

Mapping Forest Risk Associated with the Gypsy Moth

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Abstract

The gypsy moth was originally introduced near Boston in 1868 or 1869; it has been slowly expanding its range mostly to the south and west. Its slow spread through the Northeast can be attributed to the limited dispersal capabilities of this insect (females do not fly). It is inevitable that the gypsy moth will continue to spread to the south and east over the next century. In order to plan for the management of the gypsy moth over the next decade and beyond, there is a need to delimit the distribution of susceptible stands in areas that are currently uninfested.

The gypsy moth is a polyphagous insect; North American populations feed on over 300 different shrub and tree species. Despite this wide breadth of host preference, there is considerable variation among trees in their susceptibility to defoliation; the most preferred gypsy moth hosts are in the genus *Quercus*, *Populus*, and *Larix*. We used USDA Forest Service Forest Inventory and Analysis (FIA) data to calculate the proportion of basal area at each plot that is composed of susceptible species. The areas with the highest concentration of susceptible forests were in the central and southern Appalachians, the Cumberland Plateau, the Ozark Mountains, and the northwestern lake states. The finding that the gypsy moth has not yet invaded most of the susceptible forests in the US suggests that there still may be considerable value in limiting the future spread of the gypsy moth. It also indicates that both the impacts of defoliation and costs of gypsy moth management are likely to increase in the future.