

## Impacts of Invasives-

### *Impact of Invasive Plants*

Non-native, invasive terrestrial plants are one of the greatest threats to the health of Northeastern forests. They negatively impact the environment, are costly to manage, and can be harmful to human health.

Increasingly, public and private landowners struggle to reduce the impact that invasive plants, shrubs, vines, and trees have on forest regeneration, forest structure, ecosystem function, recreation, and wildlife habitat.

However, many Vermont forests are still relatively invasive free, so we may stand a chance in maintaining the structure and function of the state's woodlands if - and only if - we take the issue seriously. Landowners and land managers must do everything in their power to prevent the spread of invasive species, including recognizing and removing new infestations early.

### *Economic Impacts*

The prevention and treatment of **invasive plants** is not cheap, and the costs increase as an infestation grows.

**Sugarmakers, foresters, conservation** groups and **landowners** are increasingly concerned about the toll managing invasives takes on their budgets. In **Vermont**, a landowner could spend \$200 to \$800 per acre - or more - to manage invasives. The cost depends on the degree of the infestation, topography, control methods and contractor fees.

In addition to management costs, lost revenues also cause a problem. For example, a **forest** that has a high-quality stand of salable **timber** but a barberry or buckthorn understory will not be as valuable 50 years from now if the invasive plants reduce **native forest regeneration**.

### *Forest Health*

#### **Why are invasive plants such a big problem?**

**Invasive plants** disrupt **ecosystem function** and **forest productivity** in numerous ways. Understanding the problems these plants create is the first step toward reducing their spread.

Invasive plants cause the following problems:

- Replacement of **native** species. An understory of invasive plants causes the diversity of plants to drop, replacing native spring **wildflowers**, native **shrubs** and **tree seedlings**. However, native plants support greater insect biodiversity, which provides food for **birds**.
- Interruption of **natural succession**. In **Vermont**, most abandoned **farm fields** would typically revert to forests, but in some areas of the state, it is now common for honeysuckles or buckthorns to grow so thick that it is difficult for this natural succession to take place.
- Decreased **forest regeneration**. Tree seedlings cannot get enough light and frequently perish when dense populations of invasive plants are present.
- Disruption of the **food chain**. Native **wildlife** often avoid feeding on invasive plants. This is particularly true for **insects**: most **moths** and **butterflies** rely exclusively on specific species of native host plants. When their population numbers drop, it eliminates a critical food source for birds, **fish** and many other wildlife.
- Degradation of **habitat**. Invasive species have become the single greatest threat to the National Wildlife Refuge System, according to the U.S. Fish and Wildlife Service. They are causing widespread **habitat destruction** and the decline of native wildlife and birds.
- Hastened **erosion**. Japanese knotweed, for example, lacks a strong root structure, does a poor job of anchoring river banks and can increase **sedimentation** and erosion, which increases **phosphorus runoff** into **rivers**.
- Altered **soil chemistry**. Invasive plants impact soil chemistry, which naturally dictates what grows where. For example, buckthorns can increase soil **nitrogen** levels, and garlic mustard can disrupt beneficial associations between tree seedling roots and **fungi** (called **mycorrhizal** associations), which suppresses tree regeneration.

## Human Health

**Invasive plants** can pose real risks to **human health**.

Here are a few examples:

- Injury: Chervil, **wild parsnip** and **giant hogweed** contain a **phototoxic sap**. When bare skin touches the plant and then is exposed to sunlight, the sap reacts and causes **burns, blistering** and **skin discoloration**.
- Lyme disease: Invasive **shrubs** can increase populations of Lyme disease-carrying ticks. Heavy infestations of barberry - a thorny, multi-branching shrub - make particularly good hiding places for **mice** and cause populations to increase. Mice are an **alternate host** for Lyme disease. Larger mouse populations mean more Lyme disease-carrying ticks. A 2006 study in the Journal of Medical Entomology found twice as many adult ticks and nearly twice as many **nymphs** in plots dominated by **exotic invasives**. In some parts of the country, invasive barberry is treated solely to reduce rates of Lyme disease.

## References

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