

Role of sea containers in unintentional movement of invasive “hitchhiker” pests

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The volume of international trade is at unprecedented levels, and much of this is moved with so-called "sea containers". An unwanted by-product is the transport of contaminants, including “hitchhiker pests” on the external or internal surfaces of sea containers, which may become invasive species. Hitchhiker pests found on sea containers, such as gypsy moth, giant African snail, Argentine ant and brown marmorated stink bug, threaten agriculture, forests and urban environments, and they cause substantial damage in many countries. Soil contamination of sea containers may contain seeds of invasive plants, nematodes and plant pathogens. We summarize records from sea container inspections carried out by quarantine officers as well as previous analyses of this pathway and evaluate the potential benefits of mitigation measures that would reduce infestations of sea containers with contaminating pests and soil contamination. There is a plethora of records of interception of contaminating pests with sea containers. Inspection records from the United States, Australia, China and New Zealand indicate that thousands of organisms from a wide range of taxa are being moved unintentionally with sea containers. Most data sources do not allow estimation of arrival rates of contaminating pests. However, inspection records of 116,701 consignments of empty sea containers arriving in New Zealand between 2010 and 2015 indicated a 9.7% exterior contamination rate and 5.0% interior contamination. A sea container hygiene system has been implemented in New Zealand for sea containers coming from several Pacific Island countries. The system involves sea container inspection, cleaning, verification, training, and prevention of contamination, and it resulted in considerably reduced infestation rates and overall cost savings. Negotiations are underway to implement such a system internationally as an ISPM for sea containers.