EARLY DETECTION AND RAPID RESPONSE PILOT PROJECT

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Abstract

The Early Detection and Rapid Response Team is developing the framework for and implementing a national, interagency detection, monitoring, and response system for nonnative invasive forest species. Nonnative invasive species are one of Forest Service Chief Bosworth's "four threats" and the great level of interest and publicity that recent nonnative tree pests like Asian longhorned beetle, emerald ash borer, and sudden oak death have received stresses the importance and high-profile nature of this problem. The survey protocols that have been developed since this project's inception have been deemed successful as several exotic species new to North America have been detected via its methods. The project needs to expand to cover more high-risk sites and to target a greater number and variety of high-risk species that are not yet established in North America.

Background

In 2001, a Memorandum of Understanding was signed by the Forest Service (FS) and Animal and Plant Health Inspection Service (APHIS) that identifies agency invasive species responsibilities and areas of coordination. In the same year, an Early Detection and Rapid Response Team was established to coordinate pilot tests for the detection of nonnative bark beetles and the nun moth. Team members include the Oregon Department of Agriculture, Maryland Department of Agriculture, Cornell University, Agricultural Research Service, APHIS, USFS Forest Health Protection, and other agencies, universities, and environmental groups as their cooperation is needed.

Team objectives include:

- Developing and testing a prototype national survey
- Identifying potential exotic pests and likely pathways
- Identifying detection and management guidelines
- Detecting and monitoring new introductions at selected high-risk sites
- Developing recommendations to address gaps in detection protocols and taxonomic resources
- Using the information collected to set agency protocols and priorities

Ten nonnative bark beetle species were specifically targeted, although all bark beetles captured were identified. The target species are among the most common and threatening species intercepted during port inspections. Good survey techniques (highly attractive lures and effective traps) exist for these species, although they are difficult taxonomically, which limits the number of samples we can process.

Overview

Each year since 2001, baited funnel traps (to capture bark beetles) have been placed in urban forests and forests around port facilities and wood-handling facilities in the following regions: northeastern/midwestern, southeastern, and western U.S. Trapping has been done in approximately 12 cities each year (over 40 cities to date). Over 3,000 samples from these traps have been collected, processed, and identified by three professional taxonomists. In 2001, nun moth detection surveys were performed at several port cities in the northeastern U.S. and the pacific northwest. These surveys were negative.

Highlights

In 2001, *Hylurgops palliatus*, a targeted species, was caught near Erie, PA; this represents a first-time detection in North America. Early Detection continues to pursue trapping to delimit the extent of establishment of *H. palliatus* in the area around southeastern Lake Erie. Also in 2001, *Arhopalus pinetorum*, a longhorned beetle, was detected for the first time in North America at Long Beach, CA.

In 2002, the pilot tests detected two more nonnative bark beetles for the first time in North America: *Xyleborus*

similis in Houston, TX, and *Xyleborus glabratus* in Port Wentworth, GA. *H. palliatus* was found at multiple additional sites in northwestern Pennsylvania.

In 2003, Early Detection traps near Denver, CO and Ogden, UT trapped *Scolytus schevyrewi*, the banded elm bark beetle, for the first time in North America. Early Detection cooperated with APHIS to coordinate targeted detection/delimiting surveys throughout the west and midwest. As a result, *S. schevyrewi* has been found throughout the West and in several midwestern and eastern states. This species presents a potential risk to healthy and stressed elm trees. Early Detection facilitated and funded studies by Forest Service scientists to find the best attractant for this species and to assess its impacts.

Conclusions

The Early Detection Pilot Project demonstrated the feasibility of a regionally-coordinated national survey for bark beetles and, possibly, for other nonnative forest species. With additional funding and continued emphasis on exotic species, the pilot project can be expanded into a national program that will be a regular part of the survey efforts we support through the National Forests and state programs. This Early Detection program will represent a highly targeted detection and response effort that would enhance current FHP-supported surveys such as the aerial survey program, forest health monitoring, and species-specific trapping efforts to monitor populations of forest pests like the southern pine beetle and gypsy moth. The Early Detection program coordinates with and augments APHIS' CAPS program. Early detection data are located at: http://na.fs.fed.us/wv/rapid_det/.

Current and future focus areas to help the Early Detection and Rapid Response project expand and become more effective at detecting high-risk exotic species early enough to take eradication actions against them include: addressing the limiting taxonomy factor by training the field-level staffs who are doing the trapping to prescreen out the most common species and supporting new graduate students to learn taxonomy by processing Early Detection samples, continuing and refining the Early Detection database, developing new trapping methods to target other exotic species such as siricids, buprestids, and cermabycids, supporting the development of new screening and/or identification technologies, coordinating with the HFRA Title VI "Early Warning System", and cooperating with Forest Health Technology Enterprise Team and others on risk-rating for species and ecosystems.