Managing Invasive Plants

- In our yard
- In our neighborhood
- In our watershed

A presentation by the Piscataquog Watershed Association
adapted by Karen Bennett, UNH Cooperative Extension

What exactly are Invasive Plant Species?

- **Native plants** – Species that reached their location without assistance from humans.

- **Non-native plants include:**
  - **Exotic species:** non-native plants or animals introduced into a new location by human activity, either intentionally or by accident.
  - **Invasive species:** non-native species that are capable of moving aggressively into a habitat and monopolizing resources such as light, nutrients, water, and space *to the detriment of other species.*

Native species that are aggressive, but not considered **invasive**:

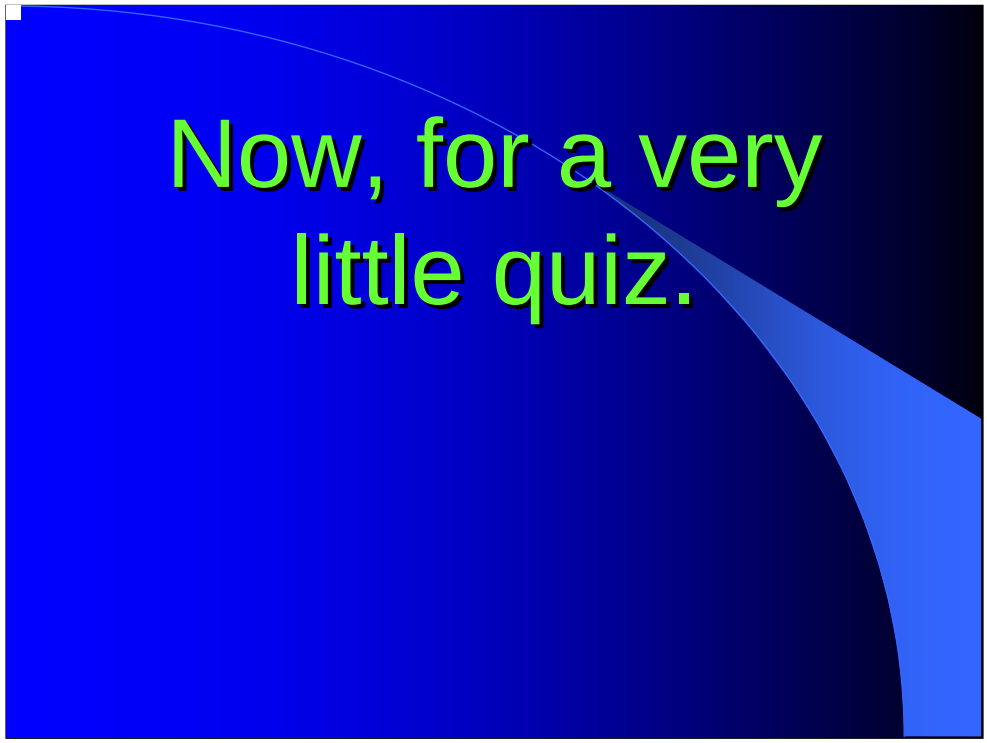
Poison ivy
Tansy
Vetch
Crabgrass
Beach rose
Dame's rocket
Poplar
Poison sumac

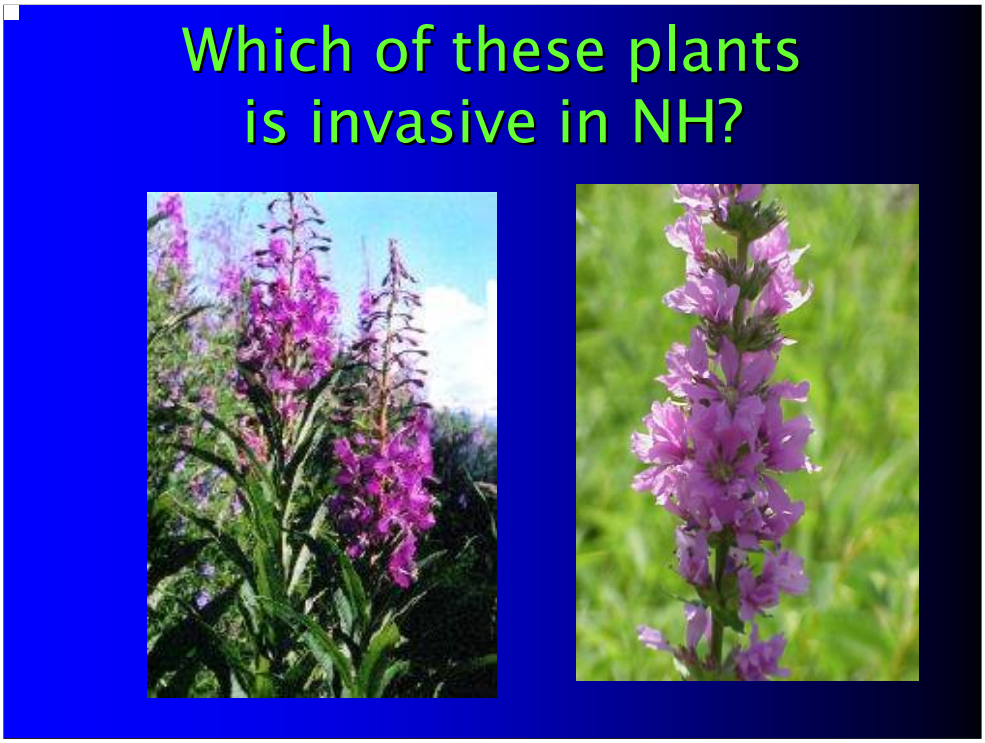
"To be designated as an invasive species, a plant must be so aggressive it takes over the habitat of other species, eventually wiping them out and causing ecological and/or economic harm, even when light or water conditions change." NEWFS

•Horticultural activity is responsible for most of invasive species introductions (arboretums, botanic gardens, gardeners).
•Often plants were brought in for medicinal, ornamental and food value reasons.
•Conservation activities mostly for screening, windbreak, and erosion control, but also to supply food and cover for wildlife.
•Accidental introductions- for example, purple loosestrife was first brought to the U.S. in the hold of a ship via ballast water, then later introduced for horticultural purposes).
•Some species may be native to certain regions of North America where they are not invasive, but arrive in new regions through assisted range expansion or transportation to other parts of the country for ornamental purposes, where they can become invasive.

Our Presentation Goals:

- Identify the habitats and features of problematic invasive plants and determine appropriate methods of control based on these criteria
- Identify replacement garden plants


Now, for a very
little quiz.



The one on the left is fireweed, a beautiful wildflower seen throughout Alaska.
The one on the right is purple loosestrife, problematic in nearly all 50 states.

The left photo is a cow parsnip, a close relative of giant Hhgweed which is just beginning to take hold in NH. Photo was taken in Alaska where it is everywhere, but is not considered invasive. It has the same negative qualities of giant hogweed.

Giant hogweed is in the right photo.

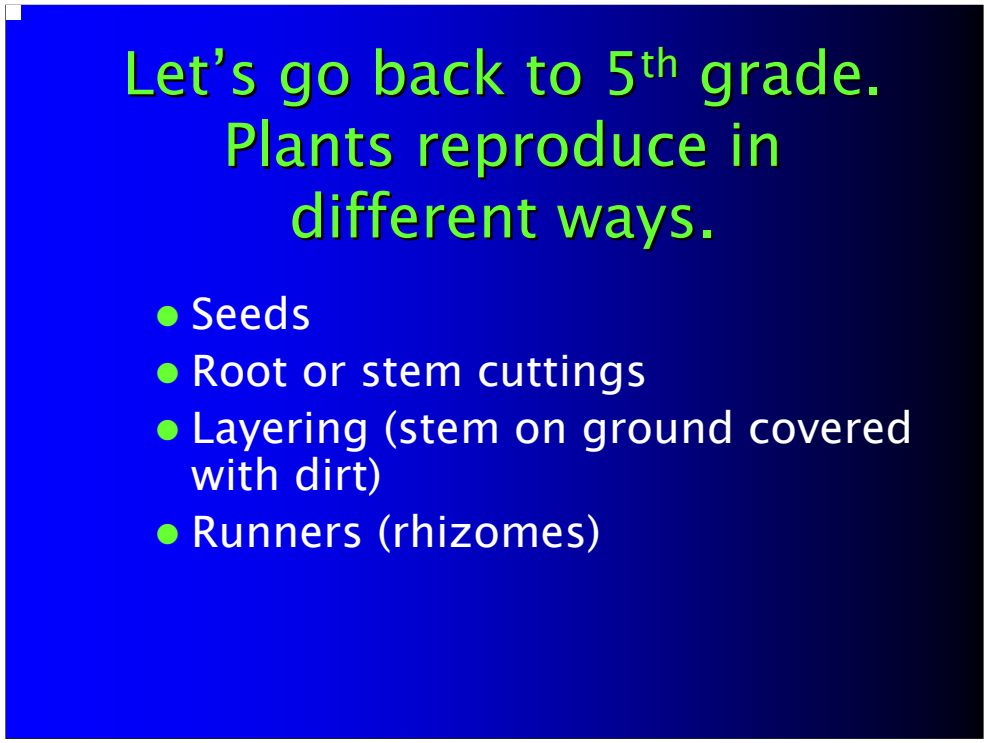
How did the burning bush get into your yard?

How do purple loosestrife and Japanese Knotweed end up along our roads?

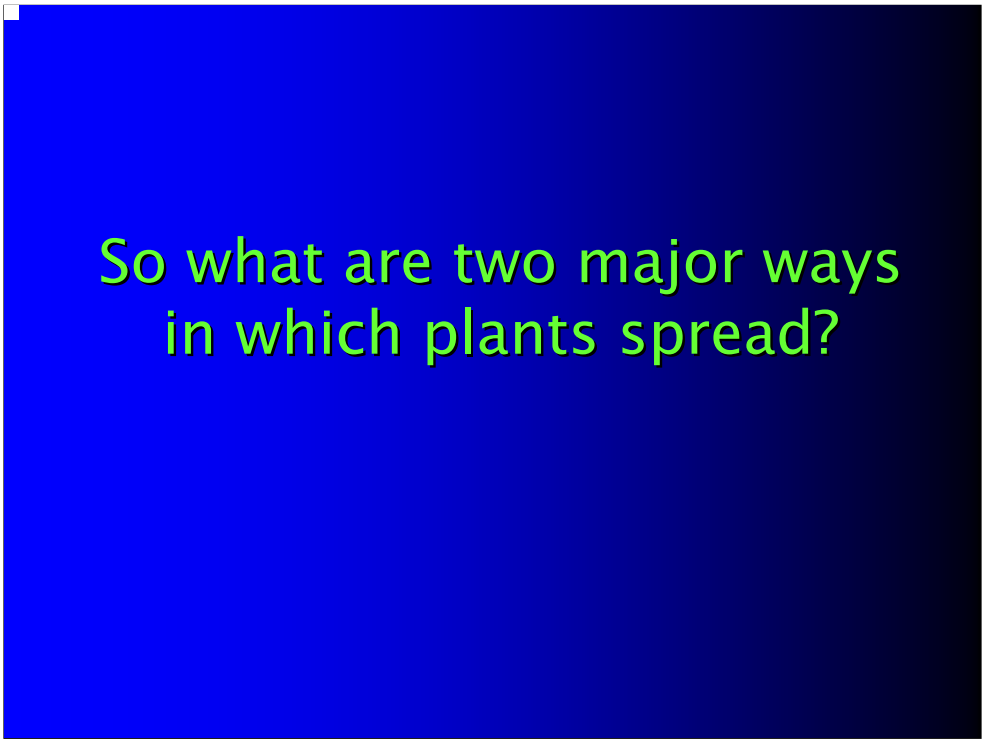
Some invasive plants don't proliferate in one yard, yet they will in another yard. Why?
(Soil conditions usually.)

European starlings, robins, and cedar waxwings enjoy the fruit but 90% of the seeds fall to the ground and new shoots spring up. A mature shrub can have 75 seeds per square foot beneath it.

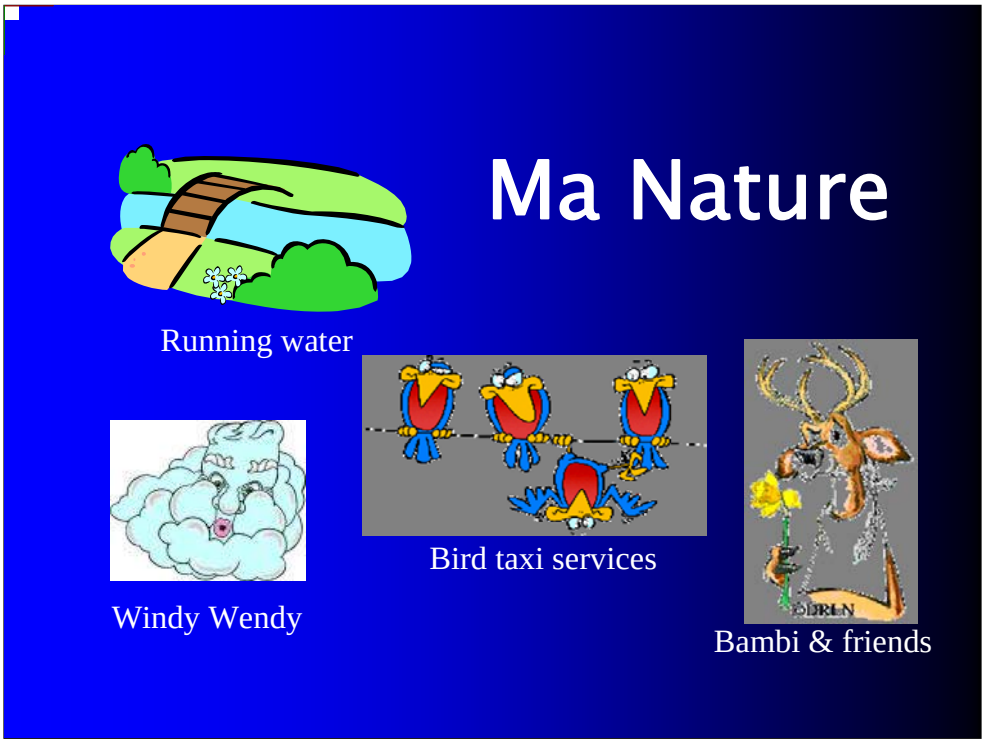
Mutliflora rose is spread by birds, whose intestinal track is perfect for encouraging seed germination once seeds are dropped. Also spreads by branches that arch and root in nearby soil.



When we look at each invasive, we need to thing about how each reproduces.



Answer: People and natural events



Rivers
Wind
Birds
Animals on their fur and in their scat
Rain

Planting
Moving seeds with our feet
Losing seeds as we harvest them for decoration
Tire transportation
Building/excavating
Transporting soils
Snowplowing
Grading
Etc.

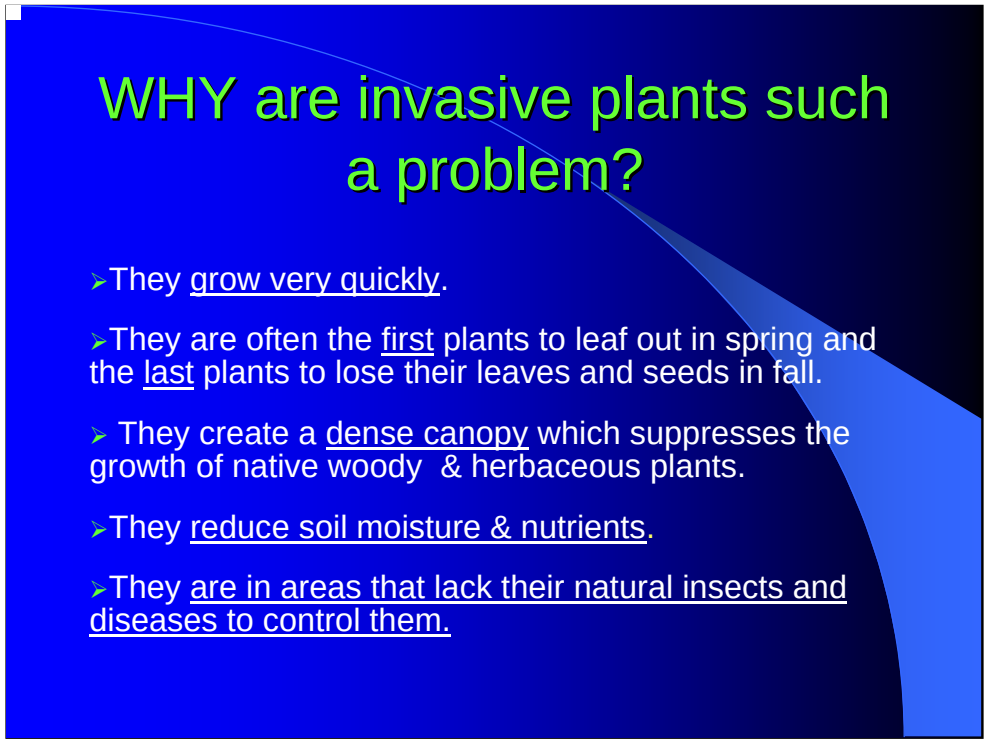
This photo shows one of the most often seen ways in which invasive plants are spread. If you see this happening, in your yard or town, keep an eye on the area and attack plants immediately.

Non-Native Invasive Plants

Currently regulated by NH

Purple Loosestrife
Norway Maple
Japanese Barberry
Burning Bush
Autumn Olive
Black Swallowort
Buckthorn
Garlic Mustard
Giant Hogweed
Honeysuckles
Japanese Knotweed
Multiflora Rose
Oriental Bittersweet
Phragmites

Regulated – Cannot be bought, sold or transported in NH.



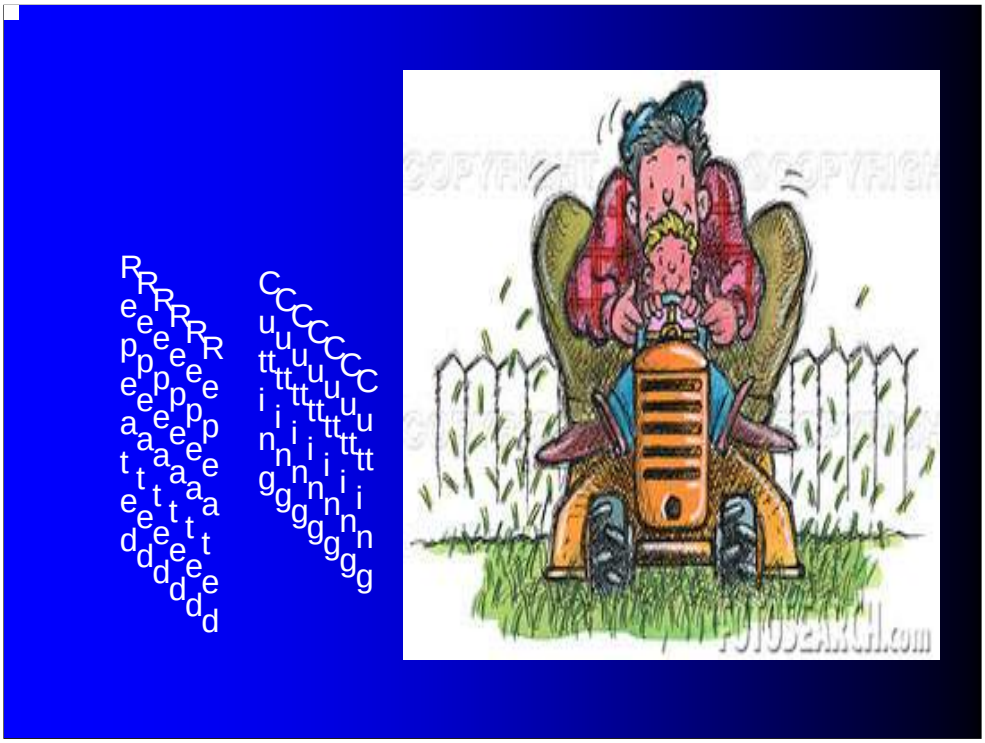
All of these reasons indicate that invasives are more persistent than native plants. Therefore they can overtake native plants quickly and easily.

How do we "get rid" of these pesky plants?

Our goal is to gain

CONTROL!

Our goal is not to rid these plants, because we can’t. But we can control them.



Repeated cutting, when we talk about invasives, means that the plant needs to be cut up to five times, if not more, during a growing season….AND disposing of the plant material that was cut in an appropriate manner. This will be covered later.

Spend time on this. Early digging can be VERY beneficial. This is why we need to take the time to look at “baby” plants as well as full grown plants.

Purple loosestrife is just gaining a hold here on a state highway (about 35 plants). A lovely pond is just beyond the yellow sign. This is a perfect place to dig the loosestrife.

Dig or pull, being sure you remove all root material. It’s usually easier to do this after a rain or if soil is damp.

Knowing a little about tree and shrub anatomy helps understand how to kill unwanted specimens.
•Bark protects the tree.
•Xylem cells are towards the stem center, are mostly dead, and carry water and minerals from the roots to the leaves. Xylem is considered the tree's wood.
•Phloem, a living tissue, carries manufactured food (sugars) from the leaves to the roots.
•The cambium, which is a moist layer only a few cells thick, is the regenerative layer that gives birth to xylem on its inside and phloem to its outside.

If the food-transporting phloem is severed all the way around the tree (a process called "girdling"), food cannot be carried to the roots and they will eventually die. As the roots die, so does the tree.

Be sure to seal down edges so that no sunlight gets to the plants.

If Big patches are too much to dig or pull…

Purple loosestrife can release up to 2.5 million seeds. Phragmites also releases seeds. Remove the flowers before they turn to seeds! Note: loosestrife flowers turn to seeds from the bottom up, so it is important to remove the flowers as early as possible.

…cut
flowers
And
seed heads

This is along the edge of the Piscataquog River.

This is ideal for woody plants that are of varying sizes.

Possible Negatives:

1. Ingestion of plant (bark, leaves, seeds) may be dangerous to the animal.
2. If sheep are allowed to browse young trees they may consume the terminal leaders or upper branches causing undesirable growth patterns. This could lead to severe tree/plant malformation or death.
3. If the system is not properly implemented there may be soil disturbance, soil erosion, and damage to trees. These may be overcome by rotational silvopastural methods.
4. Depending on the invasive, the digestive system may enhance seed germination.

This would be for hardwood plant control or phragmites control.
Leave it to the professionals to perform.

So far, the only plant on the NH state list that are sanctioned to use biologic control methods is purple loosestrife.

For Purple Loosestrife control: Pick up beetles. The Piscataquog Watershed Association can assist groups who want to raise galerucella beetles to control purple loosestrife. For more information call 487-3331 or visit PWA-NH.org.

Keep beetles cold and then count them out into covered cups.

Take covered cups of 10 beetles each to their new homes.

Remove tops from cups and leave beetles under nets of loosestrife to breed.

Sit back and direct the process.

When beetles have reproduced 50 fold, and loosestrife in the pots is nearly gone, take pots with nets to a LARGE loosestrife area. Remove nets carefully, getting all the beetles out, and leave the loosestrife there.

Within 1-2 months you'll see quite a bit of damage to the plants. Note the larvae on a leaf.

And finally

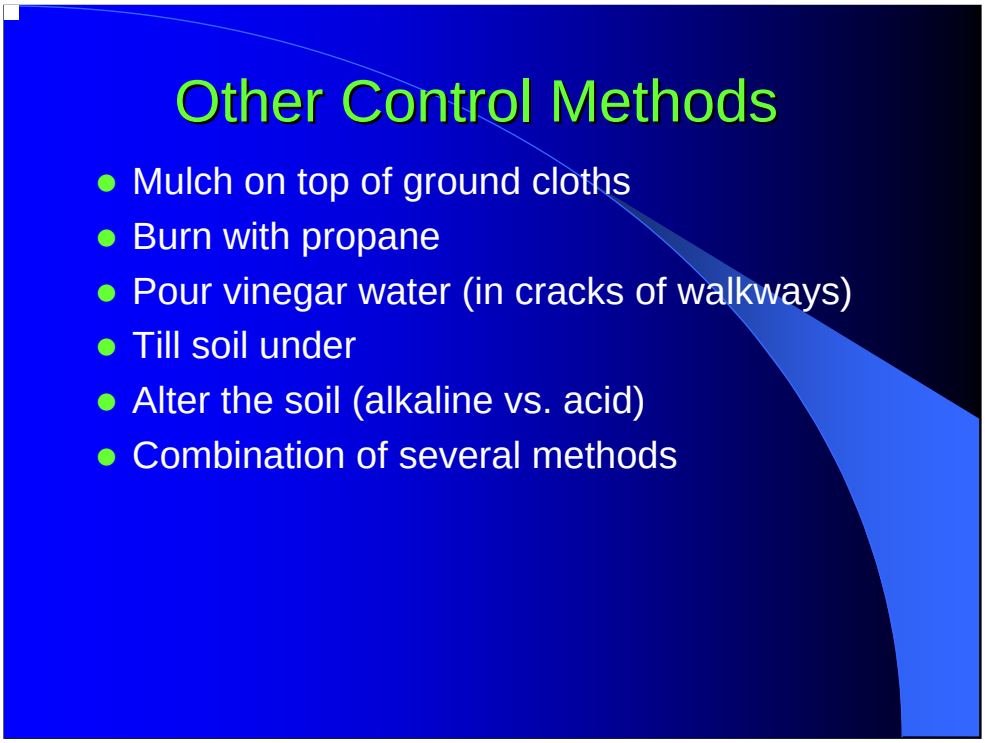
….aaaaach!

Paint cuts with approved herbicide.

Spray leaves with approved herbicide.

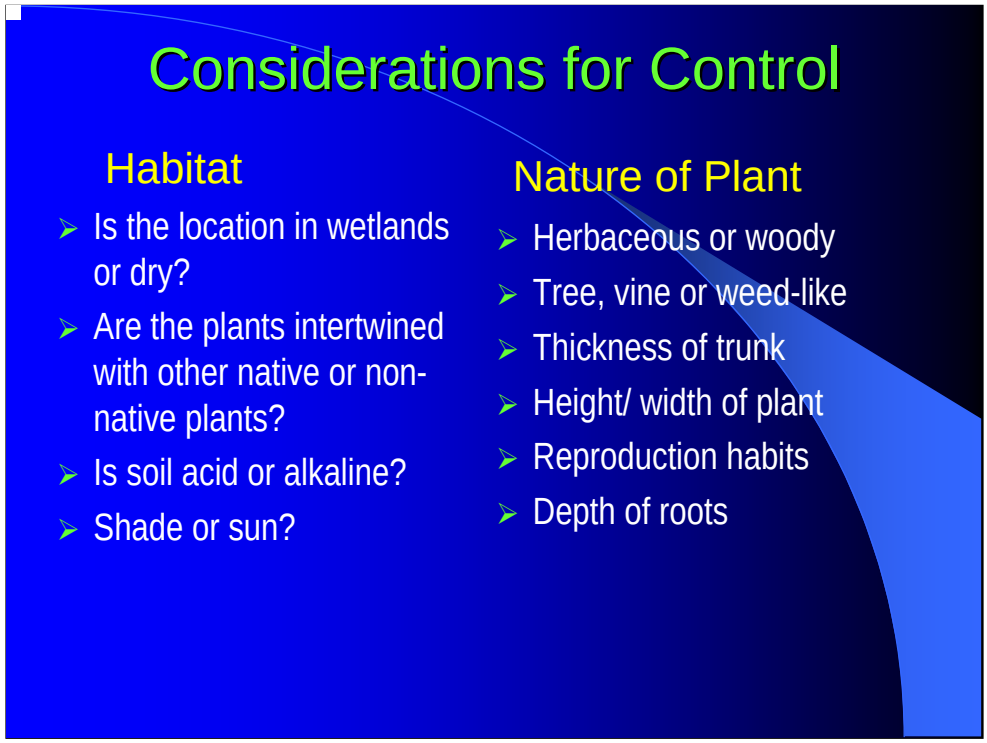
Painting cuts is ideal for woody plants that can't be removed easily from a location. Cut the trunk and immediately paint with herbicide. Ideally, use drill to drill holes in the trunk after cutting and then paint with herbicide. Be sure to watch for root shoots over the next several years.

Spraying with herbicide requires special care. Protect nearby plants by covering them with plastic sheeting or bags before spraying.

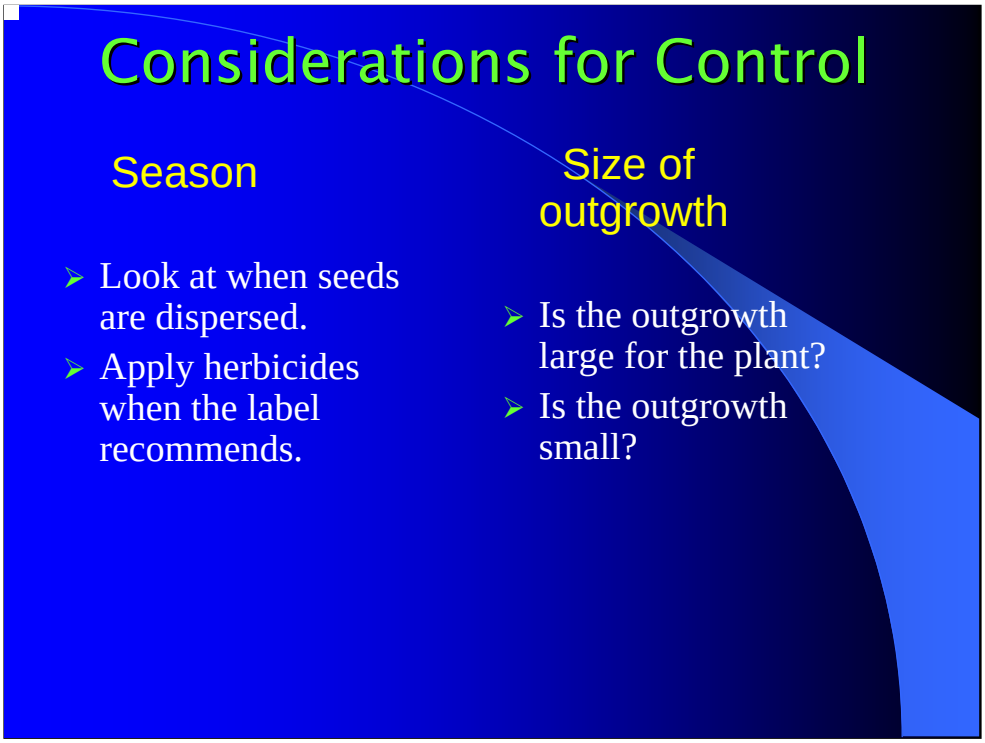


These methods are less permanent than other methods we've discussed, but may be a solution as well.

Most methods require repeated applications, so **persistence** is the best policy with any of them.



1. Habitat – Controlling the invasive may affect other plants in the vicinity. Changing the soil pH (sweetening or acidifying the soil) may change the soil enough so that the plant won't thrive in its new habitat. Many invasives grow in both sun and shade. This may be more difficult to alter.
2. Nature of plant – All these items determine the tools one would use…shovel, fork, backhoe, black plastic, herbicide, loppers, weed whacker, etc.



1. Season – Watch for seed production and if cutting, cut after flowering and before seed is set. If using herbicides, apply according to the label directions- the time of year and the amount
2. Size of outgrowth – If there are just a few plants, dig deeply to remove the plant or possibly cover with black plastic for a season. Cut and paint thick trunks.

Bagged weeds can be left to rot in the sun, but monitor for holes and any new growth in the holes or around the bag. Neither of these methods are fail-safe.

Dry it and cook it on an asphalt driveway, NOT a dirt driveway!

Place woody debris on a sunny asphalt surface and let dry for a month. Place herbaceous material in a double black bag and do the same. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. This method assumes there are no seeds mixed in with the material.

And finally you get to relax while you…

Monitor

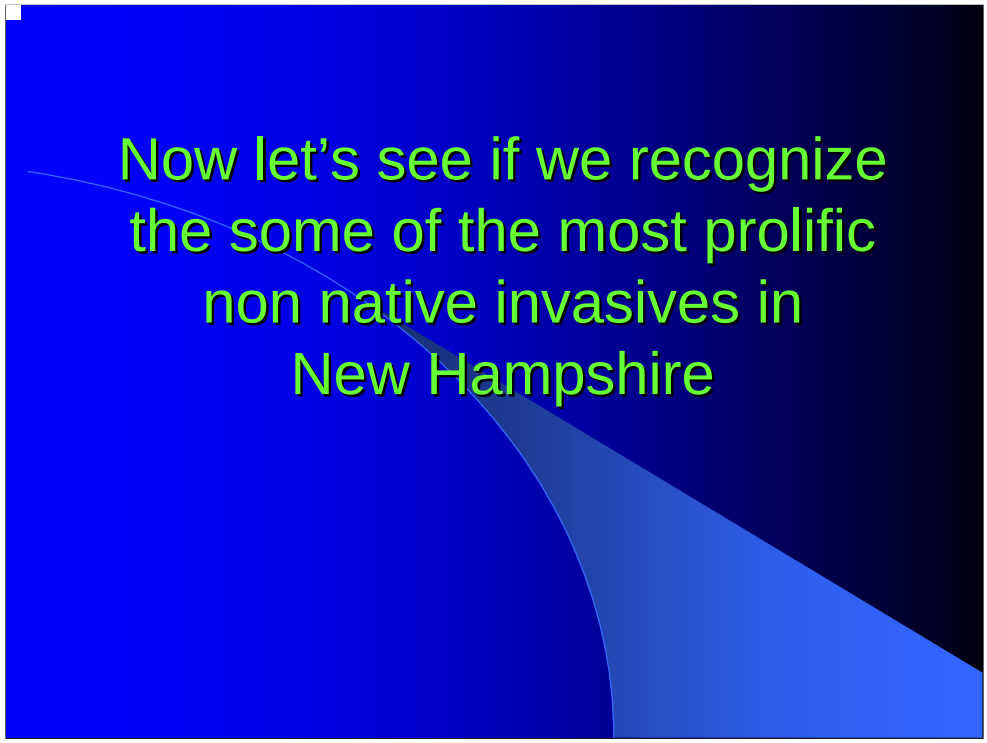
Monitor

Monitor

Monitor

Monitor

Monitor



There will be one large slide before identifying each slide. In this case, consider the habitat and the height of the plants. Some people will recognize the seedpods as purple loosestrife.

Note the number of petals, the shape of stem, the opposite leaves, the habitat, the height.

This picture shows both new plants and old plants.

Seed wings are nearly opposite.
Seeds from all varieties produce the basic *Acer platanoides* or Norway maple.

- Dense, shallow roots make it difficult for native plants to find space.
- Dense roots slurp their share of water, weakening neighboring trees.
- Dense canopy withholds light from shorter plants.

Mature height is 60-100’.
Leaf petiole exudes milky substance when broken.
Leaves are opposite & have 5-7 lobes.
May want to note that a disease is beginning on one leaf.

Acer Platanoides Varieties

- 'Crimson King' (red)
- 'Schwedleri' (red)
- 'Summer Shade'
- 'Emerald Queen'

ALL varieties of Norway maple are invasive. Seed from any of the above, when planted, will grow to be the basic green Norway maple.

Burning bush CAN and will take over a forested area. Birds transplant seeds.
Depending on how much light burning bush receives, it will turn bright red in the fall (in sun).
Stems are “winged”.

Leaves are opposite & half as long as they are wide. They turn red in bright sun in the fall.
Hand remove seedlings and saplings. Dig out larger plants.

Leaves are ovate and color depends on variety. Flowers are small & yellowing. Bloom in May in clusters. Fruit turns red in summer.

Threat to open and managed forests.

➢Can eventually grow thick enough to crowd out native under-story plants.

Threat: Seeds have a germination rate as high as 90%, and are distributed by birds including ruffed grouse, and wild turkey. Because barberry is shade tolerant, an extensive population can become established in a short time under a closed forest canopy. Severe drought or extreme winters have little effect on overall mortality or seed production. Deer avoid barberry while often browsing surrounding vegetation, which may effectively increase barberry's competitive advantage.

Wood plant: Hand pull young plants. Dig or cut older plants. Can use herbicide for large infestations.
The pith of the plant is yellow.
There is a native barberry that is always green and grows more vertically.

Oblong drupe turns pale red in fall.
Three spines at leaf axils.
Flowers are perfect yellow and flower in mid April through May.

Barberry is often used in the landscape to keep animals and people from an area.

Garlic Mustard

Just one year before this photo was taken, the garlic mustard was small rosettes.

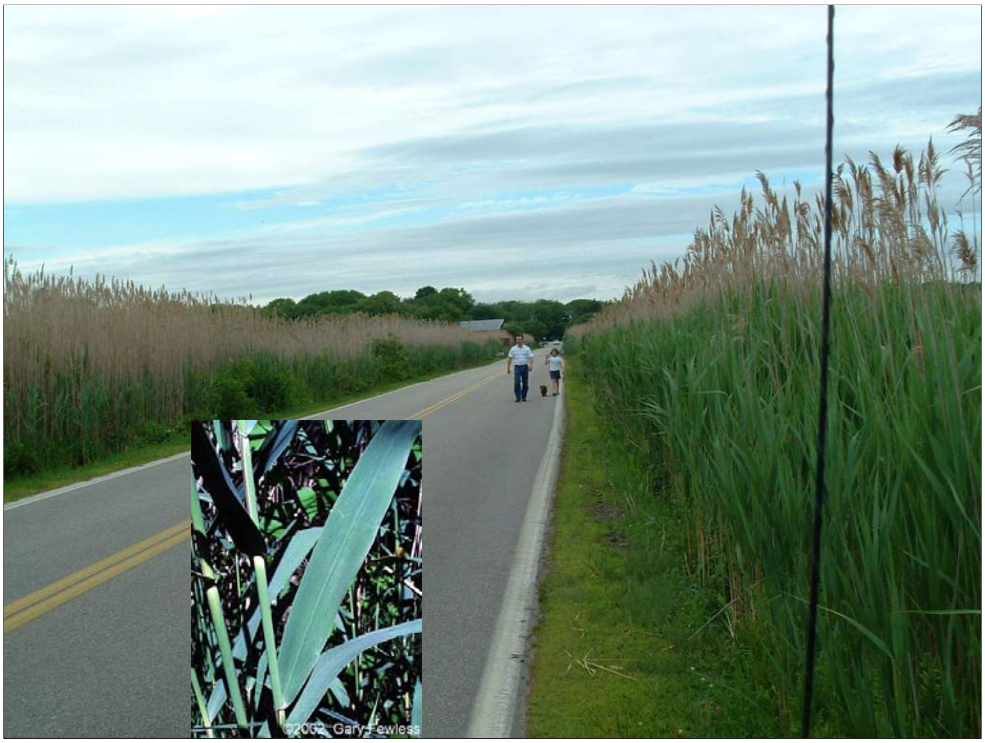
Leaves are triangular, coarsely toothed, and heart shaped.
Flowers are small, flat umbrels with 4 petals. Pods with seeds turn black when mature and are spread by water and wildlife.
Pull by hand especially when soil is damp.

We see JK along our rivers and along our roads. Ask why it’s traveling so quickly in these situations.

Japanese knotweed: Early spring growth. Can use as vegetable, much like rhubarb.

Herbaceous perennial reaches 10’ in height and width.
Stems are greenish, hollow, and jointed, not unlike bamboo.
Prefers moist, well drained soil.
Rhizomes reproduce and grow quickly. Does NOT reproduce by seeds.
Control: Remove small plants by hand digging, removing all parts of the rhizome (horizontally growing root). Repeated cutting may control but has to be done at least five times a growing season. Herbicide may be poured down the cut stems.

Check out the companion loosestrife at the base of the Phragmites.



This photo was taken near the beach in Rhode Island.

Grows by rhizomes to 14 feet. Stems (culms) are hollow and grow to 1” diameter.
Leaves grow to 2 feet and are blue-green.
Flowers: Panicles with many spikelets, each of which has up to seven small reddish flowers on it.
Found mostly in marshes but grows in freshwater wetlands and water systems in full to partial sun.
Spreads by rhizomes.
Hand pull small plants.
Large plants: use spade or apply herbicides. Use professionals!

Note oval hips.

Multiflora rose is growing along with its friend, Oriental bittersweet, along a road. Note both are growing into the trees.

Oriental bittersweet fruits along the leaf axils, while American bittersweet fruits at the end of stems. Asiatic bittersweet is distinguished from American bittersweet by its fruit and flowers located in clusters of three to seven in the axils of the leaves (between the leaf and the stem) while American bittersweet's fruit and flowers are located at the branch tips only.

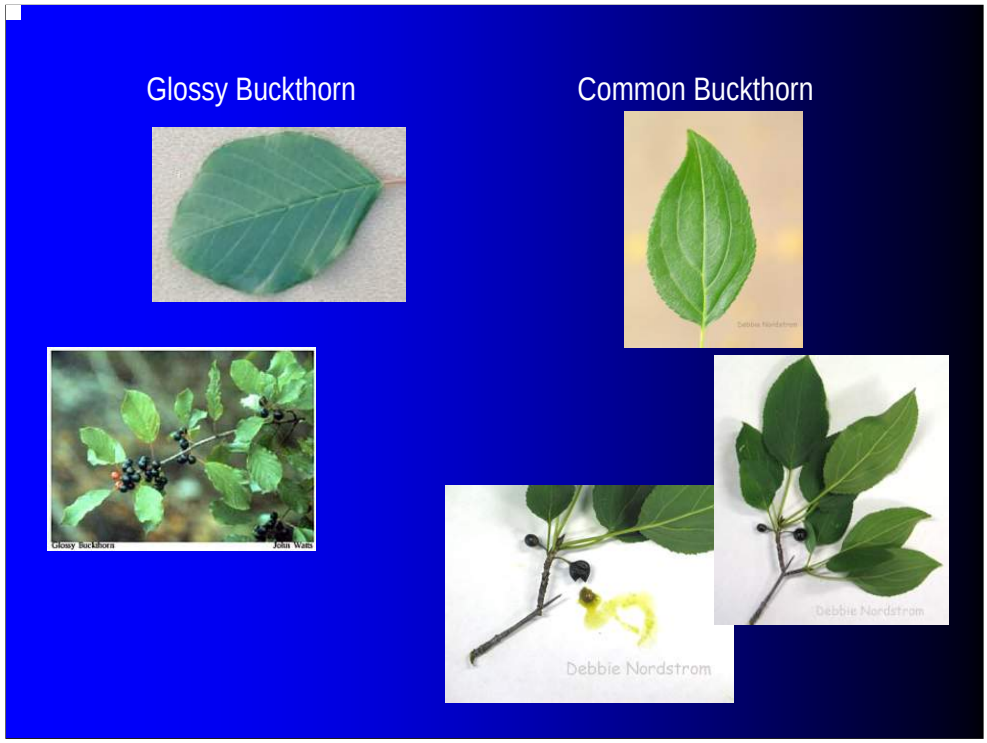

Union
N.H. SUN
NEWS

Note how bittersweet strangles anything it comes into contact with.
Bottom right: The poison ivy (red) does not kill trees, but the bittersweet does.

This is what can happen when bittersweet is allowed to grow along the road.

New growth buckthorn

A forest of common buckthorn on route 136

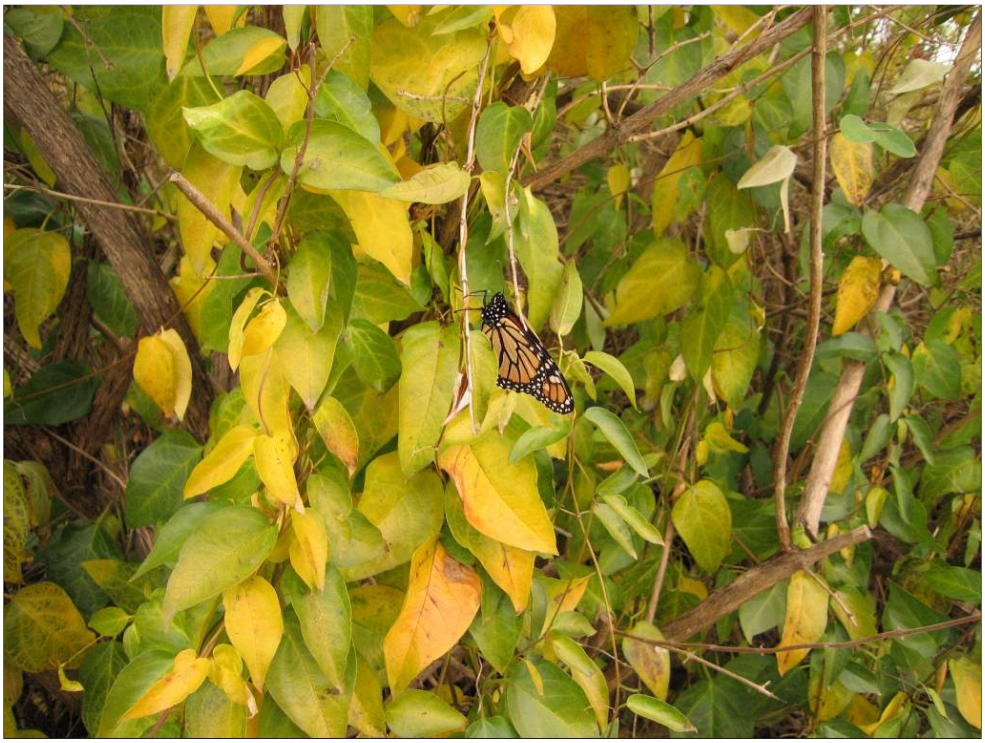


Glossy: Speckled gray/brown bark; oval leaf is slightly waxy & veins are more symmetrical (opposite); no thorn
Common: Spine at end of twigs; leaves are more pointed and toothed
Both exude a yellow goo from berry

Stumps show how buckthorn grows. Note new buckthorn in top right corner.

Ask class what plant has seed pods similar to these pods. This is related to the milkweed plant.
Ask the value of the milkweed plant. (Only plant on which the monarch butterfly lays eggs.)

Look closely at the very small purple flower.



Apparently the monarch is attracted to Black Swallowort as well. This photo was taken in late September. The monarch is dead.

Mechanical: Digging up the root crowns is effective but relatively destructive and the whole crown must be removed. Pulling the plants by hand generally leads to resprouting but can prevent seed production, especially if repeated during the growing season. A less effective method is pod picking, which also limits seed production, but does little damage to the existing population. Mowing is best for preventing seed production. Mow frequently (one to two visits per season) just as the pods are beginning to form.

Chemical: Repeated herbicide applications will most likely be necessary in vigorous stands. It is best to spray early in the season before viable seeds are produced (before mid-July). Cut-stem applications are recommended for small infestations or if nearby desirable vegetation will be adversely affected. Burning and grazing do not appear to be effective. Use herbicides responsibly and follow manufacturer's directions.


Autumn Olive

Growth habit of autumn olive

- Suppresses growth of other plants by creating shade

- When cut, it resprouts abundantly

Shrub that can grow to 12 feet.
Alternate, untoothed leaves, oval to lanceolate.
Upper leaf is dark green to gray/green.
Under leaf is covered with silvery white scales.
Silver to gray branches can be thorny when young.
Juicy, red or orange berries

Threat - Bush honeysuckles can rapidly invade a site by forming a dense shrub layer that suppresses native woody and herbaceous plants. Leaves emerge on honeysuckles during early spring, and foliage remains until November. Infestations of the plants lead to a decrease in available light and a reduction in soil moisture and nutrients. Honeysuckles may also release toxic chemicals into the soil that inhibit the growth of adjacent native plants.

Features: Usually alternate leafed. Stems are hollow (not so with native honeysuckles). Fruits are small and black.

From a distance this can be confused with Autumn Olive. This is a shrub type honeysuckle.

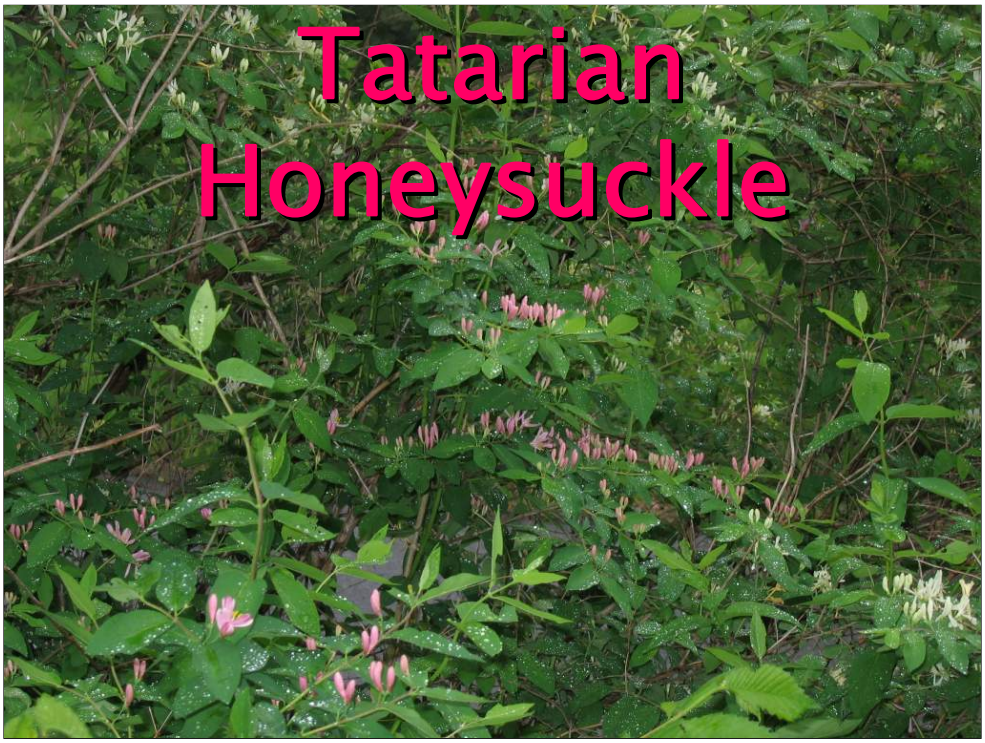
Another look…

Japanese Honeysuckle

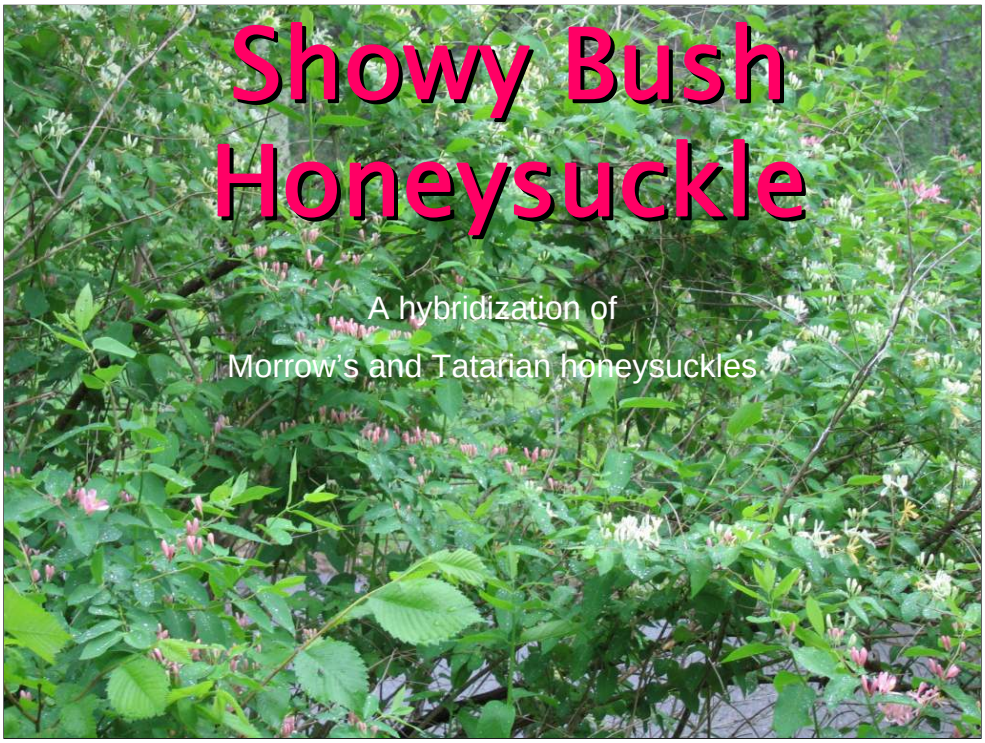
Always a vine!

Woody **vine**.
Fragrant flowers can be white to yellow.
Leaves are opposite.
Drupes are black.
Semi-evergreen in north.

Deciduous woody shrub.
White to yellow flowers.
Short-stemmed opposite leaves.



Pink to white flower.
Deciduous woody stem.



Cannot tell from these photos, what the white flowered honeysuckle is, but is probably a "Belles" or Showy Bush.
Controls of all honeysuckles is best when soil is moist in spring: hand or mechanical removal, cutting and painting twice a year…spring and fall, girdling, chemical. Repeat all measures as needed for three years.

Giant Hogweed

These photos were taken along the coast of Rhode Island where Giant Hogweed and Phragmites are living hospitably together and crowding out native beach roses and other native grasses.

Seeds: Giant hogweed is on left. Cow parsnip is heart-shaped and on the right. Stay viable in soil up to seven years.
Leaves: Up to 5 feet wide.
Stems: Hollow; two to four inches in diameter; coarse hairs; purple blotches

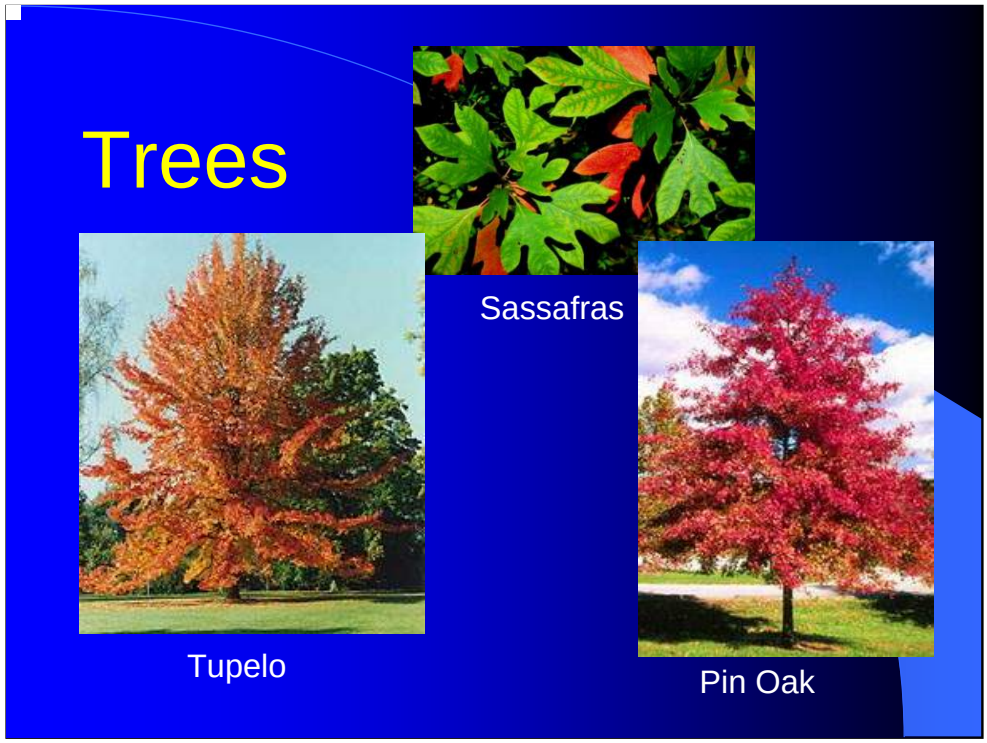
One more look.

These are soft tissue plants and could be either pulled or dug out or covered with tarp. Can alter soil possibly.

People wonder what to replace their spiky purple loosestrife, and their red foliaged burning bush and crimson king maple with. We have solutions.

Most of these flowers come in pinks and reds too.
Also wild species such as steeplebush and wild sweet William.

Go through your garden catalogues and gardening books to find more plants, favoring native plants.



These are all zone 4 trees and are generally triangular in shape making them suitable for street trees.

Quercus palustris - Pin Oak
Nyssa sylvatica – Tupelo
Sassafras albidum - Sassafras

Ideas for Interesting Flowers and Foliage

Fothergilla

Red Bud

Metasequoia

Red Twigged Dogwood

Tulip Poplar

Daphne


Who Needs Us?

To preserve scenes like this, we must help Mother Nature.