

# Mapping the Risk of Tree Mortality from Insects and Diseases

USDA Forest Service  
Northeastern Area  
State and Private Forestry



**Description:** In 2002, scientists developed a National Risk Map for Insects and Diseases, using the best information available at the time to show where tree mortality is likely to exceed 25% over the next 15 years. National-level managers have used the map, and the detailed information that accompanies it, to develop strategic plans for protecting forest health. In order to keep the map useful and up to date, new information must be incorporated periodically. In 2006, the Risk Map was updated after a two-year effort completed in cooperation with State partners. The revision involved a four-step process to: 1) include interagency discussions, 2) develop a consistent risk modeling protocol, 3) procure base geographic information system (GIS) layers, and 4) apply risk models to GIS layers to make a risk map. The new version is more accurate; the northeastern portion models more than 20 pests individually, providing a credible analysis tool for prioritizing actions. Future revisions are expected every five years.

## Key Issues:

- **Maintain the interagency structure** created in 2004 to oversee and assist in model development, solicit expert input, and revise draft products.
- **Maintain a consistent model** that is uniform across forest types, repeatable, compatible with GIS data layers, and easily interpreted by partners.
- **Acquire additional base GIS data layers** compatible with existing risk models.
- **Apply risk models and maps to strategic plans** as an additional tool to show how efforts are prioritized.

## Accomplishments:

- **Organizational meetings** were held with all partners to invite participation, define roles, and plan activities necessary to producing an updated risk map.
- **A multi-criterion modeling approach** was selected, integrating multiple factors to predict risk, such as pest distributions, host abundance, drought, temperature, soils, and topography.
- **A workshop** was held to demonstrate the modeling approach, solicit expert input, and construct prototype models.
- **Final regional and national risk maps** were presented to internal and external audiences in 2007.

## Budget History:

Risk Map Activities (\$ Thousands)				
FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
\$20	\$40	\$40	\$0	\$0

## Future Direction:

- Develop localized risk map products for partners using enhanced data and tools.
- Develop an information archive documenting the process used to develop the National Risk Map.
- Identify gaps in information and process that could be improved upon for future map updates.
- Prioritize evaluation monitoring projects to focus on information gaps and validate risk map results.

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