# Why Should We Be Concerned About Invasive, Non-Native Plants?

Most invasive plants in the U.S. are a result of introductions from other regions and countries. A native or indigenous plant is generally recognized as growing in the area prior to substantial European settlement, approximately 1750 in Ohio. The native range is determined by a host of influences such as climate, geology, soils, hydrology, biological interactions, and natural dispersal. Plants are dispersed within their native ranges with the help of air, water, wind, animals and humans.

Beginning with Columbus' discovery of America in the 15th century, people have played an increasingly significant role in moving plants. A plant is considered non-native or exotic when it has been introduced by humans to locations outside its native or natural range. European settlers brought hundreds of plants to North America from their homelands for use as food, medicine, ornamental, sentimental, and other purposes. Introductions of non-native plants continue today and are increasing due to a large and ever-expanding human population, increased international travel, and other factors.

At least one-third of the 2,700+ plant species known to occur in Ohio are non-native (approximately 900), however fewer than 100 are documented to be invasive in Ohio's natural areas.

## How Do Plants Become Invasive?

An invasive, non-native species is one that spreads and establishes in natural areas. It typically grows faster and more robust than the natives, displacing native species. Since the species is non-native, it lacks natural predators and diseases which may control its spread in its native lands. Invasiveness may be characterized by rapid vegetative growth, high reproductive rate, abundant seed production, high seed germination rate, and/or longevity. They often tolerate a wide range of environmental conditions and are quick to colonize recently disturbed sites. Some native plants exhibit invasive tendencies in certain situations and habitats. In Ohio, invasive plants impact natural areas such as wetlands, prairies, grasslands, woods, oak savannas, and waterways/bodies.

Many non-native species occur in environments where they were introduced without causing harm. Others fare poorly in the places of introduction and do not spread or survive. A relatively small number of non-native plants (e.g., corn, wheat, rice, oats) form the basis of our agricultural industry, but they do not escape to natural areas or behave aggressively.

Glossy buckthorn infestation

## How Damaging Are Invasive Species?

Invasive species can impact native plants, animals, and natural ecosystems by:

- Reducing native biological diversity
- Interfering with natural succession
- Displacing rare plant species
- Replacing complex communities with monocultures
- Altering hydrologic conditions
- Altering soil characteristics
- Altering fire intensity and frequency
- Displacing wildlife that rely on native plants for food, shelter, and breeding sites

## Format of the Fact Sheets

These fact sheets describe the most invasive, non-native plants which impact and degrade Ohio's natural areas or habitats. They provide general information regarding the species' description, distribution, habitat, invasive characteristics, and recommended control methods. Each fact sheet includes the following sections:

***Description -*** provides information regarding the species' important identification characteristics as well as general national and state distributions. County distribution maps are included for each species. County records, shaded green on the distribution maps, are based on herbarium specimens, peer-reviewed literature, and observations by Ohio botanists as of 2010.

***Habitat -*** describes the typical habitats in Ohio where the plant has been found and is problematic.

***Invasive Characteristics -*** explains how the species is impacting natural habitats and wildlife. It also explains how the species primarily spreads.

***Control -***

This section provides brief descriptions of successful control methods used in Ohio in the categories of mechanical, chemical, and biological. Using multiple techniques is generally the best approach to controlling invasive plants as they are aggressive and persistent. Prevention or control during the early stages of invasion is the best strategy. The best method of control depends on the species' natural history, the extent of invasion, and the control options available. Whatever control method is used, monitoring and repeated follow-up control is important for successful management.

Mechanical methods include physical removal such as cutting, mowing, grazing, digging, or pulling plants. Other mechanical methods replicate natural processes, such as altering water levels and prescribed fire. However, the use of prescribed fire may not be a feasible control option on many private lands. When other control methods are not feasible or are ineffective, the use of herbicides is often the best recommendation.

Chemical or herbicide application can be used to treat the above-ground plant parts and the herbicide will be transported to the root system. Selective application methods include foliar spraying or wicking, cut stump, and basal bark. Each technique should minimize the amount of herbicide used and strive to treat only the target plants. Choosing the correct herbicide is critical for maximum results. A pesticide license from the Ohio Department of Agriculture may be required for application on public lands or the use of restricted herbicides. It is always critical to follow the herbicide label and wear protective gear when applying herbicides.

Cut stump and basal bark application can be done in the dormant season, while foliar applications (low-volume and high-volume) should be done during the growing season, including in early spring and late fall. Basal bark application involves applying herbicide directly to the lower bark of the stems. To be most effective, herbicides often require the use of a penetrating or sticking agent. Product brand names are used in these fact sheets, rather than active ingredients, although this does not imply an endorsement of a particular product. The suggested herbicides are those that have been used effectively at the current time by land managers to control the specific invasive plant in Ohio, although there may be other effective herbicides on the market.

Biological control, using the species' natural controls (e.g., predators, diseases), is only available at present for a few species, such as purple loosestrife (see fact sheet), although others are being researched.

Purple loosestrife infestation

## Recommended Sources of Additional Information

- Land-managing agencies and organizations in Ohio, including The Nature Conservancy, ODNR Divisions of Wildlife, Forestry, and Natural Areas & Preserves, various metro parks, US Fish & Wildlife Service, and US Forest Service.
- Numerous websites from state agencies, The Nature Conservancy, universities, invasive plant councils, OSU Extension, USDA, & the Plant Conservation Alliance.