



Invasive Exotic Plant Control

Introduction

Shenandoah National Park began its invasive exotic plant management program in 1997. Since that time, Shenandoah's program has expanded although its long-term existence is tenuous due to lack of funding.

Management Needs

Approximately 350 plant species are not native to Shenandoah National Park, having been introduced to the region as a result of human actions. Many of these species (e.g. dandelions) are restricted to highly disturbed and artificial environments such as roadsides and lawns. Some (e.g. apple trees) are relicts from the days when small farms and homesteads occurred in the area and have not spread from their point of origin. A few, however, are much less benign. These invasive exotic plants move into natural environments and displace native plants, alter habitat for native species, impact ecosystem properties or suppress ecosystem processes.

Current Procedures

The scope of the problem in Shenandoah National Park is massive. Data from the Park's vegetation monitoring program indicate that over 40% of the Park contains one or more invasive exotic plant species. Because of this, work must be prioritized.



Stiltgrass (Microstegium vimineum) invading a population of rare fringed brome (Bromus ciliatus) and blue flag iris (Iris versicolor) at Big Meadows Swamp. Situations such as this are high priority for management. Photo by Wendy Cass (NPS).

Preventing the introduction of exotic species into the Park is the most effective means of protection. Public programs, interpretive displays, written materials and website information can be used to encourage Park visitors and neighbors to make better choices in landscape plantings and to avoid actions that may introduce exotics from other areas. Once a species becomes established in the Park, eradication is attempted. Eliminating an exotic in the early stages of invasion is far more cost-effective than control once the species is widespread. Many invasive exotics, however, are widespread in the Park. These species must be targeted for control in the most ecologically valuable areas—rare species habitats, rare plant communities—or where they are just getting established.

A variety of control techniques are used at Shenandoah. The choice of technique hinges on the biology of the particular plant being managed, as well as characteristics of the treatment site. Some species, particularly in small infestations, can be managed by hand pulling. Mechanical control methods, cutting with hand or power tools, can provide effective control for some species. Other situations call for chemical control methods (e.g. herbicide application). Herbicides are used where other techniques would not be safe, practical or possible. General-use products of relatively low toxicity are used, including glyphosate, triclopyr and imazapic.

Monitoring of control sites is conducted to ensure that treatments are effective, damage to non-target vegetation is minimal and to determine if further restoration is needed to attain a desirable plant community at the site. A three-tiered monitoring system is used, including photopoints, mapping of infestations and treatment areas using global positioning system (GPS) and geographical information system (GIS) tools, and formal quantitative monitoring using quadrats.

Accomplishments

Control of 13 species on 1645 acres since 1998.

References

Hughes, J. 2008. Shenandoah National Park Exotic Plant Management Program Annual Report for FY2007. Shenandoah National Park, Luray, VA. 23 pp.



Invasive Exotic Plant Control (continued...)

Site near Compton Peak infested with mile-a-minute weed (*Polygonum perfoliatum*) before (above) and after (below) treatment. Photos by Jake Hughes (NPS).

