Further Reading

To find additional photos, full descriptions, and cultural information for the suggested alternatives, please refer to the following references:

- *The Midwestern Native Garden: Native Alternatives to Nonnative Flowers and Plants*  
  Adelman, C. and Schwartz, B., 2011  
  Ohio University Press

- *Native Alternatives to Invasive Plants*  
  Brooklyn Botanic Garden, Brooklyn, NY.

- Missouri Botanical Garden PlantFinder  
  www.mobot.org/gardeninghelp/plantfinder/Alpha.asp

- The National Invasive Species Council – Invasive Species Definition Clarification and Guidance  
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Landscape Alternatives App

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Landscape Alternatives App

This brochure was created by the MIPN’s Green Industry Committee under agreements with the National Fish & Wildlife Foundation (funded by the U.S. Fish & Wildlife Service) and the U.S. Forest Service. The original layout was done by The Holden Arboretum and photos were provided by Midwest Groundcovers. Subsequent revisions were completed by MIPN.

The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government or the National Fish & Wildlife Foundation. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government or the National Fish & Wildlife Foundation.
Everybody loves a beautiful garden

Gardeners love plants that are adaptable, tough, and fast-growing. It’s even better if that plant produces showy fruits that attract birds or is an annual that self-seeds so it doesn’t need to be replanted every year. Unfortunately, many of these plant traits desirable to gardeners can also increase the likelihood that a plant will escape cultivation and invade natural areas.

Invasive species inflict harm in a number of ways, such as by shortening the lifespan of trees. The photo above shows invasive oriental bittersweet girdling a young tree and leaving a permanent spiraling groove in the bark, which will kill the tree before it matures.

Invasive plants threaten our environment and economy. They pose an enormous threat to our native plants, animals and ecosystems; their toll on the environment is second only to habitat destruction. Invasive plants can also alter communities by changing hydrology or soil chemistry. According to the most widely referenced research (Pimental et al. 2005), invasive plants cause $25 billion in damages each year in the United States alone.

Although invasive plants are almost always not native to a region, it is important to note that most non-native species are not invasive. In some rare cases, native species have become invasive. We use the following definitions:

Native (indigenous)
A species that was present in North America prior to European settlement or has arrived since through natural means of dispersal.

Non-native (exotic, alien, introduced)
A species that was brought to North America by humans, either deliberately or accidentally.

Invasive
A species, usually non-native, that is able to reproduce and increase its distribution, resulting in harm to ecological, economic, and/or human health.

Native plant cultivars

People have introduced the vast majority of invasive species, either accidentally or deliberately. In this brochure, we focus on ornamental plant species that have become invasive in at least part of the Midwest. For several of the invasive species listed in this brochure, there are cultivars available that produce fewer fruit and may be marketed as less invasive. Research by Knight, et al., 2011, demonstrates that these cultivars may still be invasive and that the only safe option is choosing sterile plants (both self-sterile and cross-sterile) that cannot produce viable seed or reproduce asexually.

When plants escape cultivation

The invasive plants listed in this brochure have escaped cultivation and are causing harm in one or more states in the Midwest. Several alternatives are provided for each invasive species. This includes both native species and non-native species that currently show no signs of becoming invasive.
### Landscape Alternatives (listed below each invasive species)

#### Barberry, Japanese *Berberis thunbergii*
- **Red fall color, tolerant of urban conditions**
- **Buxus** spp. (*Boxwood ‘Glencoe’ or ‘Green Velvet’)*
  - E: Dense, evergreen foliage; small round leaves; fragrant
- **Ribes alpinum** ‘Green Mound’ (*Alpine currant)*
  - E: Dense foliage; lobed leaves; yellow fall color
- **Fothergilla major** (*Large fothergilla)*
  - NS: White flower clusters; red to orange fall color
- **Cotoneaster divaricatus** (*Spreading cotoneaster)*
  - E: Small, pale pink flowers; red to purple fall color
- **Ilex verticillata** (*Winterberry holly)*
  - NS: Bright red berries in dense clusters; persist through winter; attracts birds
- **Physocarpus opulifolius** ‘Diablo’ (*Ninebark)*
  - NC: Dark, reddish-purple leaves; pinkish-white flowers
- **Rosa rugosa** (*Red leaf rose)*
  - NC: Dark, reddish-purple leaves; pinkish-white flowers

#### Barberry, Japanese (purple) *Berberis thunbergii*
- **Purple foliage, tolerant of urban conditions**
- **Cotinus coggygria** (*Smoke bush)*
  - E: Airy pink flowers; purple fall foliage
- **Physocarpus opulifolius** ‘Diablo’, ‘Summer Wine’, ‘Copperina’, and ‘Center glow’ (*Ninebark)*
  - NC: Dark, reddish-purple leaves; pinkish-white flowers
- **Rosa rugosa** (*Red leaf rose)*
  - E: Purplish-red foliage; pink flowers
- **Weigela florida** ‘Wine and Roses’ (*Weigela ‘Wine and Roses’)*
  - E: Dark burgundy-purple foliage and rosy pink flowers

#### Bittersweet, Oriental *Celastrus orbiculatus*
- **Attractive red and orange fruit**
- **Celastrus scandens** (*American Bittersweet)*
  - NS: Similar leaves, fruit, and growth habit

#### Buckthorns, common/glossy *Rhamnus cathartica, R. frangula*
- **Hedge or border plantings**
- **Carpinus caroliniana** (*American hornbeam)*
  - NS: Small tree; orange to red fall color
- **Corylus americana** (*American hazel)*
  - NS: Shade-tolerant; edible nut
- **Rhamnus alnifolia** (*Dwarf alder)*
  - NS: Shiny, ovate leaves; red to black berries
- **Thuja occidentalis** (*American arborvitae)*
  - NS: Dense, evergreen foliage; good as a screen or hedge plant
- **Thuja plicata** (*Western arborvitae)*
  - NS: Dense, evergreen foliage; good as a screen or hedge plant

#### Burning bush *Euonymus alatus*
- **Red fall color, red fruit**
- **Aronia arbutifolia** (*Red chokeberry)*
  - NS: Brilliant red fall color; red berries
- **Aronia melanocarpa** (*Black chokeberry)*
  - NS: Brilliant red fall color; black berries
- **Fothergilla major** (*Large fothergilla)*
  - NS: White flower clusters; red to orange fall color
- **Fothergilla ‘Mt. Airy’ and ‘Blue Shadow’** (*Fothergilla cultivars)*
  - NC: Abundant white flowers; red to purple fall color

#### Norway maple *Acer platanoides*
- **Shade tree, tolerant of urban environments**
- **Acer miyabei** (*Miyabei maple)*
  - E: Small to medium tree; yellow fall color
- **Ginkgo biloba** (*Ginkgo, male only)*
  - E: Shade tree; tolerant of urban environments
- **Acer freemanianum** (*Hybrid maple)*
  - NS/H: Fast-growing; yellow to red fall color

#### Olive, Russian *Elaeagnus angustifolia*
- **Small tree, silver foliage**
- **Olive, Autumn**
  - *Elaeagnus umbellata*
    - Large shrub, silver foliage
- **Shepherdia argentea** (*Buffaloberry)*
  - NS: Silver-green leaves; silver stems; red to yellow fruit good for wildlife
- **Salix sericea** (*Silky willow)*
  - NS: Silver, lance-shaped leaves
- **Salix elaeagnos** (*Rosemary willow)*
  - E: Bright red stems; small white flowers; good for hedges or mass plantings
- **Cornus sericea** (*Redosier dogwood)*
  - NS: Silver foliage; very tolerant of dry conditions
- **Elaeagnus commutata** (*Silverberry)*
  - NS: Silver foliage; very tolerant of dry conditions

#### Privet *Ligustrum vulgare, L. obtusifolium*
- **Hedge or border plantings**
- **Viburnum prunifolium** (*Black haw)*
  - NS: Small white flowers in dense clusters; dark blue berries persist into winter

#### Purple loosestrife, including all cultivars *Lythrum spp.*
- **Bright pink-purple flowers**
- **Liatris spicata** ‘Kobold,’ *Liatris pycnostachya* (*Blazing stars)*
  - NC: Showy spikes of purple flowers
- **Vernonia fasciculata** (*Prairie ironweed)*
  - NS: Dense purple flowers; stiff stems
- **Lobelia cardinalis** (*Cardinal flower)*
  - NS NC: Tubular red flowers; attracts hummingbirds
- **Asclepias incarnata** (*Swamp milkweed)*
  - NS: Flat clusters of pink-red flowers; grows well in wet areas

#### Ribbon grass *Phalaris arundinacea*
- **Tufted growth form; easy to grow**
- **Spartina pectinata** ‘Aureomarginata’ (*Variegated prairie cord grass)*
  - NC: Golden edged foliage; purple flowers
- **Carex morrowii** ‘Ice Dance’ (*Ice dance sedge)*
  - NC: Stiff, dark green leaves; drought tolerant
- **Sesleria autumnalis** (*Autumn moor grass)*
  - E: Forms tufted mound; drought tolerant

#### Siberian elm *Ulmus pumila*
- **Fast-growing, tolerant of wide range of conditions**
- **Ginkgo biloba** (*Ginkgo)*
  - E: Shade tree; tolerant of urban environments
- **Ulmus americana** ‘Princeton,’ ‘Valley Forge’ and ‘New Harmony’ (*American elm)*
  - NC: Spreading, arching branches; good street or shade tree
- **Ulmus hybrids** (*Hybrid elm)*
  - E/H: Arching branches; good street or shade tree
### Species to Watch/Maintain (and their alternatives)

Some plant species need maintenance to prevent invasion. Instructions for maintenance and alternative species are presented below.

**Wintercreeper, trailing types** *Euonymus fortunei*[^3]

<table>
<thead>
<tr>
<th><strong>Scientific Name</strong></th>
<th><strong>Common Name</strong></th>
<th><strong>Type</strong></th>
<th><strong>Notes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Arctostaphylos uva-ursi</em></td>
<td>Bearberry</td>
<td>Groundcover</td>
<td>Evergreen groundcover; large red berries</td>
</tr>
<tr>
<td><em>Asarum canadensis</em></td>
<td>Wild ginger</td>
<td>Groundcover</td>
<td>Herbaceous groundcover; heart-shaped leaves</td>
</tr>
<tr>
<td><em>Asarum europaeum</em></td>
<td>Wild ginger</td>
<td>Groundcover</td>
<td>Herbaceous groundcover; glossy, heart-shaped leaves</td>
</tr>
<tr>
<td><em>Helleborus</em> spp.</td>
<td>Hellebore</td>
<td>Groundcover</td>
<td>Evergreen; shiny, dark green foliage</td>
</tr>
</tbody>
</table>

**Periwinkle** *Vinca minor*[^6]

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<tr>
<td><em>Waldsteinia fragarioides</em></td>
<td>Barren strawberry</td>
<td>Groundcover</td>
<td>Evergreen groundcover; butter-yellow flowers in spring</td>
</tr>
</tbody>
</table>

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**Footnotes**

1. *Celastrus scandens* (American bittersweet) can be difficult to tell apart from the invasive *C. orbiculatus* until it reaches maturity and is, therefore, often mislabeled. Zaya, et al., 2017, found that 54% of plants labeled as *C. scandens* were, in fact, *C. orbiculatus*. All specimens purchased online were *C. orbiculatus*, so it is advised to only purchase *C. scandens* in person.

2. Research by Brand et al., 2012, demonstrated that nine *Euonymus alatus* cultivars had a high rate of seed germination and seedling survival, regardless of the number of seeds they produced, and therefore none could be considered non-invasive. (See Brand, M. et al. 2012. Fecundity of winged euonymus cultivars and their ability to invade various natural environments. HortScience 47(8): 1029-1033; and Knight et al. 2011. Will the use of less fecund cultivars reduce the invasiveness of perennial plants? BioScience 61:816-822.)

3. *Euonymus fortunei* (Wintercreeper) This species can spread both vegetatively and by seed when allowed to climb. It must climb approximately four feet before it produces flowers and fruits. If it is contained (by concrete or mowed lawns) and kept trimmed, it is not a threat, but it should not be planted adjacent to natural or minimally managed areas.

4. *Vinca minor* (Periwinkle) This species can spread vegetatively into natural areas but does not spread by seed. If it is contained (by concrete or mowed lawns) and kept trimmed, it is not a threat, but it should not be planted adjacent to natural or minimally managed areas.

[^3]: Larger size than other *Lonicera* spp.
[^6]: Increasingly used as a groundcover.