

A PROACTIVE APPROACH TO PREVENT INVASIVE PLANT PATHOGENS

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ABSTRACT

This paper describes proactive work by federal agencies to prevent new introductions of forest pathogens.

Executive Order 13112 requires federal agencies to work together to enhance our abilities to prevent, eradicate, and control invasive species, and to restore the structure and function of invaded ecosystems. This federal order established the National Invasive Species Council (NISC), and entomologists and pathologists from all the federal agencies in Washington, DC work together in subcommittees of the Invasive Terrestrial Animals and Pathogens (ITAP) group that formed under NISC. Each of these subcommittees has developed a strategic plan to determine how working together could improve our collective abilities to predict, prevent, eradicate, and control invasive species.

The Plant Pathology subcommittee of ITAP has members in the Agricultural Research Service (ARS), Animal and Plant Health Inspection Service (APHIS), Cooperative States Research, Education, & Extension Service, Department of Homeland Security, Economics Research Service, Forest Service, National Park Service, Natural Resources Conservation Service, and the U.S. State Department.

Our strategy has goals that support the “human elements” of invasive pathogen science, such as completing and sharing an inventory of personnel, with information about their areas of expertise. We support the need for improved capacity in the field of systematics in which the number of trained personnel has declined. Systematics is essential for preventing and detecting new forest pathogens in the United States. A report on this crisis, which is certainly not limited to plant pathology, is available at www.itap.gov. We also support the need for, and are contributing to, economic assessments of invasive plant pathogen impacts, as economic data are sorely needed to demonstrate

the value of plant pathology research and proactive management strategies.

Another goal is to develop lists of the most important plant pathogens, with fact sheets that illustrate their diagnostic features, biology and pathways. Rossman et al. have nearly completed the list of pathogenic fungi, and the fact sheets are about halfway done. Some are available at <http://nt.ars-grin.gov/sbmlweb/fungi/diagnosticfactsheets.cfm>.

ITAP offers the opportunity to improve prevention through projects that piece together data collected by different agencies. For example, our subcommittee reviewed and evaluated APHIS’ regulated plant pathogens list (Rossman et al. 2006). We also have reviewed the list of invasive forest pathogens and their likely pathway of entry. Of 17 pathogens, three likely entered the United States on logs or wood products (*Ophiostoma novo-ulmi*, *O. ulmi*, and *Raffaelea lauricola*), and nine (*Cronartium ribicola*, *Cryphonectria parasitica*, *Cryptodiaporthe populea*, *Discula destructiva*, *Lachnellula willkommii*, *Melampsora laricis-populina*, *Phytophthora lateralis*, *Phytophthora cinnamomi*, *P. ramorum*) are considered to have entered on nursery stock. Since this is such a critical pathway, the pathology subcommittee strives to support the revision of “Q-37”, the regulations for plants for planting. One way to do this is to provide information on pathogens that exist in other countries, but not yet in the U.S. Plant host genera of concern will be considered for potential listing in the proposed new category of plants for planting called NAPPRA (Not Authorized Pending a Pest Risk Assessment).

Another effort that ITAP pathologists and entomologists are supporting is the development of a Sentinel Plant Network. Botanic gardens and arboreta are being

asked to monitor their collections and report any new or unusual pest activity to the Cooperative Agricultural Extension Service in their state, university plant pathology laboratories that are linked in a National Plant Diagnostic Network (NPDN). These labs can provide advice on control measures if the pest is known already to occur in the U.S. If the pest is exotic, the NPDN labs report it to APHIS, who will notify counterparts overseas. If the pest arrived with the plant, experts overseas can help mitigate the problem. If the problem is a local pest that the host plant has never seen before, APHIS counterparts overseas will be grateful for an early warning that such a pest exists. If hosts are moving in trade, the relevant National Plant Protection Organizations will take steps to ensure that such exchanges are from clean stock only. You can read more about this project at www.itap.gov/SentinelPlantNetwork/ Lastly, the ITAP Plant Pathology subcommittee has developed a website on invasive pathogens with the help of professionals at the ARS National Agricultural

Library. We hope this website will provide you with useful information such as data sources, species profiles, economic impact references, and management plans as these are developed. All this and more is available at www.itap.gov.

Literature Cited

Rossmann, A.Y.; Britton, K.; Luster, D.; Palm, M.; Royer, M.H.; Sherald, J. 2006. **Evaluating the threat posed by fungi on the APHIS list of regulated plant pests.** Plant Health Progress. 3 p. Available: www.plantmanagementnetwork.org/pub/php/perspective/2006/fungi/