

Insects and Diseases

Introduction

The purpose of this monitoring is to determine the current extent and severity of insect and disease occurrence on the Forest. The frequency of monitoring may vary, but it typically occurs on an annual basis. Monitoring is usually conducted through a combination of aerial detection surveys and on-the-ground visual inspections during the course of normal project work. The Monongahela National Forest (MNF) cooperates with the West Virginia Department of Agriculture (WVDA), USDA Animal and Plant Health Inspection Service (APHIS), and the State & Private Forestry (S&PF), USDA Forest Service to monitor and control insect and disease outbreaks within the Forest. Typically, S&PF and WVDA conduct the surveys or inspections, so there are no direct Forest accomplishments to report.

Monitoring and Evaluation

Monitoring Question 3. Are insect and disease populations compatible with objectives for restoring or maintaining healthy forest conditions?

Monitoring Question 4. To what extent is the Forest managing undesirable occurrences of insect and disease outbreaks through integrated pest management?

These two monitoring items are so interlinked that they will be addressed together in this report. USDA Forest Service employees in the Forest Health Program of the S&PF unit from Morgantown, West Virginia completed aerial detection surveys for insect and disease activity in June, 2007. In addition, the WVDA completed similar aerial detection surveys and provided detailed, GIS generated, topographic maps of areas on national forest land partially defoliated by gypsy moth. Approximately 2,200 acres were classified as high defoliation and 2,600 acres as low defoliation. An on-the-ground visual inspection did not identify any of the areas as complete defoliation. Leaf damage in the areas classified as low defoliation was not readily apparent at ground level, and very few egg masses were found. In the areas classified as high defoliation, a high percentage of the leaves had large holes and leaf margins eaten. Numerous egg masses were found in the high defoliation areas, ranging from less than 20 egg masses per acre up to 1,000 egg masses per acre. However, the visual on-the-ground inspection revealed a substantial number of gypsy moth caterpillars were killed by both the fungus *Entomophaga maimaiga* and the nucleopolyhedrosis virus.

Hemlock woolly adelgid continues to cause mortality to eastern hemlock trees on the Forest. Severe cold temperatures experienced in February, 2007 may have slowed the advance temporarily. The scale and killing fronts of the beech bark disease complex are within Forest boundaries. Emerald Ash Borer was found for the first time in Fayette County, West Virginia in 2007. The infestation was in several ash trees near a private campground. The Asian long-horned beetle and sirex woodwasp have not yet been observed in West Virginia. However, the woodwasp has been found in several locations in northwestern and eastern Pennsylvania.

Monitoring Questions 3 and 4. Evaluation, Conclusions, and Recommendations

The current insect and disease infestations are not related to management activities occurring on the Forest. The insects and diseases mentioned above are not native to the United States.

Gypsy moth was introduced from Europe into the United States in 1869. The first major defoliation caused by gypsy moth occurred in 1889. In West Virginia the first major defoliation did not occur until the late 1980s. The most recent outbreak of 2007 defoliated nearly 78,000 acres in West Virginia. Currently WVDA is proposing to treat approximately 102,000 acres to reduce potentially significant impacts from defoliation caused by gypsy moths. None of the proposed treatment areas are located on MNF land. Although gypsy moth egg masses were found on the Forest, only one on-the-ground plot was found to have enough egg masses to qualify for treatment (generally, greater than 500 egg masses per acre). The presence of substantial gypsy moth caterpillar mortality from both the fungus and virus indicate that treatment is not necessary at this time.

Hemlock woolly adelgid came to the United States from Asia. It was first detected in West Virginia in 1992. Since 2003 over 36,000 predatory beetles have been released on the Forest and over 300 trees in recreation areas have been treated with insecticide to study the effectiveness of the various treatments. In 2007, approximately 500 more predatory beetles were released in the Falls of Hills Creek recreation area.

The beech scale insect, native to Europe, is part of the beech bark disease complex. Presently it appears that only 1 to 2 percent of the native American beech trees is resistant to this insect/disease complex. There is potential to collect seed or obtain root grafts from the resistant trees to restore American beech to the Forest.

Emerald ash borer, native to Asia, was first detected in Michigan in 2002. Since then it has spread to Ohio, Indiana, Illinois, Maryland, Pennsylvania and was recently found a private campground in Fayette County, West Virginia. The MNF is cooperating with WVDA, AHPHIS, and S&PF to place traps in 2008 in or near Forest recreation areas to help determine if the insect is here. A quarantine for all hardwood firewood, wood chips, bark chips, unprocessed ash wood products with attached bark, and ash trees is in effect for Fayette County. In 2007 the MNF issued a Firewood Alert requesting Forest visitors to not bring potentially infested firewood into the Forest or move it once it is here.

Recommendations: Continue to cooperate with WVDA, APHIS, and S&PF to monitor the occurrence and outbreaks of insect and disease infestations through aerial detection surveys and visual on-the-ground inspections. Train MNF employees to recognize the various indications of non-native insect and disease infestations that may threaten the Forest. Prepare an environmental analysis and complete a NEPA decision document to prioritize areas on the Forest for predatory beetle release as they become available. Locate disease resistant American beech trees to collect seed and root grafts for potential future restoration efforts. Do not mark disease-resistant American beech trees in timber sale preparation activities, and avoid cutting disease-resistant American beech trees during timber sale operations, if possible.