

Botanical Resources

Introduction

The inventory and monitoring items presented here are parts of ongoing efforts to protect the Threatened, Endangered, and Sensitive (TES) plant species on the Forest and to build on our knowledge of their habitats on the Monongahela National Forest. Also covered in this report are non-native invasive species (NNIS) of plants. NNIS have been recognized at the national level as one of the four major threats to the ecological sustainability of NFS lands.

Fiscal Year 2006 Program Accomplishments

SURVEYS

Contract Surveys - Table BT-1 shows the areas and acres surveyed in FY 2006 for TES and NNIS plants. Almost 3,800 acres were surveyed in 2006 by contract. These surveys were made in areas proposed for active management in the near future, or areas likely to be managed in the future. The areas were not selected because TES plants were expected in the area, so it is not surprising that few TES plants were found.

Table BT-1. Acres of Contract Survey for TES and NNIS Plants in 2006

Location	Acres	TES Plants Found	NNIS Plants Found
Hogback timber project	1,030	none	garlic mustard, tree of heaven, Japanese stiltgrass, reed canary grass, Kentucky 31 fescue, multiflora rose
Lower Williams timber project	2,760	long-stalked holly	garlic mustard, sweet vernal grass, lesser burdock, yellow rocket, ox eye daisy, Queen Anne's lace, autumn olive, meadow fescue, field hawkweed, velvet grass, Japanese stiltgrass, Kentucky bluegrass, Asiatic water pepper, Japanese knotweed, multiflora rose, curly dock, colt's foot
Total	3,790		

In addition to locating TES or NNIS plants, the contract required that a check list of plants encountered in the survey areas be filled out. This list was not meant to be quantitative or all-inclusive and it is not intended that contractors search for all plants on the list. The list serves as a rough depiction of the herbaceous component of the surveyed areas and may be helpful in designing projects or looking for specific habitat for other plants or animals. The results could also be used for determining indicator species.

Forest In-house Surveys - Every year, areas proposed for active management are not included in the contracted survey areas. Generally these areas are associated with small

projects, or they are added to a large project after award of the TES survey contract. In 2006, these areas were reviewed for TES plant individuals or potential habitat by Biological Technician, Ron Polgar. Table BT-2 displays the areas and acreages covered by forest personnel in 2006. In 2006, about 50 acres were surveyed by forest personnel.

Table BT-2. Acres of In-house Surveys for TES and NNIS in 2004

Location/Project Name	Acres	TES plants Found	NNIS Plants Found
Hogback timber project	503	none	multiflora rose, tree of heaven, Japanese barberry, sheep sorrel, periwinkle, colt's foot, lesser burdock, Japanese spiraea, Japanese stiltgrass,
Ramshorn timber/fire project	445	rock skullcap	sheep sorrel, colt's foot, lesser burdock, yellow rocket, ox eye daisy
Big Run grazing allotment riparian fencing	282*	none	Morrow's honeysuckle, autumn olive
Cerulean warbler research timber harvest	70	none	multiflora rose, autumn olive, Japanese barberry, Morrow's honeysuckle, lesser burdock
Middle Mountain savanna thinning area	95	none	lesser burdock, garlic mustard, multiflora rose
Middle Mountain trail re-route	1.2	none	autumn olive, multiflora rose, Japanese stiltgrass
Marlinton city lot sale	0.5		Japanese barberry, field hawkweed, English plantain
Total	1,397		

*Total area of allotment. Survey area was smaller, but was not quantified.

NEW SITES FOUND

The long-stalked holly (*Ilex collina*) found in the Lower Williams project area and the rock skullcap (*Scutellaria saxatilis*) found in the Ramshorn project area constituted new micro-sites for these species. Both species were previously known to occur in these project areas, so the new sites likely are part of the populations that were already known to exist.

NNIS TREATED

Garlic mustard (*Alliaria petiolata*) was noted during site monitoring of the Gaudineer Scenic Area/Virgin Spruce stand. The Forest Ecologist, assisted by volunteers, removed garlic mustard by hand pulling from the parking area, adjacent to the trail, and in some canopy gaps along the trail where garlic mustard was spotted from the trail. The gross area treated was estimated at 8 acres, although the infestation was spotty within this area. This was a follow-up treatment to the initial hand-pulling that was done by the Forest Ecologist in 2004 and 2005.

Canada thistle (*Cirsium arvense*) was treated with herbicide in the Allegheny Battlefield grazing allotment. The total area of the allotment is approximately 170 acres, and treatment was scattered throughout the allotment.

SUPPORT TO CONSERVATION ASSESSMENTS, RESEARCH, ETC.

During FY 2006, the Forest provided authorizations for research activities related to showy lady's slippers, red spruce, pitcher plants, long-stalked holly, fungi, and high-elevation wetlands. The Forest also provided authorization to an individual to collect red spruce seeds in an effort to supply seedlings for spruce restoration efforts on public and private land in West Virginia.

The Forest entered into a cooperative agreement with West Virginia University to develop a geospatial database containing information from the original warrant surveys that were conducted on the Forest during the 1930s. Among the data to be included are the witness tree records for all of the survey corners. The database will make this early data on vegetation of the Forest more accessible to the Forest Ecology staff and to researchers.

Monitoring and Evaluation

1986 FOREST PLAN MONITORING ITEMS FOR BOTANICAL RESOURCES

There are no monitoring items in the 1986 Forest Plan as amended that are specific to Botanical Resources, nor are there any specific botanical goals or objectives to monitor. However, there is a required general monitoring item on page 250 that is roughly applicable to the Botanical Program management:

Document measured prescriptions/effects, including significant changes in productivity of the land [from CFR 219.12.(k)(2)].

There is also an item on page 256 under Management Problem #6, Vegetation Manipulation, that is roughly applicable to botanical resources: "Verify maintenance and/or enhancement of diversity."

In addition, Appendix E of the Threatened and Endangered Species Amendment (2004) to the 1986 Forest Plan amended the Plan for the nine federally listed threatened and endangered (TE) species on the Forest, including the collection or acquisition of accurate and current information about TE species' life history requirements, habitat needs, threats to survival, and population/ habitat status on the Forest. Specifically, the amended monitoring plan has the following items:

- Determine if sensitive species objectives and standards are being met.
- Survey for new populations of threatened, endangered, and proposed (TEP) species.
- Identify and monitor threats to known TEP species' populations. Evaluate the effectiveness of protection and management programs; redirect efforts as necessary.
- Monitor existing populations and new sites of TEP species.

Monitoring results for these items are reported below.

Monitoring Item. Document measured effects, including significant changes in productivity of the land. Verify maintenance or enhancement of vegetation diversity. Survey for new populations of TEP species. Identify and monitor threats to known TEP species' populations. Evaluate the effectiveness of protection and management programs; redirect efforts as necessary. Monitor existing populations and new sites of TEP species.

Inventory of NNIS is covered in the accomplishments listed above. Surveys for TES plants made in 2006 were conducted as clearance surveys for projects proposing active management of the Forest. No surveys were made solely for the purpose of inventorying the Forest for TES plants due to time and budget constraints.

One National Natural Landmark (NNL) was monitored in 2006. In the Gaudineer Scenic Area, large overstory red spruce (*Picea rubens*) continue to be removed from the canopy by natural causes, mainly through blow down. Garlic mustard was sighted at the parking area and along the trail.

Evaluation, Conclusions, and Recommendations

A few new TES species observations were made, and other known locations were protected from project-related activities. NNIS continue to be a growing concern on the Forest, as populations are found in many of the places surveyed or monitored.

Recommendations:

1. Running buffalo clover sites on the Forest that have been monitored by Fernow Experimental Forest personnel should be monitored by Forest personnel in future years.
2. Monitoring of the sensitive plants in the Lower Williams and Ramshorn project areas should occur during and after the timber sale to check for effectiveness of design criteria and mitigation.
3. Monitoring and control of aggressive NNIS plants should be made part of the design criteria and mitigation for the Lower Williams and Ramshorn projects.
4. Garlic mustard control at the Gaudineer Scenic Area/NNL should continue.
5. The Forest should make a concerted effort to collect new TES and NNIS data in the appropriate corporate databases. Legacy data should be cleaned up and entered as time allows.