

The P4 Project: Pine Pandemic Preparedness Plan

This is a community-driven plan for input and use by all. It belongs to everyone for the greater good and for the future of our forests. Since we are actively working on the plan, please contact us (Kier Klepzig: kier.klepzig@jonesctr.org), prior to using or citing it.

Central Challenge: How we can best prepare for future non-native invasive pests or pathogens that will have a catastrophic impact on our southern pine resource?

Goal: Create a truly collaborative pine pandemic preparedness plan (P4) built by a multidisciplinary community of forest health, political, social, and economic scientists, managers and decision makers.

Deliverable: A plan that allows an effective response to the establishment of especially damaging, high impact, exotic invasive pests or pathogens in southern pines. This plan, crafted with involvement of those with a vested interest in protecting and conserving pine resources in the South (including private landowners, foresters, forest product and investment companies, universities, and state and federal agencies) will be ready for use by all, with possible expansion to use in other regions.

Participants Involved: Scientists (Academic, Federal, State, Private and Industry), Southern Group of State Foresters, industrial and investment land managers, state forestry agencies, USDA Forest Service, and USDA APHIS.

P4 Core Group: Initial efforts have involved a core group of representatives of concerned entities. This group has met to discuss the goal of the project, the general approach to the problem, and the makeup of a Task Force to develop the final plan. The group consists of:

- Kamal Gandhi, University of Georgia
- Kier Klepzig, The Jones Center at Ichauway
- Jeff Dean, Mississippi State University
- Wib Owen, Southern Group of State Foresters
- Ed Hunter, USDA Forest Service, National Forest System
- Sandy Liebhold, USDA Forest Service, Research and Development
- Tom Trembath, Forest Investment Associates

Task Force(s): To address the above goal, and deliver the final plan, the P4 core group is proposing a structure based on the components of invasion biology. The effort will be driven by a task force addressing phases of engagement with a pine colonizing pest or pathogen:

1. Pre-border: before the organism is detected.
2. Border: once the organism is detected and is impacting trees.
3. Post-border: when the organism is established and spreading.

Each of these topics may well be informed by the following aspects:

- Prevention: Prediction, management, and communication based on understanding of organismal behavior, physiology, pathology, life history.

- Ecological preparedness: Management and communication based on understanding of behavior of populations in landscapes, effective large-scale controls.
- Social, economic and sociopolitical preparedness: Communications, knowledge and tech transfer as influencing social license and acceptance, implementation, cooperation, community needs, underserved land managers and local support.

The task force will be integrated, including representatives from disciplines including:

- Entomology
- Pathology
- Modeling
- Tree breeding and genetics
- Silviculture
- Economics
- Social science
- Political science
- Private sector forest management
- State forest management
- State agriculture management
- Federal forest management
- Federal plant health and pest detection

Questions to drive the development of the plan

1. What current resources can we draw for prediction, prevention, and detection of potential pine invasives? What are the:
 - a. Scales of these databases and efforts?
 - b. Appropriate modeling approaches for prediction of potential invasives?
 - c. Current efforts to search for and test potential pine invasives?
 - d. Collaborative networks we can utilize?
2. What are new approaches we can utilize to deal with a new pine pest or pathogen at the pre-border, border and post-border phases?
3. How can we maximize the efficiency of current and new tactics and techniques? To what degree do these approaches need to be modified or adapted? Where can cross boundary cooperation aid in our efforts?
4. What are the barriers to greatest success for these approaches? How can we overcome them?

Plan accountability and logistics

5. Communication: How, and how often, do we (core group and task force) communicate?
6. Metrics: How do we know we are addressing our action items as defined and on time?
7. Follow through: What has not yet been accomplished? What steps did we not think of that now need to be addressed?
8. Adaptation: What adjustments need to be made as the plan develops?
9. Timeline and Deliverables:
 - a. Ready to use plan for use by land managers: 6 months
 - b. Made widely available: 8 months
 - c. Publication: 8 months

- d. Multiple websites, no one host entity: 8 months
- e. Signed Memoranda of Understanding to cooperate as needed on execution of plan: 12 months

From paper to practice

10. Implementation of a new plan. We may need to do:

- a. Economic analyses: What are the costs and benefits of using the new plan? (including impacts on ecosystem services)
- b. Needs assessments: What will managers need to be successful? What approaches and mechanisms of cooperation are available to us and them? (including communication and extension)