

Best Management Practices for Invasive Plants

Invasive Plant Project Team, Reston Association's Environmental Advisory Committee

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What are invasive plants?

Invasive plants are defined as a species that are non-native (or alien) to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.^{1 2}

Why are invasive plants problematic?

Invasive plants can grow rapidly and compete with native species for natural resources. Additionally, they may alter habitats and reduce biodiversity and degrade the quality and quantity of food available for wildlife. Invasive plants lack competition in newly disturbed environments which allows them to overrun and spread in an area.

Experts agree that non-native, invasive species are the second most serious threat to the quality of natural areas and their ability to support wildlife with only habitat loss being a more serious threat.³

Like other areas in the United States and around the world, invasive plants can be found throughout our community on private and public lands, including cluster properties, single family lots, commercial areas and Reston Association's natural areas.

Who we are; and what are our goals?

We are a team of volunteers with the Reston Association's Environmental Advisory Committee, and we want to assist homeowners and clusters in identifying and safely removing invasive plants in order to increase native plant biodiversity and improve our

¹ Definition from the [US Department of Agriculture - Forest Service](#)

² [Executive Order 13112](#), US Department of Agriculture

³ [Beautiful and Destructive: Invasive Plants Archived Discussion Room](#), Fairfax County

ecosystem. We hope that all landowners will educate themselves about invasive plants and help control their spread.

Key Best Management Practices (BMPs) for Invasive Plant

Management

- Learn to identify invasive plants common in your area.
- Conduct an inventory of invasive plants when developing plans for management activities and assess the extent of invasive plants on and near the property by scouting, locating and documenting infestations.
- Develop response/control plans to treat invasive plants when found.
- Educate property users about invasive plants, their impacts, and ways to prevent their introduction and spread.
- Encourage all property users to follow BMP practices.
- Consider ways to prevent or limit the potential introduction and spread of invasive plants when planning for activities on the property.
- Properly dispose of soil, seeds or plant parts found during inspection and cleaning.
- Ensure construction and maintenance equipment and materials (such as mulch, gravel, topsoil, compost, etc.) are free of invasive plants.

This brochure highlights invasive plant issues that clusters, condos and our neighbors might encounter and provides guidelines for preventing their introduction and spread.

DETECT—ASSESS—RESPOND

General Principles to Reduce the Impact of Invasive Plants

- Learn to identify invasive plants and incorporate their management into any land-use plan.
- Prevent introduction of invasive plants to uninfested sites. This critical component is one of the most cost-effective methods of management.
- Contain and treat new invasive plants or those not yet well-established. Controlling small infestations is more effective and economical than trying to control well-established, rapidly spreading infestations.

- Minimize transport of invasive plants from infested to uninfested areas. Cleaning vehicles and equipment is the most effective method of prevention.
- Use weed free soil, fill, and mulch in construction projects. Monitor sites where potentially infested materials were used.
- Minimize soil disturbance. Invasive plants often prefer disturbed ground; don't disturb soil unless it is necessary. Monitor disturbed sites through several growing seasons for invasive plants.
- Maintain desirable native species: Establishing and maintaining competitive, desirable plants along roadsides and disturbed areas prevents or slows establishment of invasive plants.

Risk Reduction: Early Detection Through Monitoring

- Monitor disturbed habitats for newly established invasive plants.
- Sites to monitor include roadsides, stream sides, recently flooded areas, storm damage areas, paths and trails, new construction, landscaping sites, etc.
- Mark known infestations on a map (e.g., cluster layout maps) and flag them in the field for easy re-location.
- Search the surrounding areas for any "satellite" infestations and mark them as well.

Control Mechanisms

There are three main methods used for the control of invasive plants - biological, mechanical, and chemical.

- *Biological* control is the intentional manipulation of a plant's natural enemies by humans for the purpose of controlling pests.
- *Mechanical* control includes mowing, hoeing, cultivation, and hand pulling. Alternative methods involve covering infested soil with black plastic sheets and using black plastic bags (aka buckthorn bags) to cover emerging vines and shrubs.
- *Chemical* control involves using foliar spraying, basal spraying, cut stump applications, and injections or hack-n-squirt to treat invasive plants. Chemical control should be considered a last resort for most invasive ground cover plants, shrubs and vines.

Note: The use of any herbicide is at the risk of the user; read and follow all label instructions for use, storage, and disposal. The herbicide label is the LAW. For assistance with recommendations for specific plants, contact the Fairfax County

Master Gardener Association, Inc. They maintain a phone-in help line, email response, and walk-in question/answer service. Details and contacts are available at <https://fairfaxgardening.org/help-desk/>

A combination of these three methods can also be used in an integrated weed management approach which some authorities would consider as the fourth method.

Primary Invasive Plants Observed

Some of the primary invasive plants seen around Reston includes Autumn Olive, Bush Honeysuckle, English Ivy, Exotic Bamboos, Japanese Honeysuckle, Japanese Stiltgrass, Mile-A-Minute, Multiflora Rose and Porcelain-Berry. Plant profiles and identification details are provided at the end of this document in the Appendix.

A list of all invasive plant species observed in Virginia can be found on the Virginia Department of Conservation and Recreation website.⁴ Many of Reston's invasive plant sightings have been recorded on EDDMapS, a tool that enables land managers and researchers to monitor the distribution of invasive plants.⁵

Deer Population and Impact on Invasive Plants

The spread of invasive plants in forest understories (for example the Bush Honeysuckle), are increasingly being attributed to white-tailed deer. White-tailed deer can spread invasive plants either directly or indirectly. The direct spread involves deer carrying seeds on their hooves which are carried to other areas, or directly feeding on the seeds of invasive plants and then depositing those seeds elsewhere via defecated piles of droppings. The seeds of some invasive plants are so hardy that despite them passing through the deer's gut, they can still be viable and germinate.⁶

Deer indirectly promote the establishment of invasive plants by over-browsing the native understory creating conditions that allow seeds of non-native invasive plants to germinate and spread.

⁴ *Invasive Plant Species of Virginia*, Virginia Department of Conservation & Recreation: <https://www.dcr.virginia.gov/natural-heritage/invspinfo>

⁵ EDDMapS: <https://www.eddmaps.org>

⁶ *When the "Good Guys" Go Bad: The Role of Native Fauna in the Spread of Invasive Plants*. Virginia Native Plant Society: <https://vnps.org/when-the-good-guys-go-bad-the-role-of-native-fauna-in-the-spread-of-invasive-plants/>

Grants and Funding

- [Audubon at Home, Audubon Society of Northern Virginia](#): Grants available to homeowners and associations to beautify their neighborhood entrances using low maintenance native plants. Applications close May 31st.
- [Urban and Community Forestry Grant Program, Virginia Department of Forestry](#): Encourages projects that promote the protection and enhancement of urban and community forest ecosystems, tree planting, the care of trees, and education on tree issues in cities, towns and communities. Funds are available up to 50% of the project's total cost.
- [Neighborhood Forest Management, Virginia Department of Forestry](#): Virginia's Urban Forest Conservationist can provide a no cost assessment and 10-year Neighborhood Forest Management Plan at the request of any homeowner's association or cluster board.
- [Arbor Day Foundation TD Green Space Grant](#)
- [Plant America Community Project](#)

Resources and References

[Blue Ridge Partnership for Regional Invasive Species Management \(PRISM\)](https://blueridgeprism.org)

<https://blueridgeprism.org>

Connecticut River Coastal Conservation District, Inc., 2016. [*Invasive Plants In Your Backyard! A Guide to Their Identification and Control.*](#) Middletown, CT

[EDDMapS:](https://www.eddmaps.org)

<https://www.eddmaps.org>

[Fairfax County Stewardship Invasive Forest Plants](https://www.fairfaxcounty.gov/parks/sites/parks/files/assets/documents/naturalcultural/stewardship%20brochures/invasiveforestplants.pdf)

<https://www.fairfaxcounty.gov/parks/sites/parks/files/assets/documents/naturalcultural/stewardship%20brochures/invasiveforestplants.pdf>

[Fairfax Master Gardeners](https://fairfaxgardening.org)

<https://fairfaxgardening.org>

[Virginia Department of Conservation & Recreation - Invasive Plant Species of Virginia](https://www.dcr.virginia.gov/natural-heritage/invspinfo)

<https://www.dcr.virginia.gov/natural-heritage/invspinfo>

[Master Gardeners of Northern Virginia](https://mgnv.org/)

<https://mgnv.org/>

[Mid-Atlantic Invasive Plant Council](http://www.maipc.org)

<http://www.maipc.org>

[National Park Service: Invasive Plants](https://www.nps.gov/subjects/invasive/plants.htm)

<https://www.nps.gov/subjects/invasive/plants.htm>

[National Park Service: Northeast - Works in Parks Across the Country](https://www.nps.gov/subjects/invasive/ne.htm)

<https://www.nps.gov/subjects/invasive/ne.htm>

[National Park Service & US Fish and Wildlife Service - Plant Invaders of Mid-Atlantic Natural Areas](https://www.invasive.org/eastern/midatlantic/)

<https://www.invasive.org/eastern/midatlantic/>

[Plant NOVA Natives](https://www.plantnovanatives.org/)

<https://www.plantnovanatives.org/>

[Virginia Native Plant Society \(VPNS\)](https://vnps.org)

<https://vnps.org>

[USDA Forest Service](https://www.fs.fed.us/wildflowers/invasives/)

<https://www.fs.fed.us/wildflowers/invasives/>

Contacts

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Fairfax County: [Patricia Greenberg](#), Invasive Management Area (IMA) Program
Manager, Natural Resource Management and Protection Branch,
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703-324-8673

Virginia State: [Jim McGlone](#), Urban Forest Conservationist,

Virginia Department of Forestry

jim.mcglone@dof.virginia.gov

Appendix: Invasive Plant Profiles

Autumn Olive

Autumn Olive has become one of the most troublesome invasive plants. Originally cultivated for wildlife habitat and planted along roadsides to manage erosion. Its high seed production, as well as its ability to fix airborne nitrogen in its roots makes it capable of growing in infertile habitats, threatening native plant communities in many national parks in Virginia.

Fruit/Flower/Seed head

The small, rounded, single seeded fruit is borne on short stalks and ranges from 1/8 to 3/8-inch long and 3/16-inch wide. The fruit is silvery with brown scales in early summer, becoming juicy and yellow and ripening to a copper-speckled pink/red in fall. Fragrant, tubular, 4-petaled flowers appear in leaf axils individually or in clusters from late April to May. They are creamy white to light yellow.

Leaves

Oval or elliptic with blunt points, arranged alternately along the stem. Leaf edges are smooth and often wavy. Leaf size ranges from 2-4 inches long and up to 1 1/2 inches wide. Upper leaf surface is green to gray-green and smooth, and the underside is silvery and scaly.

Roots

Has nitrogen-fixing root nodules that allow it to grow on nutrient-poor sites.

Control mechanism

Mechanical: Dig plant out by the root using a weed wrench to lever plant out. Heavier equipment is required to remove the plant once it reaches around 4 inches in diameter or greater.

Native Species Alternatives (examples)

Black Chokeberry, Winterberry, Black Haw, Grey Dogwood, Shining Sumac



Photo ©: Connecticut River Coastal Conservation District, Inc.



Photo ©: Connecticut River Coastal Conservation District, Inc.

Sources

[*Invasive Plants In Your Backyard! A Guide to Their Identification and Control*](#), Connecticut River Coastal Conservation District, Inc.

[*Invasive Plant: Autumn Olive \(Elaeagnus umbellata\)*](#), Master Gardeners of Northern Virginia

[*Invasive Species Sheet – Autumn Olive*](#), Natural Resources Conservation Service, US Department of Agriculture

[*Beautiful and Destructive: Invasive Plants Archived Discussion Room*](#), Fairfax County

Bush Honeysuckle

There are a variety of Exotic Bush Honeysuckles in Reston, all of which can adapt to a range of conditions from sun to deep shade and wet to dry. They occur in disturbed habitats including forest edges, forest interiors, floodplains, old fields, pastures, and roadsides. Disturbance increases the likelihood of invasion.

Fruit/Flower/Seed head

Flowers paired, tubular, white to pinkish, fading to yellow, less than 1 inch long, borne from leaf axils, five petals, upper 4 fused; fruits are red to orange-red berries produced in late summer and persist through the winter.

Leaves

Opposite, ovate with a tapered tip, lightly pubescent, and up to 3 1/2 inches long.

Roots

Bush honeysuckle has a shallow root system, so seedlings and small plants can usually be removed easily by hand pulling, especially when soil is moist.

Control mechanism

Mechanical: Pull young plants by hand. Larger plants will need a weed lever-type tool or can be cut regularly for a few years.

Chemical: Application via cut stem, foliar and bark applications.

Native Species Alternatives (examples)

Sweet-shrub, American Fly Honeysuckle



Photo ©: Reston Association



Amur Honeysuckle berries.

Photo ©: Chuck Barger, University of Georgia, Bugwood.org

Sources

[*Invasive plants: Prohibited Plants in Reston*](#), Reston Association

[*Invasive Plant Corner – Bush Honeysuckle \(Lonicera Spp.\)*](#), Kentucky Native Plant Society

[*Invasive Plants: Bush Honeysuckles \(Lonicera spp.\)*](#), Master Gardeners of Northern Virginia

English Ivy

English Ivy is one of the most popular ground covers in North America. This woody, evergreen non-native perennial climbing vine was introduced by early European colonists. Its vigorous growth creates an “ivy desert” as it chokes out other plants on the ground, and it poses a threat to both buildings and trees as it grows up vertical surfaces.

Fruit/Flower/Seed head

Umbrella-shaped clusters of greenish flowers followed by dark, berry-like fruits.



Photo ©: Reston Association

Leaves

Juvenile—dull green, lobed, with distinct light veins; mature-glossy green and unlobed.

Roots

Branching shoots and air roots that generate a sticky substance, making it easy for English Ivy to climb to climb.

Control mechanism

Mechanical: Hand pull small vines when the soil is moist. Larger vines can be cut to treatable heights then chemically treated.

Chemical: Treat when new plants are young to prevent seed formation. Treat during winter when other plants are dormant.

Native Species Alternatives (examples)

Virginia Creeper, Fragrant Sumac, Yellowroot, Green and Gold, Marginal Wood Fern, Golden Ragwort, Christmas Fern

Sources

[Invasive plants: Prohibited Plants in Reston](#), Reston Association

[Invasive Plant Factsheet: English Ivy \(Hedera helix\)](#), Master Gardeners of Northern Virginia

[Plant Invaders of Mid-Atlantic Natural Areas](#), National Park Service & US Fish and Wildlife Service

Exotic Bamboos

First introduced in 1882 as ornamentals and still favored for their screening capabilities, these fast-growing grass species are invasive throughout the Mid-Atlantic natural areas. Exotic Bamboos are perennial evergreens that dominate sites, creating a monoculture. They displace native vegetation through crowding and shading, destroying healthy habitats. They eliminate forest understory causing erosion, harbor invasive mosquitoes, attract roaches and have no value to North American wildlife species.

Fruit/Flower/Seed head

Flowering is infrequent and unpredictable; flowers are grass-like and not especially showy.

Leaves

Strap-shaped and tapering with pointed tips, tough, somewhat papery or leathery, up to 10 inches long and 1-2 inches across.

Roots

Thin and fibrous (think big grass roots) and can go down 2-3 feet. The rhizomes, which is the part that actually spreads, usually stay fairly shallow, less than 12 inches.

Control mechanism

Mechanical: Cut shoots down to the ground then treat stumps with chemical treatment. Repeat over multiple growing seasons. Regular cutting and mowing will eventually kill most plants as their food reserves are exhausted.

Native Species Alternatives (examples)

Bottlebrush Grass, Eastern Redcedar, Switchgrass, Little Bluestem, Indian Grass

Sources

[Invasive plants: Prohibited Plants in Reston](#), Reston Association

[Invasive Plant Factsheet: Bamboo \(*Bambusa*, *Phyllostachys*, and *Pseudosasa* spp.\)](#), Master Gardeners of Northern Virginia

[Plant Invaders of Mid-Atlantic Natural Areas](#), National Park Service & US Fish and Wildlife Service



Photo ©: Reston Association

Japanese Honeysuckle

Japanese honeysuckle was introduced to Long Island, New York, in 1806 for ornamental, erosion control and wildlife uses. It is one of the most recognizable and well-established ornamental vines in the US. It is a fast-growing vine that twines around stems of shrubs, herbaceous plants and other vertical supports. In full sun, it forms large tangles that smother and kill vegetation. It can kill shrubs and saplings by girdling.

Fruit/Flower/Seed head

Flowers are bi-lobed, white turning yellow, highly fragrant and with nectar, produced in June; fruits are black, about a 1/4 inch in diameter, paired, produced in the fall.

Leaves

Paired (opposite), ovate to oblong-ovate, about 1 to 3 inches long by 1/2 to 1 1/2 inches wide, entire-margined except for young leaves which are often deeply toothed.

Roots

Japanese Honeysuckle vine roots can grow surprisingly deep, with roots sometimes growing more than 12 inches into the ground. Make sure to dig up all the roots and dispose of them in garbage bags.

Control mechanism

Mechanical: Small populations can be controlled by carefully hand-pulling trailing vines.

Chemical: Treat with foliar spray to semi-evergreen leaves in late fall when other vegetation is dormant.

Native Species Alternative (example)

Crossvine, Virginia Creeper

Sources

[Plant Invaders of Mid-Atlantic Natural Areas](#), National Park Service & US Fish and Wildlife Service

[Invasive Plant: Japanese Honeysuckle \(*Lonicera japonica*\)](#), Master Gardeners of Northern Virginia

[Invasive Plant Species of Virginia](#), Department of Conservation & Recreation



Photo ©: Bill Johnson, National Park Service & US Fish and Wildlife Service

Japanese Stiltgrass

Japanese Stiltgrass is a delicate annual grass that forms dense stands. It spreads by seed and by rooting at joints along the stem. A single plant can produce 100-1,000 seeds that remain viable in the soil for at least three years, and seeds germinate readily following soil disturbance. Seeds can also be transported by water, in soil and gravel, in nursery grown plants, and tracked by animals. It is very shade tolerant, and found most commonly in forested floodplains, and also in ditches, forest edges, fields and trails.



Photo ©: Connecticut River Coastal Conservation District, Inc.

Fruit/Flower/Seed head

Fruits are bristly (awned); flower stalks develop in axils of the leaves or at the top of the stems.

Leaves

Leaves are pale green, lance-shaped, asymmetrical, with a shiny midrib.

Roots

Slender branched roots that resemble stilts. The roots are shallow but rooting from stem nodes that touch the ground facilitates its spread.



Photo ©: Connecticut River Coastal Conservation District, Inc.

Control mechanism

Mechanical: Gently tugging on the grass can easily pull the root up from the ground.

Native Species Alternatives (examples)

Creeping Phlox, Foam Flower, Lady Fern, Wild Ginger, Virginia Cutgrass

Sources

[*Invasive Plants In Your Backyard! A Guide to Their Identification and Control*](#), Connecticut River Coastal Conservation District, Inc.

[*Plant Invaders of Mid-Atlantic Natural Areas*](#), National Park Service & US Fish and Wildlife Service

[*Invasive Plant Species of Virginia*](#), Department of Conservation & Recreation

Mile-A-Minute

This rapidly growing annual vine of the smartweed family can grow about a half foot per day, reach lengths of 20 feet and climb up to 15 feet in height. Although similar to two native *Polygonum* species (Arrow-vine and Halberd-Leaved Tearthumb), Mile-A-Minute differs from these primarily in its leaves and fruits. This prolific vine easily grows over other vegetation, stealing nutrients, choking stems, and blocking sunlight.

Fruit/Flower/Seed head

Berry-like, fleshy, and blue, approximately pea-sized. Flowering begins in early June and first seeds begin to ripen by early July.

Leaves

The leaves are light green, and perfectly triangular, about 1 to 3 inches wide, saucer-shaped sheath at the base of each leaf. Also called Tearthumb because of the spines on its leaves and stems.

Roots

Shallow and fibrous

Control mechanism

Biological: The Mile-A-Minute weevil, (*Rhinocominus latipes*) has been released in Reston to control Mile-A-Minute. This method of controlling Mile-A-Minute has proven successful in many locations around the US.

Mechanical: Hand pulling before they go to seed. Seed set begins in early August and terminates at first frost.

Native Species Alternatives (examples)

Arrow-Leaved Tearthumb, Halberd-Leaved Tearthumb



Photo ©: Connecticut River Coastal Conservation District, Inc.



Photo ©: Connecticut River Coastal Conservation District, Inc.

Sources

[*Invasive Plants In Your Backyard! A Guide to Their Identification and Control*](#), Connecticut River Coastal Conservation District, Inc.

[*Mile-a-minute weed Biological Control*](#), USDA Forest Service

[*Plant Invaders of Mid-Atlantic Natural Areas*](#), National Park Service & US Fish and Wildlife Service

Multiflora Rose

Multiflora Rose is a perennial shrub from Asia originally introduced in the US in the 1860. This thorny shrub can both climb like a vine and form dense thickets. It can be spread by wildlife when seeds are dispersed after eating the fruit. Often found in old fields, along roads, streambanks and in forest gaps.

Fruit/Flower/Seed head

Clusters of fragrant showy white flowers; small, smooth, reddish rosehips persist into early winter.

Leaves

Compound leaves composed of oval to lance-shaped leaflets; feathery, deeply fringed stipule at base of each leaf.

Roots

Vigorous root system established when cane tips touch the ground and grow roots to form new plants.

Control mechanism

Mechanical: Hand pull small plants, or dig up and pull large plants, ensuring removal of all roots as they can resprout.

Chemical: Treat with foliar spray to cut stems at any time, although treatment is more effective in the fall when nutrients are being sent to the roots.

Native Species Alternatives (examples)

Chokeberry

Sources

[Invasive Plants In Your Backyard! A Guide to Their Identification and Control](#), Connecticut River Coastal Conservation District, Inc.

[Invasive Plants in Northern Virginia: Multiflora Rose](#), Master Gardeners of Northern Virginia

[Plant Invaders of Mid-Atlantic Natural Areas](#), National Park Service & US Fish and Wildlife Service

[Invasive Plant Species of Virginia](#), Department of Conservation & Recreation



Photo ©: Connecticut River Coastal Conservation District, Inc.



Photo ©: Connecticut River Coastal Conservation District, Inc.

Porcelain-Berry

Porcelain-Berry, also called amur peppervine, was originally cultivated as a bedding and landscape plant. In spite of its acknowledged invasiveness, it is still widely used and promoted in the horticultural trade.

Fruit/Flower/Seed head

Tiny, greenish-white flowers with petals separate at their tips occur in flat-topped clusters opposite the leaves; appear in summer (June through August); fruit is a speckled berry in colors ranging from aqua to pink to purple; each berry carries 2-4 seeds.

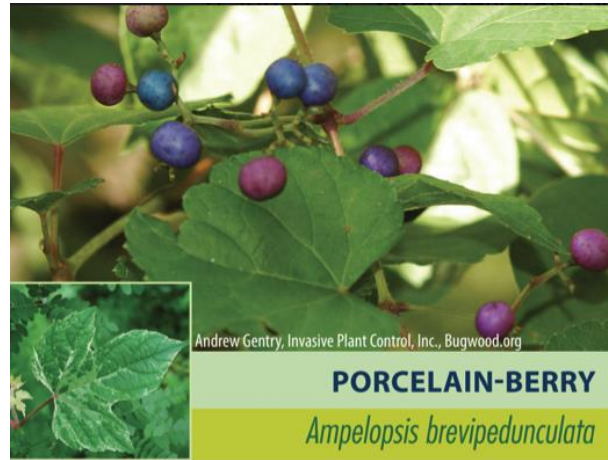


Photo ©: Reston Association

Leaves

Alternate, simple, 3-5 lobed to highly dissected with heart-shaped base and coarsely toothed margins, shiny underneath with hairs on veins.

Roots

Woody, fibrous, large and branched.

Control mechanism

Mechanical: Mechanical removal is ineffective owing to its extensive root system.

Chemical: Treat with foliar spray

Native Species Alternative (example)

Cross-vine

Sources

[Invasive plants: Prohibited Plants in Reston](#), Reston Association

[Plant Invaders of Mid-Atlantic Natural Areas](#), National Park Service & US Fish and Wildlife Service

[Invasive Plant Species of Virginia](#), Department of Conservation & Recreation

[Invasive Plant: Porcelainberry \(Ampelopsis brevipedunculata\)](#), Master Gardeners of Northern Virginia