

Invasive Plants

Japanese Barberry (*Berberis thunbergii*)



This highly shade tolerant plant is rapidly displacing the forest understory, forming dense, impenetrable stands. Once established it will shade out and displace a wide variety of native plants. Still sold for landscaping as deer don't eat its prickly stems.

Small plants can be pulled by hand (use gloves). Larger bushes should be clipped to base, then roots removed with pickaxe when soil is moist. Herbicides glyphosate and triclopyr are also effective.

Multiflora Rose (*Rosa multiflora*)



Once recommended for wildlife cover, multiflora rose has taken over pastures and old farm fields. Its June bloom is attractive, but produces thousands of seeds to spread the plant further, crowding out natives. Control is difficult when plants are mature as the thorny branches seem to fight back. However, once cut back, the small regrowth can be easily dug out or killed with herbicides.

Burning bush (*Euonymus alatus*)



Named for its bright red foliage in the fall, this invasive bush is still sold in nurseries and is a common landscaping plant at shopping malls. However, it has spread from those confined areas into neighboring woods where it out-competes native shrubs. It produces millions of seeds that help its spread. Mature plants need to be cut to the ground and the roots dug out. Small plants can be hand pulled.

Invasive honeysuckles (*Lonicera spp.*)



Several species of invasive honeysuckles are found in the Brodhead Watershed and are typically difficult to distinguish without a naturalist's help. The invasive species are now more common than the native honeysuckle and include both shrubs and Japanese honeysuckle (*Lonicera japonica*) which forms long vines. Established shrubs should be cut to the base, and roots removed. Removal is best in the spring when plants are easier to identify.

Japanese Knotweed (*Fallopia japonica*)



Knotweed forms dense stands that quickly out-compete native plants. Not used for food by any North American animal and with no natural insect predators, it is difficult to control once established. Will reproduce from seeds, stems or roots so should not be composted. Small infestations can be hand pulled, being sure to get all the root. Herbicides (glyphosate) are not useful on mature plants, but may be used on young regrowth after cutting large plants.

Japanese stiltgrass (*Microstegium vimineum*)



This low growing grass seems to appear whenever soil is disturbed. It now lines most roadways and has displaced native grasses. An annual, it reproduces vigorously from seed. Of particular concern when it invades pastures since cows and horses won't eat it. Can be identified by the white line down the center of each blade. Small infestations can be hand pulled before seeds form in early fall; larger areas can be closely mowed and seeded with native grasses - most effectively just before plant goes to seed in September. Herbicides (glyphosate) are effective. Seeds can persist in soil for several years.

Garlic mustard (*Alliaria petiolata*)



A biennial, garlic mustard grows in a low rosette the first year and produces tall stems with white flowers the second year. It quickly spreads by seed and will take over an area. Can be easily pulled. Take care to pull before the seeds are formed, but be sure to get the entire tuber.

Common reed (*Phragmites australis*)



A tall wetland grass that grows up to 15 feet in height, common reed spreads through underground rhizomes. It is not prevalent in the Brodhead watershed but in other areas has completely displaced its native counterparts (*Phragmites* spp.). In order to prevent this happening in our watershed, the few areas where it grows should be attacked vigorously. It is important to remove all parts of the plant, both above and underground.

Goutweed, bishop's weed, snow-on-the-mountain



(*Aegopodium podagraria*)

Commonly planted in the past and escaped; spreads aggressively by roots to form dense patches, displace native species, and inhibit the establishment of conifers and other native tree species. Small patches of goutweed can be eliminated by careful and persistent hand-pulling or digging up of entire plants along with underground stems (rhizomes). Be careful to pick all rhizomes which, if left behind, can re-root and sprout new plants. For large patches, herbicides are recommended.

Purple loosestrife (*Lythrum salicaria*, *Lythrum virgatum*)



Escaped from gardens and now an invasive noxious weed. As it establishes and expands, especially in natural and disturbed wetlands, it overwhelms native grasses, sedges, and other flowering plants that provide a higher quality source of nutrition for wildlife. Small infestations of purple loosestrife can be removed by hand. The entire root system must be removed from the ground. All plant material should be bagged and removed from the area to eliminate re-sprouting. Larger populations are harder to control using mechanical means. Mowing should not be used because it can increase the spread of the population by dispersing seeds and exposing the seed bank.

Crown vetch (*Coronilla varia*)



A herbaceous perennial that spreads aggressively by the growth of rhizomes and also reproduces readily from seed, forming dense stands on sunny sites and crowds out most of the other vegetation. It has been widely planted to stabilize soil, especially after road construction, and it persists for many years afterward and spreads into adjacent natural habitats. Use both manual and mechanical means, as well as herbicides, to destroy current and succeeding generations.

Further reading

An excellent resource identifying these and other invasive species can be found at <http://www.dcnr.state.pa.us/forestry/invasivetutorial/List.htm>. Articles discuss management and control in detail and offer an array of native substitutes for invasive species.

After removing the named invasive plants, consider these alternatives:

Japanese knotweed, giant knotweed

Shrubs - winterberry holly (*Ilex verticillata*), spicebush (*Lindera benzoin*), buttonbush (*Cephalanthus occidentalis*), silky willow (*Salix sericea*), pussy willow (*Salix discolor*), American elderberry (*Sambucus canadensis*), alder (*Alnus serrulata* and *A. incana* ssp. *rugosa*); herbaceous species- riverbank rye (*Elymus riparius*), wild-rye (*Elymus villosus*), big bluestem (*Andropogon gerardii*), switch grass (*Panicum virgatum*), wingstem (*Verbesina alternifolia*), joe-pye-weed (*Eupatorium fistulosum* and *E. maculatum*), boneset (*Eupatorium perfoliatum*).

Japanese barberry

Bayberry (*Myrica pensylvanica*), ink-berry (*Ilex glabra*), winterberry (*Ilex verticillata*), arrow-wood (*Viburnum dentatum*), mountain laurel (*Kalmia latifolia*), ninebark (*Physocarpus opulifolius*) and hearts-a-bustin' (*Euonymus americana*).

Multiflora rose

Pasture rose (*Rosa carolina*), Wild rose (*Rosa virginiana*), Steeplebush (*Spiraea tomentosa*), as well as native raspberry and blackberry species

Japanese stiltgrass

Any native grass, sedge or rush as appropriate for soil moisture and sunlight.

Garlic mustard

Foamflower (*Tiarella cordifolia*), Bishop's cap (*Mitella diphylla*), Goldenseal (*Hydrastis canadensis*) or any low-growing native perennial as appropriate for soil and light.

Honeysuckles

Northern spicebush (*Lindera benzoin*), trumpet or coral honeysuckle (*Lonicera sempervirens*), ink-berry (*Ilex glabra*), gray dogwood (*Cornus racemosa*), northern bayberry (*Myrica pensylvanica*), red chokecherry (*Aronia arbutifolia*), and arrowwood (*Viburnum dentatum*).

Common reed

Native plant species that are adapted to local conditions should be used in restoration projects and as a substitute for *Phragmites* erosion control practices.

Burning bush

Winterberry holly (*Ilex verticillata*), red chokeberry (*Aronia arbutifolia*), Virginia sweetspire (*Itea virginica*), arrow-wood (*Viburnum recognitum* or *V. dentatum*), blackhaw (*Viburnum prunifolium*), gray dogwood (*Cornus racemosa*), kinnikinnik (*Cornus amomum*), ninebark (*Physocarpus opulifolius*), witch-hazel (*Hamamelis virginiana*), bayberry (*Myrica pensylvanica*).

Goutweed

Foamflower (*Tiarella cordifolia*), Bishop's cap (*Mitella diphylla*), Goldenseal (*Hydrastis canadensis*), Allegheny spurge (*Pachysandra procumbens*) or any low-growing native perennial as appropriate for soil and light.

Purple loosestrife

Native species of blazing star (*Liatris spicata*) have showy pink-purple flower spikes and are an important nectar source for many native species of butterflies and other insects; also consider native loosestrifes: fringed (*Lysimachia ciliata*), lance-leaved (*L. hybrida*), whorled (*L. quadrifolia*), swamp-candles (*L. terrestris*), and tufted (*L. thyrsiflora*)

Crown vetch

Use any of the many native grasses or prairie wildflowers commonly available in seed mixes

Caring for your Streamside Property

❖ **Let the grasses grow** - tall grasses by the stream help filter out soil, fertilizers and pesticides that run off your lawn and garden.

❖ **The wider the better** - wider planting strips along the stream catch more pollutants and provide habitat for birds and beneficial insects.

❖ **Remove invasive plants** - see the list on the reverse of this pamphlet; if you have any of the listed plants, eliminate them.

❖ **Plant native plants** - use the chart inside to select native ferns, flowers, grasses, shrubs and trees to enhance your streamside property and create shade to cool the water. Trout like cold water!

For more information:



www.mcconservation.org

The Pennystone Project
www.pennystone.com/ecosystems/

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Caring for your streamside property

There's more to a stream than the stream itself

Caring for Streamside Buffers — What to Plant?

Often, when left to grow up on its own, a streamside buffer will contain mostly weeds and other undesirable plants. One way to make sure this doesn't happen is to plant native plants. The plants below represent just a limited selection of Pennsylvania's native species appropriate for planting throughout the state along streams and in adjacent floodplains and wetlands. Choose plants adapted for your soil conditions, and your garden will thrive with less watering and without the need for chemical fertilizers or pesticides. There are many resources to help homeowners with native plantings. For some help, contact one of the organizations on the back of this brochure, or visit one of the following websites: PA Department of Conservation and Natural Resources - www.dcnr.state.pa.us or PA Native Plant Society - www.pawildflower.org

Illustrations by Erin Frederick, Lehigh County Conservation District

Ferns		Cinnamon Fern <i>Osmunda cinnamomea</i> Full sun to shade Wet to moist soils Cinnamon-colored fertile fronds; moist acidic soils Photo: Robert Mohlenbrock, USDA		Royal Fern <i>Osmunda regalis</i> Part shade Consistently wet or saturated soils Unique form and texture Photo: Robert Mohlenbrock, USDA		Sensitive Fern <i>Onoclea sensibilis</i> Full sun to shade Wet to moist soils Sunny or shaded swamps, marshes, moist meadows Forms colonizing masses
Flowering Perennials		Wild Bergamot <i>Monarda fistulosa</i> Blooms May to September Full sun to light shade Moist to dry soils Dry open woods, wet meadows, ditches, edge of woods and marshes		Black-eyed Susan <i>Rudbeckia hirta</i> Blooms May to June Moist to dry soils Full sun to light shade Attracts birds and butterflies		Blue Lobelia <i>Lobelia siphilitica</i> Blooms from July to October Light shade Wet to moist soils Attracts hummingbirds
		Blue Vervain <i>Verbena hastata</i> Blooms June to September Full sun to light shade Dry soils Bright flowers; herbal uses; streambanks and moist meadows		Boneset <i>Eupatorium perfoliatum</i> Blooms July to August Light shade to full shade Wet to moist soils Wet meadow species		Plains Coreopsis <i>Coreopsis tinctoria</i> Blooms April to June Full sun to light shade Moist to dry soils
		Purple Coneflower <i>Echinacea purpurea</i> Blooms April to September Full sun to light shade Moist soils Herbal uses		Ironweed <i>Vernonia noveboracensis</i> Blooms August to September Full sun Wet to moist soils Tall plant with brilliant late summer flowers		Joe-Pye Weed <i>Eupatorium fistulosum</i> Blooms August to September Light shade Wet to moist soils Attracts beneficial insects; herbal uses
		Blue Mist Flower <i>Conoclinium coelestinum</i> Blooms July to November Full sun to light shade Moist soils Good border plant or colonizing ground cover; attracts butterflies		New England Aster <i>Aster novae-angliae</i> Blooms August to October Full sun to light shade Wet to moist soils Showy and frequently cultivated; dry to moist meadows		Common Sneezeweed <i>Helenium autumnale</i> Blooms July to September Full sun Consistently wet to moist soils Moist open areas along streams & ponds; wet meadows
Grasses		Sedge <i>Carex vulpinoidea</i> Blooms Summer Full sun Consistently wet or saturated soils Swampy areas		Switch Grass <i>Panicum virgatum</i> Blooms August to September Moist soils Clump grass; can help to control erosion Sandy and river soils Photo: Bonnie Harper, Lady Bird Johnson Wildflower Center		Virginia Wild Rye <i>Elymus virginicus</i> Blooms June to September Full sun to light shade Wet to moist soils Moist woods, meadows, stream banks Photo: EPA
Shrubs		Arrowwood <i>Viburnum dentatum</i> Blooms May Full sun to full shade Moist soils Dark blue fruits in fall; high wildlife value; streambanks, pastures Photo: Campbell and Lynn Loughmiller, Lady Bird Johnson Wildflower Center		Buttonbush <i>Cephalanthus occidentalis</i> Blooms June to September Full sun Consistently wet or saturated soils Multi-stemmed; tolerates inundation Photo: Norman Flaigg, Lady Bird Johnson Wildflower Center		Highbush Blueberry <i>Vaccinium corymbosum</i> Blooms May to June Light shade Wet to moist soils Multi-stemmed; edible berries; fall color; very high wildlife value
		Nine Bark <i>Physocarpus opulifolius</i> Blooms May to July Full sun to part shade Wet to moist soils Wet woods, sandy or rocky stream banks Photo: Stefan Bloodworth, Lady Bird Johnson Wildflower Center		Red Chokeberry <i>Aronia arbutifolia</i> Blooms May Part shade Wet to moist soils Red berries; high value for wildlife Photo: Robert Mohlenbrock, USDA		Serviceberry <i>Amelanchier arborea</i> Blooms March to April Part shade Moist soil Small tree with early spring flowers; delicious edible berries in summer Photo: Stefan Bloodworth, Lady Bird Johnson Wildflower Center
		Silky Dogwood <i>Cornus amomum</i> Blooms May to July Full sun Wet to moist soils Flowers in summer; blue berries; multi-stemmed; very high wildlife value Photo: Sally & Andy Wasowski, Lady Bird Johnson Wildflower Center		Spice Bush <i>Lindera benzoin</i> Blooms March to May Light shade to shade Wet to moist soils Bright red berries in fall; herbal uses; wildlife value		Winterberry Holly <i>Ilex verticillata</i> Blooms May to June Part shade Wet to moist soils Showy berries in winter; high wildlife value; good colonizing shrubs for stream banks Photo: George Bruso, Lady Bird Johnson Wildflower Center
Trees		American Beech <i>Fagus grandifolia</i> Blooms April to May Full sun to full shade Moist, but well-drained soils Large tree with handsome gray bark; high wildlife value Foliage photo: Bill Cook, Michigan State University		American Sycamore <i>Platanus occidentalis</i> Blooms April Full sun Wet to moist soils Large tree with showy mottled bark; riverbanks, floodplains and alluvial soils		Black Gum <i>Nyssa sylvatica</i> Blooms April to May Full sun to part shade Moist soils Tall tree with outstanding fall color; high wildlife value Photo: Keith Kanoti, Maine Forest Service
		Green Ash <i>Fraxinus pennsylvanica</i> Blooms April to May Part shade Wet to moist soils Fast growth; good fall color. Photo: Robert Mohlenbrock, USDA		Pagoda Dogwood <i>Cornus alternifolia</i> Blooms May to June Part shade Moist soils Small tree for moist woods and shaded ravines; dark blue fruit		Red Maple <i>Acer rubrum</i> Blooms March to April Full sun to full shade Moist soils Adapts to a range of moisture conditions; good fall color Photo: Bill Cook, Michigan State University
		River Birch <i>Betula nigra</i> Blooms May Full sun to part shade Wet to moist soils Notable for its peeling bark; floodplains, streambanks, wet woods, swamps Photo: Steven Katovich, USDA Forest Svc		Shagbark Hickory <i>Carya ovata</i> Blooms in May Full sun to part shade Moist soils Shaggy gray exfoliating bark; very high wildlife value Photo: Keith Kanoti, Maine Forest Service		Swamp White Oak <i>Quercus bicolor</i> Blooms in May Part shade Wet to moist soils Large tree with very high wildlife value; good wetland oak Photo: Mark Brand, Univ. of CT