

ASSESSMENT OF THE RISK OF INTRODUCTION OF *ANOPLOPHORA GLABRIPENNIS* IN MUNICIPAL SOLID WASTE FROM THE QUARANTINE AREA OF NEW YORK CITY TO LANDFILLS OUTSIDE OF THE QUARANTINE AREA: A PATHWAY ANALYSIS OF THE RISK OF SPREAD AND ESTABLISHMENT

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Abstract

The risk associated with spread of Asian longhorned beetle, *Anoplophora glabripennis* (Motschulsky) (ALB), from infested areas in New York City (NYC) to the wide array of landfills across the eastern United States contracted by the city since 1997 was unknown, but of great concern. Landfills (some as far away as South Carolina, Virginia, and Ohio) occupied forest types and climates at high risk of Asian longhorned beetle establishment. The city proposed a separate waste wood collection estimated to cost federal and state agencies \$6.1 to \$9.1 million per year, including the cost of processing and disposal of the wood. Pathway analysis was used to quantify the probability that Asian longhorned beetles present in wood waste collected at curbside would survive transport, compaction, and burial to form mated pairs. The study found that

in seven alternate management scenarios, risks with most pathways are very low, especially given existing mitigations. Mitigations included chemical control, removal of infested trees, and burial of wood waste in managed landfills that involved multiple-layering, compaction, and capping of dumped waste with a 15-cm soil cover at the end of each day. Although the risk of business-as-usual collection and disposal practices was virtually nil, any changes of policy or practice such as illegal dumping or disposal at a single landfill increased the risk many thousand fold. By continuing and/or increasing the control and eradication of ALB, thus reducing the potential numbers of beetles on the pathway, the risk can be even further reduced while rigorously maintaining the same disposal practices and saving the taxpayers millions of dollars.