



The True Costs  
of Invasive Species

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VIRGINIA TRIBAL SUMMIT  
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# Invasive Species

- plants, animals, insects & diseases



- non-native to the ecosystem
  - introduction causes economic or environmental harm or harm to human health
- USDA Executive Order 13112 (Section 1. Definitions)

# Characteristics

- **Rapid growth & maturity**
- **Prolific seed production**
- **Highly successful seed dispersal, germination & colonization**
- **Rampant vegetative spread**
- **Ability to out-compete native species**
- **High cost to remove or control**

# Currently in Virginia

- 90 plant species
- \$1 billion annually

Heffernan et al. 2015

Pimentel et al. 2005

The image displays two overlapping spreadsheets titled "Virginia Invasive Plant Species List". The top spreadsheet lists 90 species with columns for Scientific Name, Common Name, Invasiveness Rank, and Region. The bottom spreadsheet lists 90 species with columns for Scientific Name, Common Name, Invasiveness Rank, and Region. Both spreadsheets include a 'REGION' column with 'H' for High and 'M' for Medium.

Human actions are the primary means of invasive species introductions (travel, plant transport, land disturbance, recreational activities, ignorance)



# Problems

environmental, economic, aesthetic & cultural

- **displace native species**
- **reduce wildlife habitat**
- **alter natural ecosystem processes**
- **degrade ag & rangelands**
- **clog waterways**
- **interfere with power line rights-of-way**
- **invade landscapes**
- **cause allergic reactions**

# Identification



**ENGLISH  
IVY**



**PHRAGMITES**



**JAPANESE  
STILTGRASS**

# Identification



**CHINESE  
PRUVET**



**AUTUMN OLIVE**



**TREE OF  
HEAVEN**

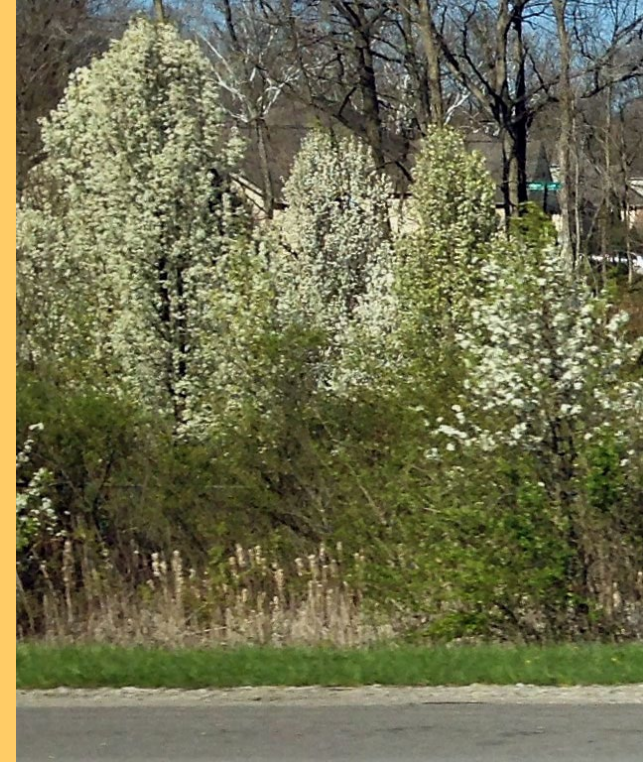
# Identification



**JAPANESE  
HONEYSUCKLE**



**KUDZU**



**CALLERY PEAR**





# MANAGEMENT

## PREVENT

- Don't buy
- Clean boats
- Clean tools
- Prevent seed
- Limit soil disturbance
- Plant natives

## PHYSICAL MECHANICAL

- Pull
- Dig
- Rake
- Cut/girdle
- Smother
- Burn
- Graze

## CHEMICAL

- Herbicides
  - pre-emergent
  - post-emergent
  - spot treat
  - dip & clip
  - hack & squirt
  - wick/wipe

**time, labor, commitment**

# Virginia Invasive Species Management Plan

## Virginia Invasive Species Management Plan 2018



Prepared by  
Virginia Invasive Species Advisory Committee

Prepared for  
Virginia Invasive Species Working Group

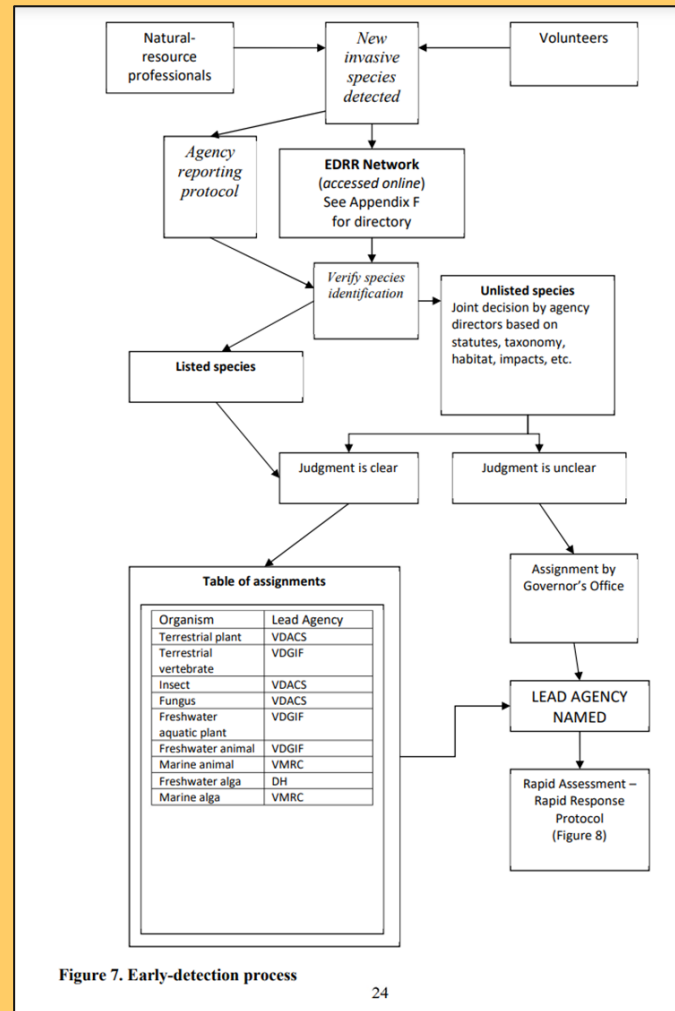


Figure 7. Early-detection process



# Invasive Plant Species of Virginia - Work Group

February 2021

House Joint Resolution 527

Virginia General Assembly

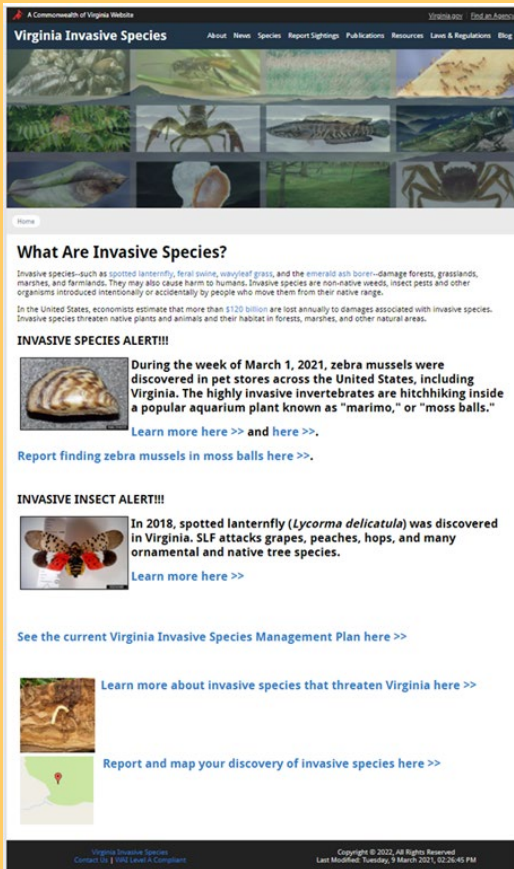
VA Department of Conservation and Recreation

VA Department of Agriculture and Consumer Services

study the sale and use of invasive plant species

# Resources

# LEARN



A Commonwealth of Virginia Website

Virginia Invasive Species


Home

### What Are Invasive Species?

Invasive species—such as spotted lanternfly, feral swine, wavyleaf grass, and the emerald ash borer—damage forests, grasslands, marshes, and farmlands. They may also cause harm to humans. Invasive species are non-native weeds, insect pests and other organisms introduced intentionally or accidentally by people who move them from their native range.

In the United States, economists estimate that more than \$120 billion are lost annually to damages associated with invasive species. Invasive species threaten native plants and animals and their habitat in forests, marshes, and other natural areas.

#### INVASIVE SPECIES ALERT!!!




During the week of March 1, 2021, zebra mussels were discovered in pet stores across the United States, including Virginia. The highly invasive invertebrates are hitchhiking inside a popular aquarium plant known as “marimo,” or “moss balls.”

[Learn more here >>](#) and [here >>](#).

[Report finding zebra mussels in moss balls here >>](#).


#### INVASIVE INSECT ALERT!!!




In 2018, spotted lanternfly (*Lycorma delicatula*) was discovered in Virginia. SLF attacks grapes, peaches, hops, and many ornamental and native tree species.

[Learn more here >>](#)

[See the current Virginia Invasive Species Management Plan here >>](#)



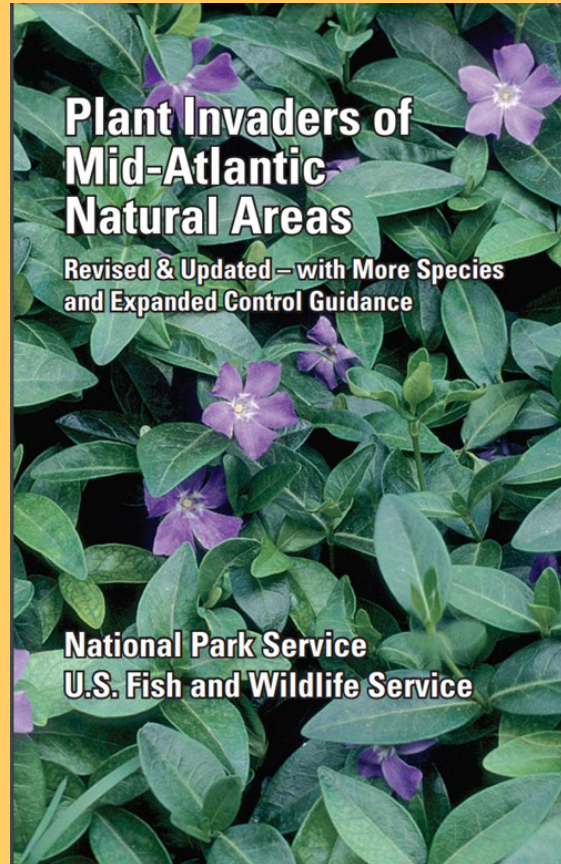
[Learn more about invasive species that threaten Virginia here >>](#)



[Report and map your discovery of invasive species here >>](#)

Virginia Invasive Species  
Contact Us | W3 Level 4 Complaint

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Last Modified: Tuesday, 9 March 2021, 02:26:45 PM



## Plant Invaders of Mid-Atlantic Natural Areas

### Revised & Updated – with More Species and Expanded Control Guidance

## National Park Service U.S. Fish and Wildlife Service

## Invasive Alien Plant Species of Virginia

**Autumn Olive (*Elaeagnus umbellata* Thunberg)**

**Russian Olive (*Elaeagnus angustifolia* L.)**

### Description

Autumn olive is a deciduous shrub or small tree in the Oleaster family. Leaves are alternate, oval to lanceolate, and untoothed. The underside of the dark green leaf is covered with silver-white scales. The plant may grow to a height of 20 feet. The small, light yellow flowers are borne along twigs after the leaves have appeared early in the growing season. The small, round, juicy fruits are reddish to pink, dotted with scales, and produced in great quantity. Autumn olive is easily confused with a closely related species, Russian olive (*Elaeagnus angustifolia*), which is also an invasive species. Russian olive has elliptic to lanceolate leaves, its branches are usually thorny, and its fruit is yellow, dry and mealy. Identification should be confirmed by a specialist.

### Habitat

Autumn olive has nitrogen-fixing root nodules which allow it to thrive in poor soils. Typical habitats are disturbed areas, roadsides, pastures and fields in a wide range of soils. Autumn olive is drought tolerant and may invade grasslands and sparse woodlands. It does not do well on wet sites or in densely forested areas.

Russian olive can be found in dry to moist soils, but does particularly well in sandy floodplains.

### Distribution

Autumn olive was introduced to the United States from east Asia in the 1830s. It is found from Maine south to Virginia, and west to Wisconsin. Autumn olive was planted in the eastern and central United States for revegetation of disturbed areas. Birds forage on its fruit and contrib-

ute to seed dispersal. It is widely distributed in Virginia, having been recorded in 46 counties.

Russian olive, native to Eurasia, was planted as an ornamental and escaped cultivation in the central and western United States. At this time, Russian olive is rare in Virginia, where it has been reported only from Accomack, Fairfax, Northumberland and Warren counties.

### Threats

Autumn olive is a very troublesome invasive species in Virginia. In addition to its prolific fruiting, seed dispersal by birds, rapid growth and ability to thrive in poor soil, Autumn olive resprouts vigorously after cutting or burning. It creates heavy shade which suppresses plants that require direct sunlight.

Although rare in Virginia, Rus-



Autumn Olive (*Elaeagnus umbellata*)

sian olive poses similar threats. In the western United States it has be-

For more information, contact the Department of Conservation and Recreation or the Virginia Native Plant Society.

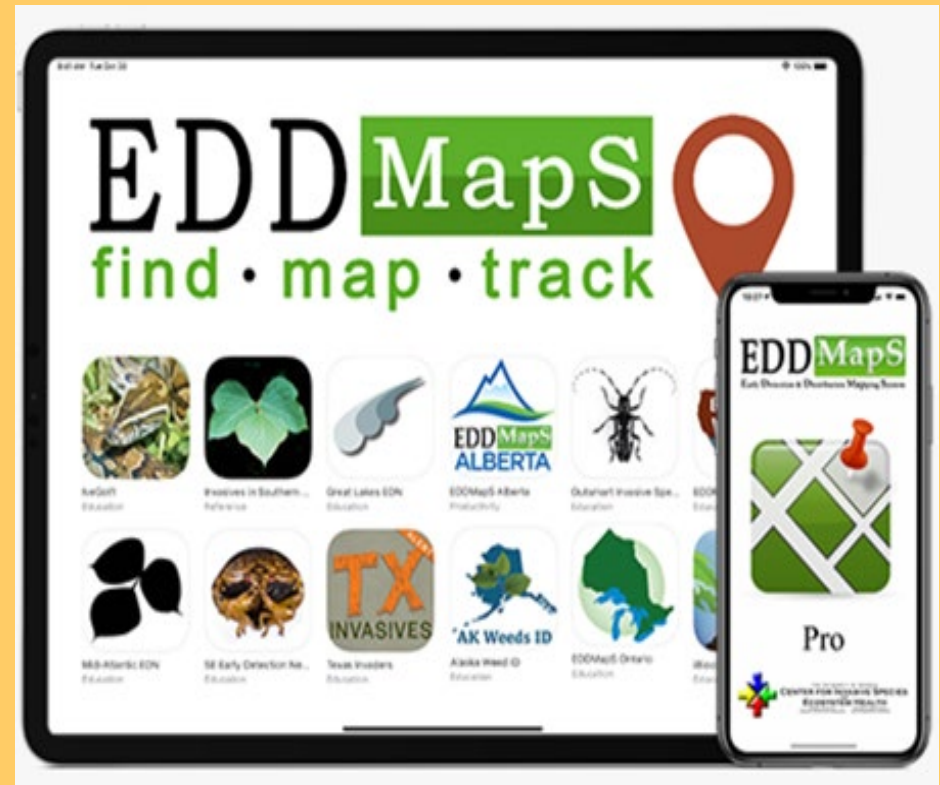
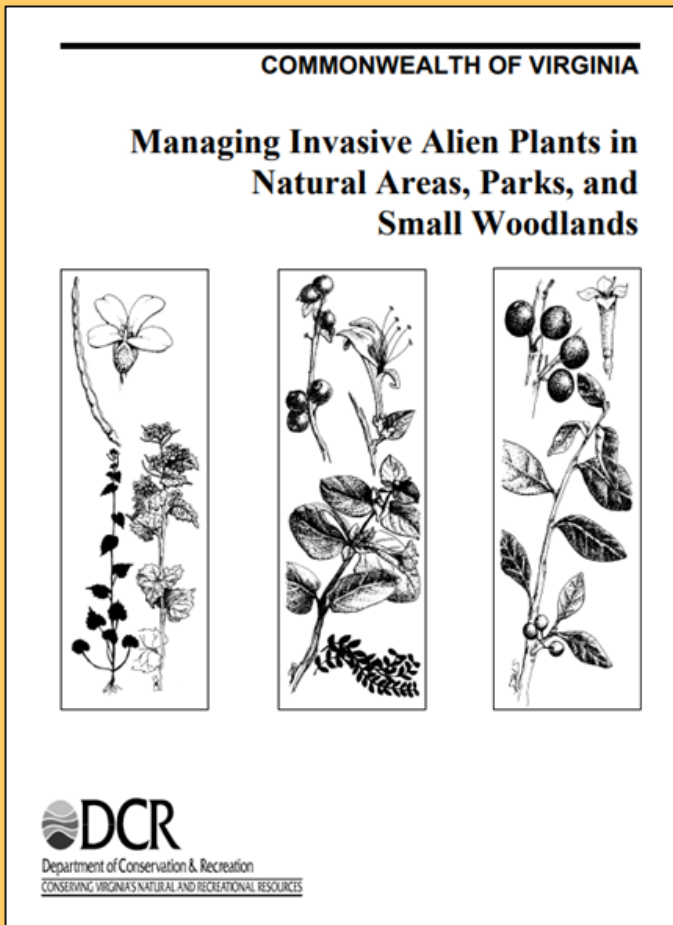
**DCR**  
Department of Conservation & Recreation  
1500 E. Main Street, Suite 312, Richmond, VA 23219  
(804) 786-7951



Virginia Native Plant Society  
P.O. Box 844, Annandale, VA 22030

# Resources

DO



**Early Detection & Distribution Mapping System**

[www.dcr.virginia.gov](http://www.dcr.virginia.gov)

# Resources

DO

The logo for Blue Ridge PRISM is contained within a rounded rectangular border. It features a teal header with the text 'BLUE RIDGE PRISM' in white. Below the header is a stylized landscape with a teal arc and green hills. The bottom section is a light green box with white text.

**BLUE RIDGE  
PRISM**

**PARTNERSHIP  
FOR REGIONAL INVASIVE  
SPECIES MANAGEMENT**



**Northern Virginia  
Partnership for Regional  
Invasive Species Management**

Resources

HELP



**Virginia Cooperative Extension**

Virginia Tech • Virginia State University



# The True Costs of Invasive Species

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