



# **INVASIVE PLANTS**

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**Winter creeper**



**Wavyleaf basketgrass**



**Fig buttercup or lesser celandine**



# Definitions: What Is an Invasive Plant?

What is a(n)

- Alien plant?
- Exotic plant?
- Non-native plant?
- Weed?
- Invasive plant?



# **Alien/Exotic/Nonindigenous/ Non-native**

- **“with respect to a particular ecosystem, any species, including its seeds, eggs, spores or other biological material capable of propagating that species, that is not native to that ecosystem.” Official U.S. government definition**
- **“species that have been intentionally or unintentionally introduced by human activity into a region in which they did not evolve.”**



# Weed

- “a plant out of place not intentionally sown, whose undesirable qualities outweigh its good points...a number of plants usually thought of as weed may actually be helpful in controlling erosion or serving as food for wild animals and birds.” Penn State Agronomy Department



# **Non-natives Not Necessarily Invasive**

- **At least half of woody species sold in catalogues in U.S. not native to N. America**
- **Managed in gardens, most species do not become invasive**
- **Responsible plant breeders do not introduce plants with potential to become invasive**



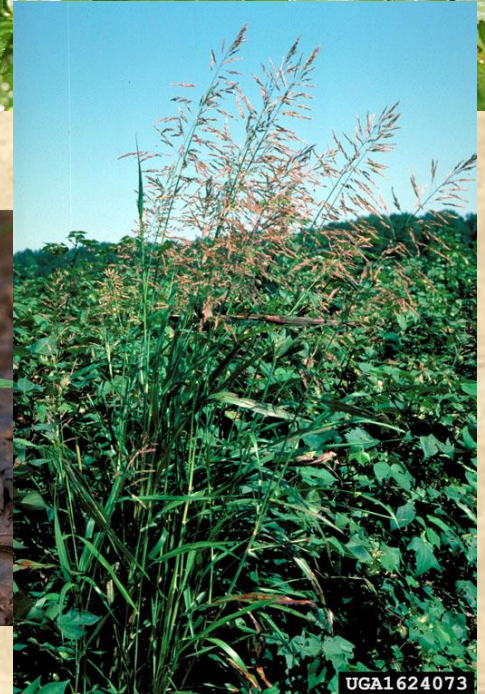


# **What Characteristics Enable Some Plants to Become Invasive?**

- **Produce large numbers of new plants each season**
- **Tolerate many soil types and weather conditions; thrive in disturbed soils**
- **Spread easily, usually by wind, water, animals, or humans**
- **Grow rapidly and displace slower growing plants**
- **Spread quickly when they are free of natural balances in their native habitat**

# How Do Invasive Plants Get Here?

- Most were brought here in horticultural trade
- Some were brought as animal food
- Some came in as packing material
- Some came in inadvertently as seeds or plant parts on imported goods





# **What Are the Economic Costs?**

**According to economists it is estimated that the annual cost to the United States economy from invasive species (plant, animal and disease) is \$120 billion a year. (DCR website)**

**The cost to Virginia is millions of dollars a year.**

# **What Are the Costs to Natural Areas and Ecosystems?**

- **Outcompete and displace native plants**
- **Proliferate and invade natural areas**
- **Reduce habitat for native insects, birds and wildlife**
- **Alter soils and soil organism composition**
- **Interfere with natural processes including water infiltration, pollination, food resources for wildlife**



# Many Are Still Sold Online or in Mail Order Catalogues



***Ampelopsis  
brevipedunculata***  
(Porcelain berry)

- High on VA Invasive list
- Spreads by seeds eaten by birds
- Aggressive vine impacts trees

# Privets (Ligustrum spp)



**Chinese privet –  
sold online**



**Curly leaf Japanese privet  
– sold at local nursery but  
not currently on DCR  
invasive plant list**



# Burning Bush (*Euonymus alatus*)



**Sold online and at  
big box stores**

# Where Are Invasive Plants a Problem?



- Natural areas – habitats of native plants
- Wetlands and riparian buffers
- National and state parks
- Disturbed soils
- Roadsides and road cuts
- Your property and mine

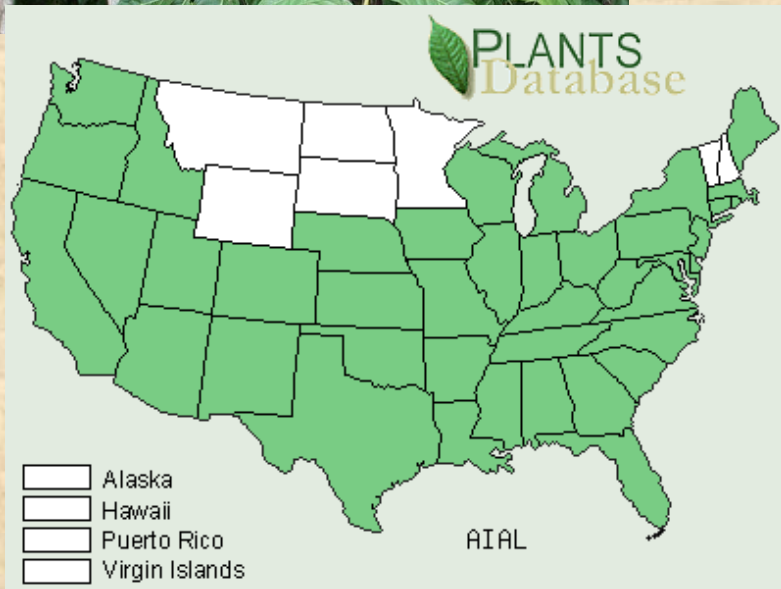


# How Do Plants Become Invasive?



**Three phases in plant invasions:**

- **Introduction:** non-native plant is introduced
- **Naturalization:** plant rapidly reproduces in one area
- **Invasion:** plant spreads to more distant areas



# Characteristics that Enable Exotic Plants to Become Invasive

- **Adaptable to wide range of habitats and conditions**
- **Reproduce easily through copious seeds, rhizomes, or other means**
- **Out compete native plants**



**Perilla (beefsteak plant)  
grows in wet or dry, sun or  
shade**





# Highly Invasive in Virginia

## (Va Dept of Conservation & Recreation)

- *Ailanthus altissima*  
(tree of heaven)
- *Celastrus orbiculata*  
(oriental bittersweet)
- *Elaeagnus umbellata*  
(autumn olive)
- *Euonymus alata*  
(winged burning bush)
- *Allaria petiolata* (garlic mustard)
- *Ligustrum sinense*  
(Chinese privet)
- *Lonicera morrowii*  
(Morrow's honeysuckle)
- *Iris pseudacorus* (yellow flag iris)
- *Microstegium vimineum*  
(Japanese stilt grass)
- *Ranunculus ficaria*  
(lesser celandine)
- *Ampelopsis brevipedunculata*  
(porcelain berry)

# Tree of Heaven

- Roots produce allelopathic substance that retards growth of other plants
- Crushed leaves have unpleasant smell
- Produces thousands of winged seeds in late summer





# Oriental Bittersweet



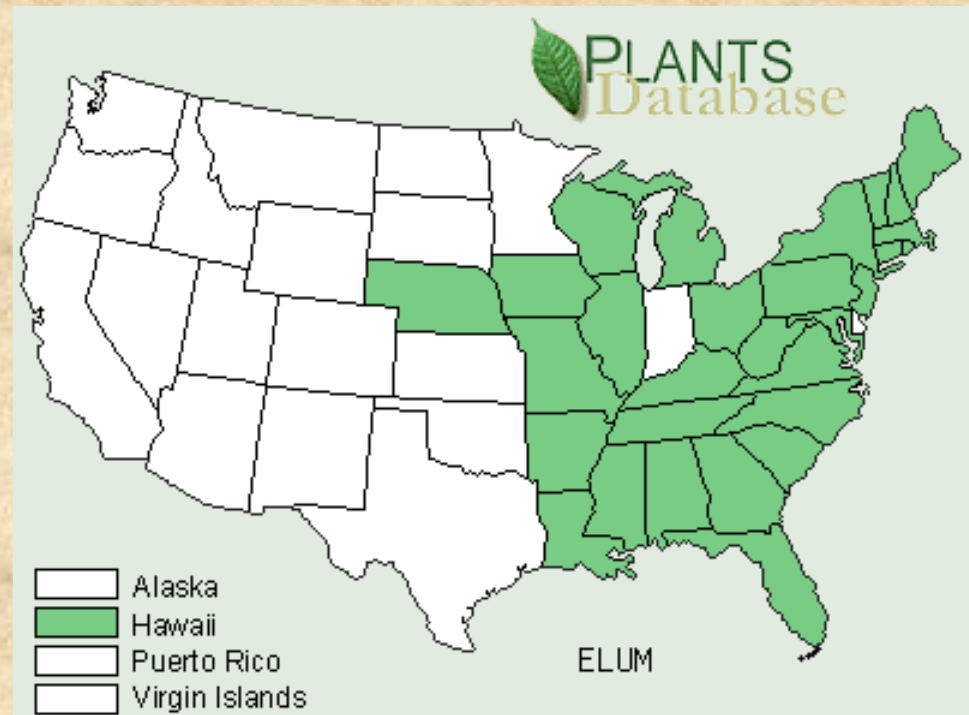
- Vine damages trees
- Birds spread seeds
- Replaced native bittersweet in many natural areas





# Autumn Olive

- Once planted as food source for wildlife
- Leaves have silvery backs
- VDOT used in medians





# Winged Burning Bush



- Shade tolerant
- Spreads by root suckers and by animal dispersed seeds
- Common garden plant widely used as an ornamental including along highways





# Garlic Mustard



- Introduced from Europe in 1800s as medicinal plant
- Colonizes flood plains; shade tolerant
- Seeds remain viable in soil for 6 years



# Chinese Privet

- **Evergreen plant commonly used as hedge since introduced in 1800s**
- **Forms thickets that shade out other plants; shade tolerant**
- **Problem along streams & in parks**
- **Spread by birds that eat seeds**





# Morrow's Honeysuckle

- One of the bush honeysuckles; others also considered invasive
- Dense thickets in forest edges, pastures, roadsides
- Seeds spread by birds
- Long lived seeds
- Common in James River Park





# Yellow Flag Iris



- Aquatic plant
- Forms large clumps along shores of ponds & lakes
- Outcompetes native aquatic iris
- Spreads by seeds & rhizomes



# Japanese Stilt Grass/Nepalese Browntop



- Annual grass
- Used as packing material for dishes imported from Asia
- Lives in damp, shady floodplains and wooded areas
- Prolific seeder; long-lasting seeds
- Enters on boots, tires



# Lesser Celandine

- Bright yellow flower resembles native marsh marigold
- Forms dense mat blocking other plants
- Spreads by tubers & seeds
- Thrives in damp areas and along stream edges



# Moderately and Sometimes Invasive

(Listed by DCR)

- ***Berberis thunbergii*** (Japanese barberry)
- ***Hedera helix*** (English Ivy)
- ***Wisteria sinensis*** (Chinese wisteria)
- ***Albizia julibrissim*** (mimosa)
- ***Vinca minor* & *V major*** (Periwinkle)
- ***Lysimachia nummularia*** (moneywort)



# Japanese Barberry



- Forms dense, thorny stands in woodlands, meadows, edges
- Shade tolerant
- Seeds spread by small mammals and birds such as wild turkey





# English Ivy

- Invasive if allowed to grow into woodlands and natural areas
- Highly invasive in James River Park & other Richmond parks
- Prevent it from climbing trees to curtail flowering and seeding





# Chinese Wisteria



- Climbs aggressively shading out trees
- Can live more than 50 years
- Invasive in natural areas in southeast U.S.



# Mimosa/Silk Tree



- Introduced in 1700s
- Fixes nitrogen in soil
- Weak wood, short-lived
- Shades out other plants



# Vinca/Periwinkle

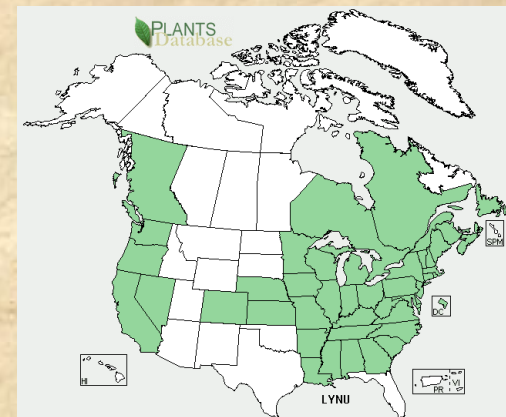
- Spreads from underground runners
- Completely shades ground
- Out competes natives





# Creeping Jenny/Moneywort

- Can spread aggressively
- Sold in many catalogues and nurseries
- Best planted in containers if at all





# **How Do You Manage Invasive Plants?**

- **Focus on a larger goal than simply eliminating invasive plant**
  - **Restoring ecological function**
  - **Maintaining a wildlife habitat**
- **Prevention, Containment, Control**
  - **Impossible to eradicate**
  - **One time control effort not enough**



- **Try to reduce impact rather than eradicate**
- **Identify how are spread**
- **Control factors such as human activities**
- **Spread by wind & wildlife beyond control**



# Mowing



- **Good control of Japanese stilt grass, an annual**
- **Mow late summer just before seedhead forms**



# Digging

- **Herbaceous plants or shallow rooted woody**
- **Not good option for plants that regrow from root pieces**
- **Dig when soil is moist**
- **Dig when plant is small & young**





# Cutting

- **For vines growing on trees - 2 cuts, one 5 ft. up trunk and one near ground**
- **“Hack and squirt”- make cuts in trunk and spray herbicide into cuts**
- **After live tree removal, paint full strength glyphosate (Round-up) on stump cut**

# Herbicides

- **Glyphosate or triclopyr are not selective herbicides (kill any plant treated)**
- **Both bind with soil particles and break down quickly**
- **Rodeo is glyphosate formulated for use around water**
- **Triclopyr useful for woody plants**
- **Must have pesticide applicator's license to use on property other than own**



# Questions?



**“It doesn’t seem to be covered in our invasive species management plan.”**



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