present on treated WPM; however, it is not known if insects can infest WPM after treatment, especially when bark is present. In 2005, we investigated whether insects would infest recently milled green lumber that had varying amounts of bark along one edge of each board. This study was conducted as part of an international collaborative effort under the auspices of the "International Forestry Quarantine Research Group" (Http://www.forestry-quarantine.org/).

In June 2005, we prepared over 200 one-meter-long boards from recently cut, uninfested red pine (*Pinus resinosa*) trees. Half the boards were 1 inch thick and half were 4 inches thick. There were four bark treatments: (1) all bark removed; (2) eight small (25 cm^2) bark patches retained; (3) two large (100 cm^2) bark patches retained; and (4) all bark retained. Half of the boards were heat treated (using ISPM 15 standards) and half served as untreated controls. The boards were placed in a red pine stand in late June and allowed to undergo natural attack for about 3 weeks. The boards were then returned to the laboratory; half were dissected and half were reared.

Overall, bark beetles (Scolytidae), longhorned beetles (Cerambycidae), and weevils (Curculionidae) infested boards in all treatments where bark was retained, including both the heat-treated and control boards. Attacks occurred through the bark. By contrast, these three types of borers did not infest any of the bark-free boards. Based on dissections to date, complete development of bark beetles occurred on boards with all bark retained and with large (100 cm^2) bark patches, but not small (25 cm^2) bark patches. These results indicate that the presence of bark may pose a risk even when WPM has been properly treated.

Literature Cited

FAO (Food and Agriculture Organization). 2002. **International standards for phytosanitary measures: guidelines for regulating wood packaging material in international trade. Rome, Italy:** Food and Agriculture Organization of the United Nations, Pub. No. 15.

Haack, R.A. 2006. **Exotic bark- and wood boring Coleoptera in the United States: recent establishments and interceptions.** Can. J. For. Res. 36: 269-288.