



## GLOBAL GARLIC MUSTARD FIELD STUDY (GGMS) INFORMATION SHEET

The Global Garlic Mustard Field Study (GGMFS) was conducted by scientists to research an invasive species – garlic mustard. Garlic mustard was chosen for this study because it is damaging to the ecosystem, is very invasive, and scientists already know about its genetic makeup. The goal of the study was to establish garlic mustard as a model species for plant invasion biology, and to encourage large studies of other invasive species.

The study took 4 years to complete. There were 164 scientists collecting data from 16 countries (all in Europe and North America). Their data included information about how much garlic mustard was in their plot, the age of plants, size of plants, how effective the species is at invading, and how much damage has been done by animals and pathogens.

To conduct the study, each scientist followed the following procedure:

- Plotted out a 1m x 0.5m section of land with garlic mustard
- Counted young and adult plants
- Recorded size, height, leaf number, fecundity (number of fruits), number of undamaged leaves
- Took aerial photographs
- Took note of habitat type, location, altitude, climate etc.

### More About Invasive Species

Here are 5 invasive species that you might find in your yard, but this is not a full list.





## Garlic Mustard

- Spreads very fast.
- Considered one of Ontario's most damaging forest plant species.
- Was brought to Ontario from Europe because it is rich in vitamins A and C.
- The biggest problem with garlic mustard is that it puts harmful chemicals into the soil that makes it impossible for any other plant to live there. The roots release chemicals that interfere with vital fungi growth which is needed for native plants to uptake nutrients.

## Periwinkle

- Looks pretty but is quite invasive!
- Introduced as an ornamental flower, and can also be purchased at plant nurseries.
- Easily spreads over large areas, thrives in shade or sun, and chokes out native ground cover, including native plants like Ontario's trillium.
- Its leaves and seeds are toxic to grazers and birds (decreases biodiversity)!

## European Buckthorn

- A small shrub or tree native to Eurasia that thrives in various habitats and forms dense thickets.
- Can alter nitrogen levels in the soil, creating better conditions for its own growth and discouraging the growth of native species.
- Acts as an overwintering host for the soybean aphid, which is an insect that damages soybean crops.
- Produces an abundance of berries which make birds and other animals sick, thus providing little nutrition to the animals but a thorough spread of seeds.

## Daylily

- A popular garden plant because of its hardiness, ability to spread, and showy blooms.
- Commonly seen along roadsides and near old buildings and homes where plants have escaped from gardens into surrounding ecosystems.
- Once established, Daylilies are capable of displacing native vegetation communities and altering ecosystems where it invades.
- Not used by pollinators.



## Lily-of-the-valley

- Innocent-looking plants that have invasive behaviors that overtake native plants (see the theme here)?
- Once planted it will spread rapidly, beyond the garden's boundaries. Some people see this as a good thing in a garden where nothing else will grow, but beware!

## Tips for Removing Invasive Plants

- These plants can be pulled out of gardens, but aim to get all the roots to prevent them from returning.
- When you remove an invasive species, it is important to dispose of them properly to prevent them from coming back.
- Can be disposed of in city-wide compost programs (due to high heat) but not in backyard composters. Otherwise, they need to go in the garbage.
- Website called "Grow Me Instead" from the Ontario Invasive Plant Council that tells you what native plants to put in your garden when you remove an invasive one.