

Invasive Plant Species Management Plan for Richmond National Battlefield

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Executive Summary

This management plan:

- 1) describes the process to prioritize management zones and invasive species treatments in Richmond National Battlefield,
- 2) determines park-specific priorities for invasive species management, and
- 3) provides detailed recommendations for the implementation of invasive species management in the park.

Invasive Plant Species Management Plan for

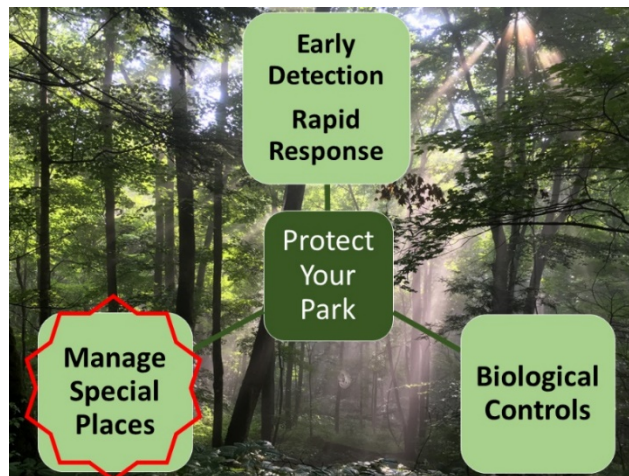
Richmond National Battlefield

Invasive exotic plants threaten the natural and cultural resources of Richmond National Battlefield (RICH). These unwelcome invaders reduce native biodiversity, alter forest structure, suppress tree regeneration, degrade wildlife habitat, and pose significant threats to the long-term condition of parks' forest health and cultural resources. A recent analysis by NPS scientists of 12 years worth of data collected from over 1,400 forest plots in 39 eastern national parks showed that invasive plants are a large and, literally, growing problem for many national parks (Miller et al. 2020).

Recent forest health monitoring (2015-2018, Miller et al. 2020) in RICH showed at least one invasive species was detected over 80.0% of plots. The shrub guild was the most abundant invasive guild in RICH, although the most abundant invasive species were Japanese stiltgrass (*Microstegium vimineum*) and Japanese honeysuckle (*Lonicera japonica*). Since invasive plants are inherently difficult to control, the effective management of these species is challenging.

Therefore, RICH has adopted a three-pronged approach to managing invasive species:

- 1) early detection and rapid response,
- 2) strategically treating invasive species to protect the park's special places,
- 3) release of approved biological controls.



Early Detection and Rapid Response

The most cost-effective and ecologically viable method to control invasive species is to stop the spread of new and emerging invasive species before they become established in the park. In collaboration with the Mid-Atlantic Inventory and Monitoring Network (MIDN), RICH maintains a target list of invasive species (Table 1) for early detection and rapid response. These species are not yet established in the park, but are likely to invade given their regional distribution. Each year, the early detection target list should be given to all NPS staff who will be working in the field, as well as partner agencies, volunteers, and outside researchers conducting field work in the park. All observations of target invasive species in the park should be reported to Kristen Allen, Chief of Natural and Cultural Resources, who will coordinate the rapid response to treating the new invader.

Table 1. List of target invasive species for early detection and rapid response at Richmond National Battlefield. An "X" indicates the species is a target in that management zone. Species highlighted in yellow have not been documented in the park and are early detection targets throughout the park, as well as in all management zones.

Park Unit / Management Zone		Totopotomoy Creek		Turkey Hill	Gaines' Mill				Cold Harbor	Chickahominy Bluff	Malvern Hill					Fort Harrison
Common Name	Latin Name	Totopotomoy Crk Floodplain	Totopotomoy Crk Field Edge	Turkey Hill Wetland	Boatswain Creek Viewshed	Powwhite Creek Viewshed	Gaines' Mill Wetland	West House Viewshed	Seepage Swamp	Chickahominy Bluff	Cypress Swamp	Malvern Hill Grassland	Malvern Hill View East	Malvern Hill View West	Willow Oak Wet Forest	Fort Harrison Oak Hickory
chocolate vine	<i>Akebia quinata</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Incised fumewort	<i>Corydalis incisa</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
winter creeper	<i>Euonymus fortunei</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
lesser celandine	<i>Ficaria verna</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
giant hogweed	<i>Heracleum mantegazzianum</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
chinaberry tree	<i>Melia azedarach</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
wavyleaf basket grass	<i>Oplismenus undulatifolius</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
meadow fescue	<i>Schedonorus pratensis</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
swallow-wort	<i>Vincetoxicum</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
black swallow-wort	<i>Vincetoxicum nigrum</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pale swallow-wort	<i>Vincetoxicum rossicum</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tree of heaven	<i>Ailanthus altissima</i>			X					X							
garlic mustard	<i>Alliaria petiolata</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
porcelian berry	<i>Ampelopsis brevipedunculata</i>	X	X	X	X	X	X	X	X		X	X	X	X	X	X
oriental bittersweet	<i>Celastrus orbiculatus</i>	X	X					X	X		X	X	X	X	X	
autumn olive	<i>Elaeagnus umbellata</i>	X		X	X	X	X		X		X	X	X	X	X	X
winged burningbush	<i>Euonymus alatus</i>	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Japanese knotweed	<i>Fallopia japonica</i>	X	X	X		X	X	X	X		X	X	X	X	X	X
sericea lespedeza	<i>Lespedeza cuneata</i>			X		X	X						X		X	X
shrub honeysuckles	<i>Lonicera spp.</i>	X	X	X	X	X	X	X	X		X	X	X	X	X	X
marsh dayflower	<i>Murdannia keisak</i>		X			X			X			X	X		X	X
mile-a-minute weed	<i>Persicaria perfoliata</i>	X	X	X	X	X	X	X	X		X	X	X	X	X	X
common reed	<i>Phragmites australis</i>	X	X	X	X	X		X	X	X	X	X	X	X	X	X
kudzu	<i>Pueraria montana</i>	X	X	X	X		X	X	X	X	X	X	X	X	X	X
multiflora rose	<i>Rosa multiflora</i>			X	X	X	X		X	X	X		X			X
wine raspberry	<i>Rubus phoenicolasius</i>	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Johnson grass	<i>Sorghum halepense</i>	X	X	X	X				X	X	X			X	X	X
Chinese wisteria	<i>Wisteria sinensis</i>	X		X		X	X	X	X		X	X	X	X	X	X

Strategically Manage RICH's Special Places

Managing invasive plant species can seem like an endless and insurmountable challenge, so focusing limited time and resources where they can be most effective is key to successfully tackling the invasives problem. By strategically focusing treatments on their special places, parks can efficiently treat invasive plants in areas that are most important to preserve.

This management plan provides that strategic focus by identifying the places and invasive species within RICH that are highest priority for invasive species treatment. This plan was created using the Invasive Plant Species and Habitat Management Planning Process developed by Art Gover at Penn State's Wildland Weed Management Unit (Gover 2016). This planning process is based on several important principles:

- Parks have finite resources that can only be directed to a small portion of potential natural resource needs.
- We can use park-specific data to make informed strategic decisions with limited resources. Strategic management is effective by protecting natural resources without wasted effort.
- Protecting the best sites within a park maximizes the benefit to park natural resources per person-hour expended on invasive species management.
- Inaction is more harmful than action. The decision NOT to manage invasive plant species has continued and increasingly negative impacts on the park's natural resources.

The Invasive Plant Species Management Planning Process involves three steps: define management zones, prioritization, and prescription.

Define Management Zones

To determine which areas of the park are more important to preserve, we assembled a team knowledgeable about RICH's invasive species, including two park natural resources staff, the regional Invasive Plant Management Team (IPMT) Lead, and two vegetation monitoring specialists from MIDN. This team met virtually to delineate management zones within RICH (Figure 2). Management zones are discrete areas of the park that are ecologically or culturally valuable and where invasive species management is operationally feasible.

The Management Zones (Figure 1a and 1b) were delineated based on several criteria: 1) locations of unique, sensitive, and/or high ecological integrity natural plant communities (e.g., native grass meadows, intact oak hickory forests, cypress forest), including those documented by the Virginia Department of Conservation and Recreation's Natural Heritage Program; 2) viewsheds important for interpreting the park's cultural mission; and 3) results of invasive species surveys by park staff, IPMT treatments, and MIDN forest health monitoring. We identified 16 management zones, ranging in size from 8 to 194 acres, and then we assigned a Stewardship Index based on the ecological value

of the zone's resources, and an Outreach Index that captured the value of the zone to the park's interpretation and outreach goals (for further details see Gover 2016).

Prioritization

We then used a prioritization tool (Gover 2016) housed in an excel workbook to prioritize which management zones and which invasive species should be managed in order to maximize the benefit to park resources. First, data on invasive species were collected from:

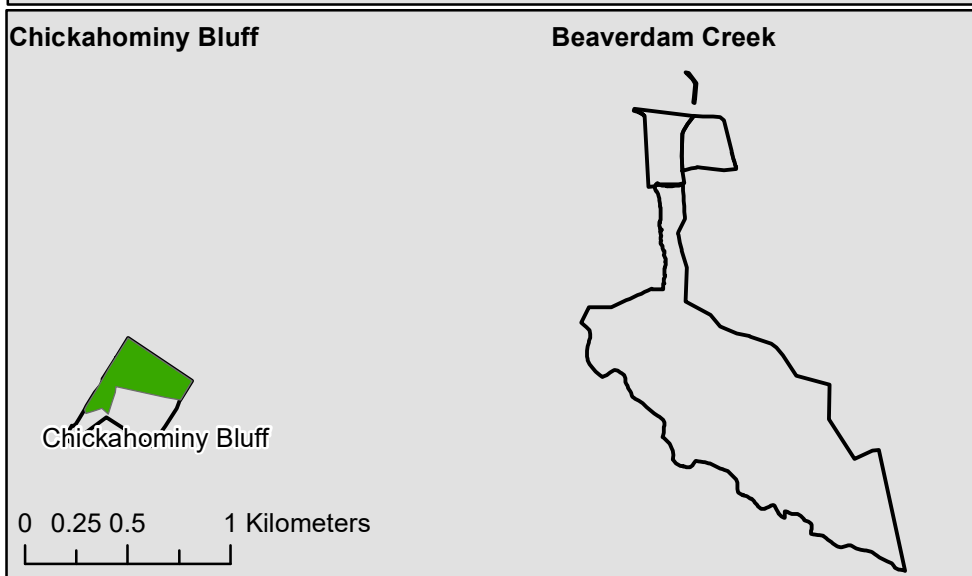
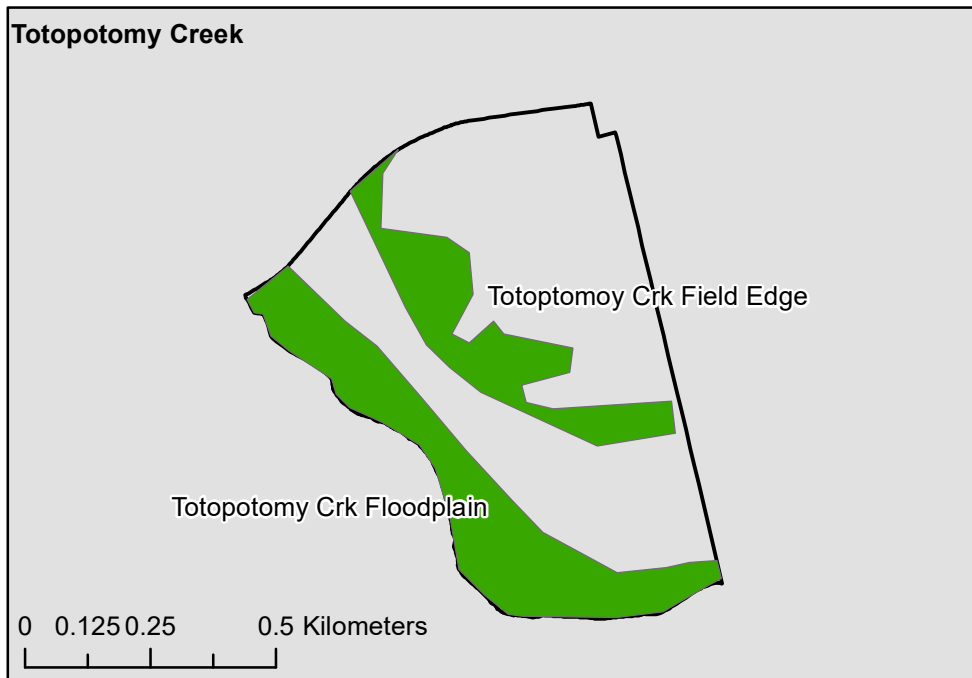
- a) park-wide invasive species surveys conducted by park staff from 2005 - 2013,
- b) IPMT invasive treatment data from 2015 – 2019,
- c) vegetation classification plots (2004) and accuracy assessment points (2006) collected for the park's vegetation classification and mapping project (Patterson 2008),
- d) long-term forest health monitoring data collected from 2016 to 2019 as part of MIDN Forest Health Monitoring (Comiskey et al. 2009),
- e) publicly available data from iNaturalist (2016 – 2020).

From those data, we identified the invasive species known to occur in the 16 management zones, and then categorized the species into three groups:

- 1) Weedy non-native species (e.g., beefsteak plant (*Perilla frutescens*), common mullein (*Verbascum thapsus*), and periwinkle (*Vinca* spp.)) that can act invasively, but do not cause as much ecological harm, relative to other invasive species which are known to be problematic in the park. These species were excluded from the prioritization tool.
- 2) “Super Bad” invasive species that cause significantly greater negative impact to park resources (e.g., invasive shrubs, Japanese stiltgrass (*Microstegium vimineum*), kudzu (*Pueraria montana*), and others). Virginia Department of Conservation and Recreation's Natural Heritage Program invasiveness rankings were used as guidelines. These species were given higher priority by the tool.
- 3) The remaining invasive species known to occur in the management zones were included in the prioritization tool as “regular” invasive species (see Gover 2016 for more details).

Next, we evaluated the level of infestation of each known invasive plant species in each zone, the potential impacts of those invasive species on the habitats, the difficulty of managing those invasives, and the restoration effort required in each habitat. The prioritization tool ranks and weights all of these inputs to create a prioritization matrix (Table 2) that provides strategic direction for managers to protect the best sites within the park.

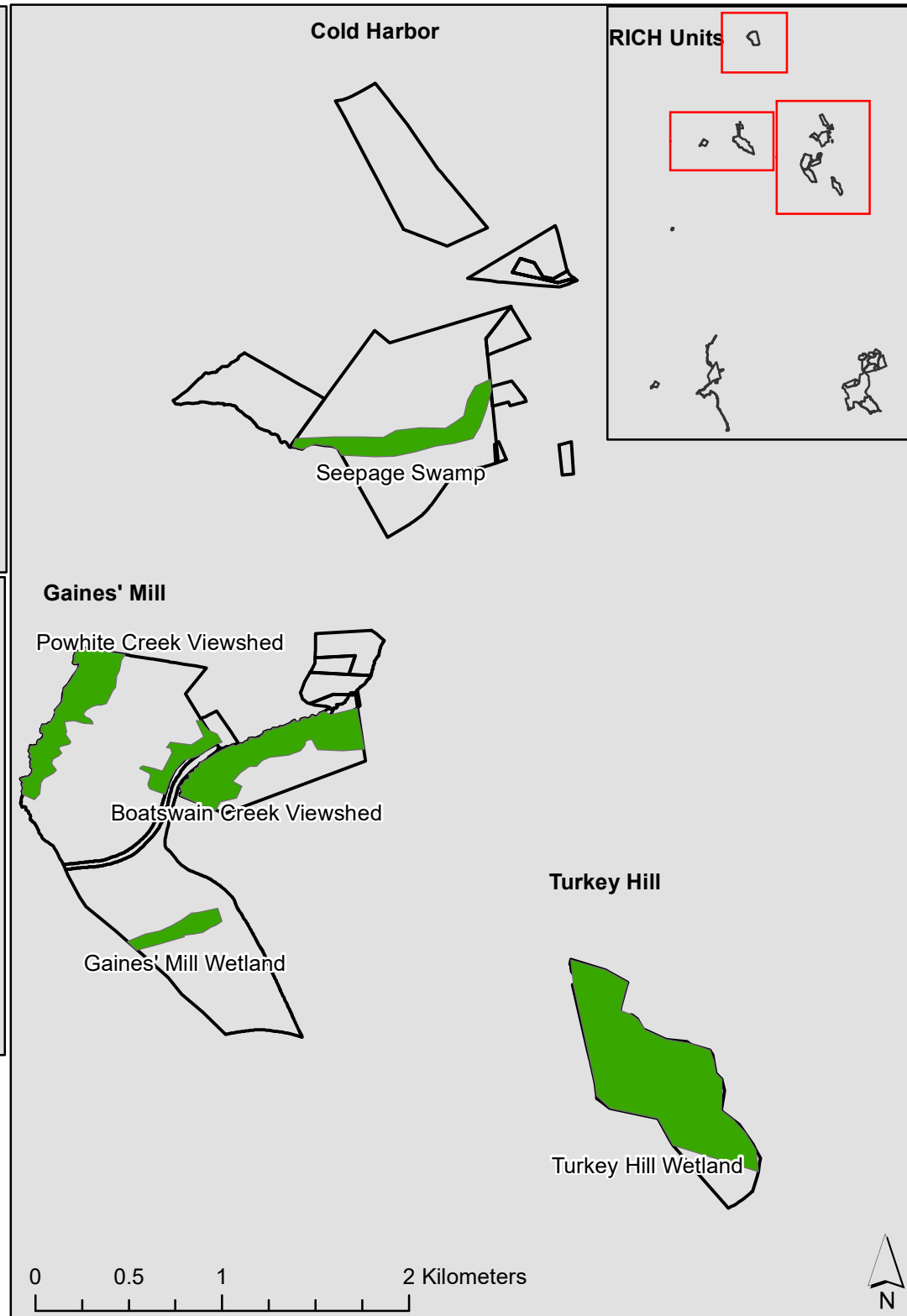
The highest priority zones for invasive species management are: Cold Harbor Seepage Swamp, Willow Oak Wet Forest, Cypress Swamp, Fort Harrison Oak Hickory Forest, Malvern Hill Grassland, Turkey Hill Wetland, Totopotomoy Creek Floodplain, and Boatswain Creek Viewshed. Invasive shrubs, trees, and woody vines are the priority species in those zones, specifically the species highlighted in red in Table 2. The next tier of zones includes Malvern Hill View East, Powhite Creek Viewshed, Gaines' Mill Wetland, Malvern Hill View West, West House Viewshed, and Totopotomoy Creek Field Edge, with the priority woody invasive species highlighted in orange in Table 2. Chickahominy Bluff is the lowest priority zone.

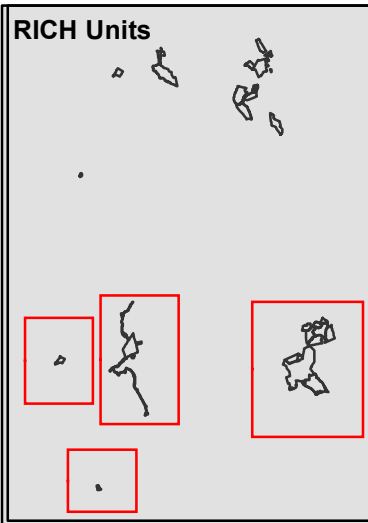


RICH Habitat Management Zones

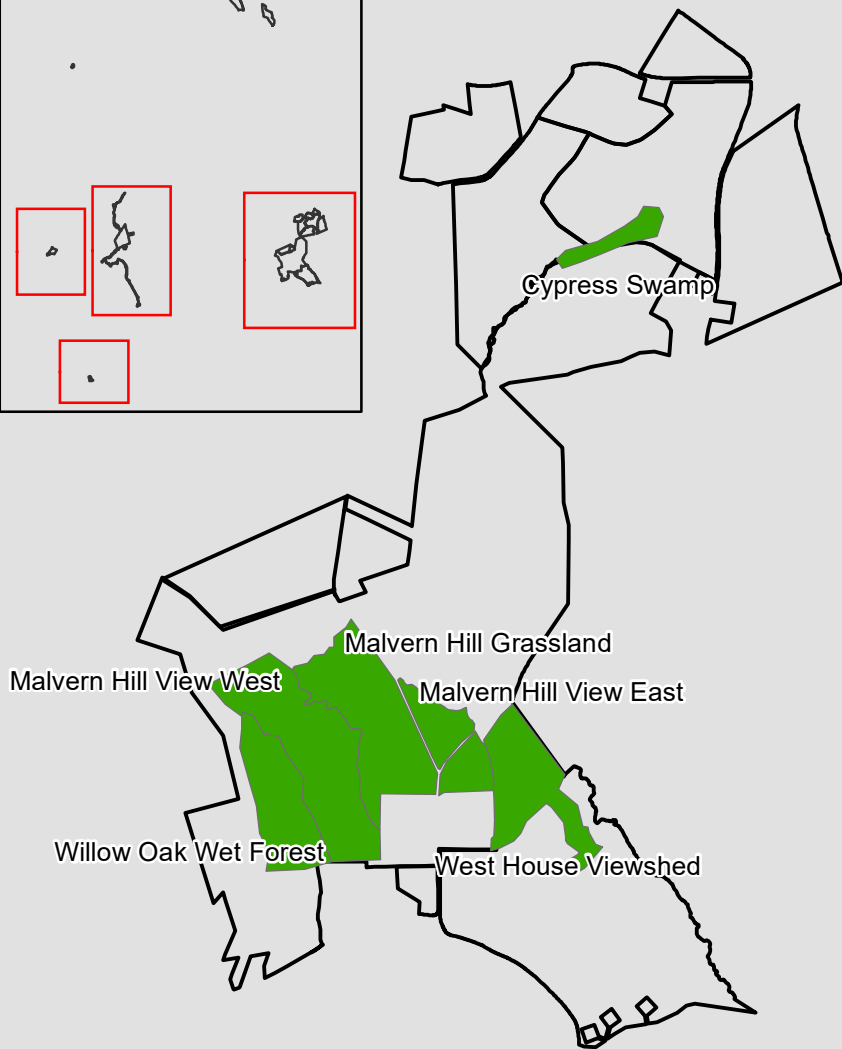
- Habitat Management Zones
- Park Boundary

Figure 1a. Habitat management zones for invasive plants in Richmond National Battlefield.



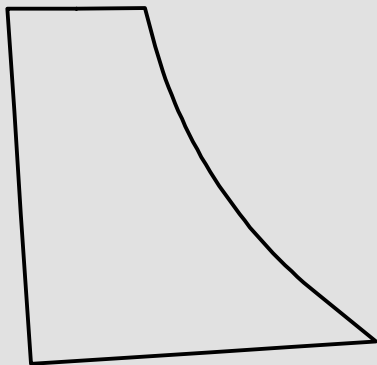


Malvern Hill



0 0.25 0.5 1 Kilometers

Parkers Battery



0 0.05 0.1 0.2 Kilometers

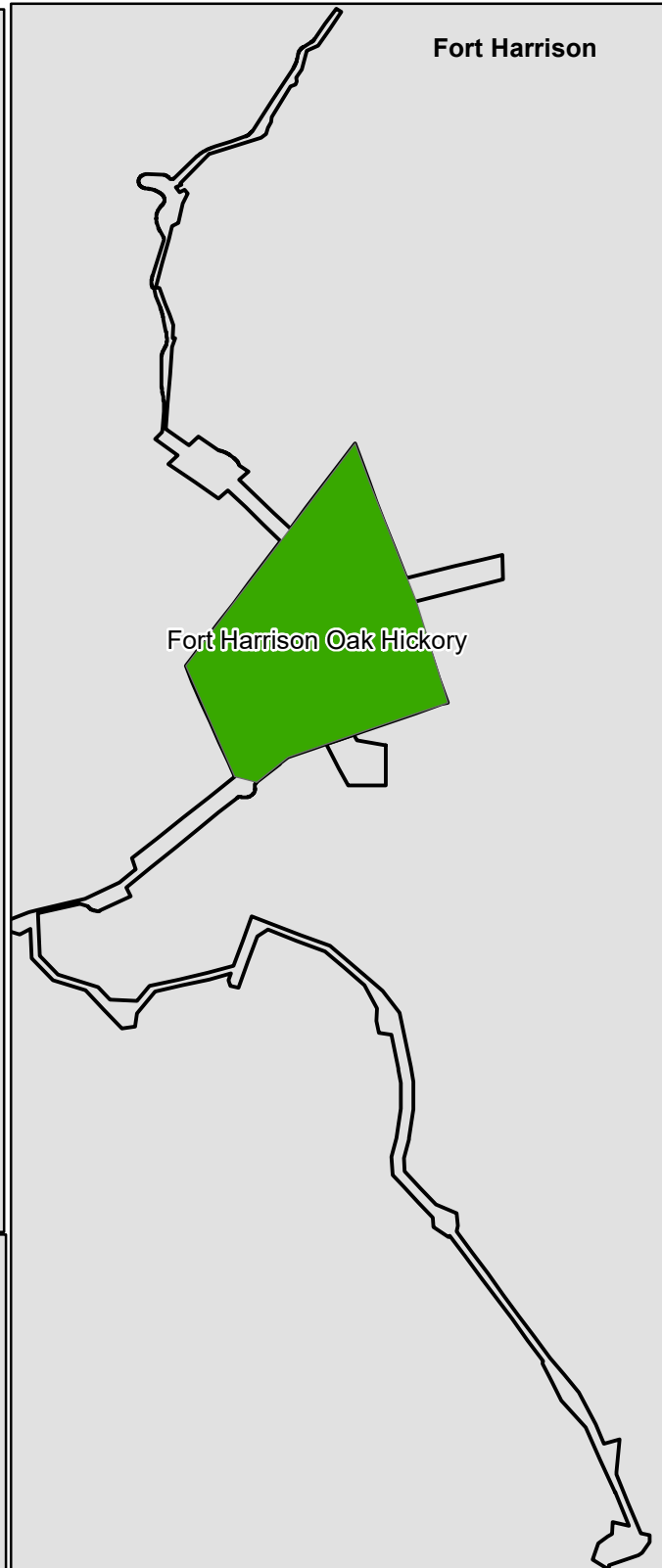
RICH Habitat Management Zones

 Habitat Management Zones

 Park Boundary

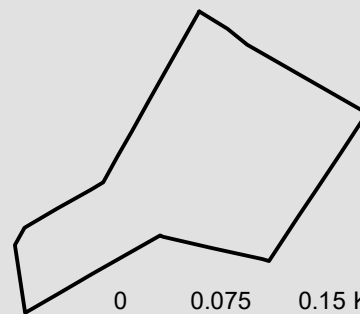
Figure 1b. Habitat management zones for invasive plants in Richmond National Battlefield.

Fort Harrison



0 0.5 1 2 Kilometers

Drewry's Bluff



0 0.075 0.15 Kilometers



Table 2. Priority habitat management zones (darker green indicates higher priority) and priority invasive species (higher number indicates higher priority) for Richmond National Battlefield.

[illegible]

The North Anna management zone could not be included in the prioritization tool because no invasive species data exist for this zone. Surveying for and collecting data on the distribution and abundance of invasive species in the North Anna management zone is a high priority for the 2021 field season, since the North Anna zone received the high stewardship (2) value (though a zero for outreach value).

Prescription

Last, we described how strategic invasive species management will be implemented in the park. The prescription specifies: **who** will be doing the work, **how** the invasives will be managed, and **when** the management should be conducted for only the management zones that were identified as priorities and for only those invasive species that were identified as priorities in Table 2.

Other invasive species not specified by this plan may be treated while crews are in the management zones targeting priority species. Thus, species with lower ranks (e.g., 4, 5, 6) in Table 2 can also be treated when operationally efficient. For example, all invasive shrubs should be treated at the same time within a priority zone, even if the various shrub species received different priority rankings.

Appendix A contains the invasive species management prescriptions for the high priority zones and species. Many invasive management prescriptions require a Registered Technician or a Certified Applicator, someone who has completed the required trainings to use herbicides. In addition to conducting the treatments themselves, Certified Applicators can supervise non-credentialed applicators as long as they are in direct contact at the work site. Registered Technicians and Certified Applicators can be park staff, NPS Invasive Plant Team members, or contractors. There are many opportunities for volunteers and park partners to play an important role in invasive species management in RICH. Any treatments listed in Appendix A that are listed for volunteers can also be conducted by non-certified park staff.

Biological Controls

For invasive plants that are widespread, biological controls (also known as biocontrols) are often the only realistic management options. Biocontrols are host-specific insects or pathogens that feed only on one particular invasive plant. The biocontrols weaken the target invasive plant, limiting its spread and its ability to displace nearby native plants. The use of biocontrols is strictly regulated and guided by federal and state laws, an International Code of Best Practices, and specific protocols that are all designed to ensure the safety and effectiveness of biocontrol programs.

Psyllid insects that are currently being released as a biocontrol for Japanese knotweed would be beneficial to RICH. These insects have been released in several national park units in the eastern US. RICH can work with the US Forest Service Morgantown Field Office (specifically, Yun Wu <yun.wu@usda.gov> and Heather Smith <heather.c.smith@usda.gov>) to determine if the park can be a release site.

A verticillium wilt (*Verticillium nonalfalfae*) specific to tree-of-heaven (*Ailanthus altissima*) is in the process of being approved as a bio-pesticide through the US Environmental Protection Agency. This

non-chemical control agent is extremely effective at treating tree-of-heaven and should be utilized by NPS.

Strategic Management Protects Park Resources

Invasive species management is crucial to protecting the park's important natural and cultural resources. Inaction will result in declines in the park's forests, biodiversity, and the integrity of key cultural resources. The strategic prescriptions presented in this report direct scarce resources to the areas of the park where invasive species management will most benefit the park's cultural and natural resources.

This plan can be updated every 4 – 5 years, to determine progress on containing priority species in management zones and re-evaluate park priorities in light of staffing and funding levels. The latest monitoring data and new observations from the Invasive Species Early Detection / Rapid Response Program will be incorporated into the updated plan. However, the excel workbook prioritization tool can be updated at any time (e.g., new invasive species found, land parcel newly acquired by the park, etc), in order to evaluate evolving management priorities.

Literature Cited

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APPENDIX A

Treatment Prescriptions for: Cold Harbor Seepage Swamp, Willow Oak Wet Forest, Cypress Swamp, and Fort Harrison Oak-Hickory Forest

Priority Rank	Habitat Management Zone	Species	Lead Worker	Method	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Comments
8	Cold Harbor Seepage Swamp	sericea lespedeza	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan
3	Cold Harbor Seepage Swamp	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Cold Harbor Seepage Swamp	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Cold Harbor Seepage Swamp	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Cold Harbor Seepage Swamp	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Cold Harbor Seepage Swamp	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
8	Willow Oak Wet Forest	Japanese barberry	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Willow Oak Wet Forest	multiflora rose	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Willow Oak Wet Forest	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Willow Oak Wet Forest	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
8	Willow Oak Wet Forest	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Willow Oak Wet Forest	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
3	Willow Oak Wet Forest	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Willow Oak Wet Forest	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Willow Oak Wet Forest	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Willow Oak Wet Forest	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Willow Oak Wet Forest	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
8	Cypress Swamp	Chinese wisteria	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
8	Cypress Swamp	Chinese wisteria	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Cypress Swamp	Chinese wisteria	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
8	Cypress Swamp	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Cypress Swamp	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
8	Cypress Swamp	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Cypress Swamp	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
4	Cypress Swamp	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
3	Cypress Swamp	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Cypress Swamp	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Cypress Swamp	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Cypress Swamp	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Cypress Swamp	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
8	Fort Harrison Oak Hickory	empress tree	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Fort Harrison Oak Hickory	empress tree	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
8	Fort Harrison Oak Hickory	empress tree	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Fort Harrison Oak Hickory	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
7	Fort Harrison Oak Hickory	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Fort Harrison Oak Hickory	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Fort Harrison Oak Hickory	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Fort Harrison Oak Hickory	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Fort Harrison Oak Hickory	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Fort Harrison Oak Hickory	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
4	Fort Harrison Oak Hickory	English ivy	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
4	Fort Harrison Oak Hickory	English ivy	Registered Tech	Foliar-Broadleaf													6 oz/gal Vastlan or Rodeo
4	Fort Harrison Oak Hickory	English ivy	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Fort Harrison Oak Hickory	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Fort Harrison Oak Hickory	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Fort Harrison Oak Hickory	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Fort Harrison Oak Hickory	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Fort Harrison Oak Hickory	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Fort Harrison Oak Hickory	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L

Note: Add 0.25-0.5 oz / gallon of non-ionic surfactant to all foliar applications

Treatment Prescriptions for: Malvern Hill Grassland, Turkey Hill Wetland, and Totopotomy Creek Floodplain

Priority Rank	Habitat Management Zone	Species	Lead Worker	Method	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Comments
8	Malvern Hill Grassland	Japanese barberry	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Malvern Hill Grassland	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Malvern Hill Grassland	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
7	Malvern Hill Grassland	multiflora rose	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Malvern Hill Grassland	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Malvern Hill Grassland	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Malvern Hill Grassland	Johnson grass	Registered Tech	Foliar-Specialized													4 oz/gal Rodeo
3	Malvern Hill Grassland	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Malvern Hill Grassland	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Malvern Hill Grassland	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Malvern Hill Grassland	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Malvern Hill Grassland	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
8	Turkey Hill Wetland	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
8	Turkey Hill Wetland	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Turkey Hill Wetland	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
8	Turkey Hill Wetland	wineberry	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Turkey Hill Wetland	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Turkey Hill Wetland	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Turkey Hill Wetland	English ivy	Volunteer	Cut													Climbing vines; cut vines be sprayed by Registered Tech or Certified Applicator
4	Turkey Hill Wetland	English ivy	Registered Tech	Foliar-Broadleaf													6 oz/gal Vastlan or Rodeo
4	Turkey Hill Wetland	English ivy	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Turkey Hill Wetland	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
4	Turkey Hill Wetland	Oriental lady's thumb	Registered Tech	Foliar-Broadleaf													1.5 oz/gal Vastlan or Rodeo
4	Turkey Hill Wetland	Oriental lady's thumb	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
3	Turkey Hill Wetland	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Turkey Hill Wetland	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Turkey Hill Wetland	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Turkey Hill Wetland	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Turkey Hill Wetland	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
8	Totopotomy Crk Floodplain	empress tree	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Totopotomy Crk Floodplain	empress tree	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
8	Totopotomy Crk Floodplain	empress tree	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
8	Totopotomy Crk Floodplain	sericea lespedeza	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan
8	Totopotomy Crk Floodplain	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
8	Totopotomy Crk Floodplain	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
7	Totopotomy Crk Floodplain	multiflora rose	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Totopotomy Crk Floodplain	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Totopotomy Crk Floodplain	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Totopotomy Crk Floodplain	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
3	Totopotomy Crk Floodplain	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Totopotomy Crk Floodplain	ground ivy	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Totopotomy Crk Floodplain	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Totopotomy Crk Floodplain	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Totopotomy Crk Floodplain	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Totopotomy Crk Floodplain	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Totopotomy Crk Floodplain	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L

Note: Add 0.25-0.5 oz / gallon of non-ionic surfactant to all foliar applications

Treatment Prescriptions for: Boatswain Creek Viewshed and Malvern Hill View East

Priority Rank	Habitat Management Zone	Species	Lead Worker	Method	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Comments
7	Boatswain Creek Viewshed	Chinese wisteria	Volunteer	Cut													Climbing vine; cut vines to be sprayed by Registered Tech or Certified Applicator
7	Boatswain Creek Viewshed	Chinese wisteria	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	Chinese wisteria	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Boatswain Creek Viewshed	Japanese knotweed	Volunteer	Cut													Cut in June; regrowth to be sprayed by Registered Tech or Certified Applicator
7	Boatswain Creek Viewshed	Japanese knotweed	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	mimosa	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	mimosa	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
7	Boatswain Creek Viewshed	mimosa	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Boatswain Creek Viewshed	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
7	Boatswain Creek Viewshed	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Boatswain Creek Viewshed	shrub honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	shrub honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Boatswain Creek Viewshed	sweet mock orange	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	sweet mock orange	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
7	Boatswain Creek Viewshed	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
7	Boatswain Creek Viewshed	yam	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
7	Boatswain Creek Viewshed	yam	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Boatswain Creek Viewshed	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
4	Boatswain Creek Viewshed	Oriental lady's thumb	Registered Tech	Foliar-Broadleaf													1.5 oz/gal Vastlan or Rodeo
4	Boatswain Creek Viewshed	Oriental lady's thumb	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
3	Boatswain Creek Viewshed	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Boatswain Creek Viewshed	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Boatswain Creek Viewshed	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Boatswain Creek Viewshed	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Boatswain Creek Viewshed	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Boatswain Creek Viewshed	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
5	Malvern Hill View East	Japanese barberry	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Malvern Hill View East	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Malvern Hill View East	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Malvern Hill View East	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Malvern Hill View East	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
4	Malvern Hill View East	Johnson grass	Registered Tech	Foliar-Specialized													4 oz/gal Rodeo
3	Malvern Hill View East	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Malvern Hill View East	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Malvern Hill View East	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Malvern Hill View East	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Malvern Hill View East	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Malvern Hill View East	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L

Note: Add 0.25-0.5 oz / gallon of non-ionic surfactant to all foliar applications

Treatment Prescriptions for: Powhite Creek Viewshed, Gaines' Mill Wetland, and Malvern Hill View West

Priority Rank	Habitat Management Zone	Species	Lead Worker	Method	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Comments
5	Powhite Creek Viewshed	kudzu	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
5	Powhite Creek Viewshed	kudzu	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Powhite Creek Viewshed	kudzu	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Powhite Creek Viewshed	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
5	Powhite Creek Viewshed	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Powhite Creek Viewshed	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Powhite Creek Viewshed	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Powhite Creek Viewshed	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Powhite Creek Viewshed	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Powhite Creek Viewshed	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
4	Powhite Creek Viewshed	English ivy	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
4	Powhite Creek Viewshed	English ivy	Registered Tech	Foliar-Broadleaf													6 oz/gal Vastlan or Rodeo
4	Powhite Creek Viewshed	English ivy	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Powhite Creek Viewshed	Johnson grass	Registered Tech	Foliar-Specialized													4 oz/gal Rodeo
3	Powhite Creek Viewshed	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Powhite Creek Viewshed	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Powhite Creek Viewshed	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Powhite Creek Viewshed	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Powhite Creek Viewshed	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
5	Gaines' Mill Wetland	mimosa	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Gaines' Mill Wetland	mimosa	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
5	Gaines' Mill Wetland	mimosa	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Gaines' Mill Wetland	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
5	Gaines' Mill Wetland	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Gaines' Mill Wetland	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Gaines' Mill Wetland	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Gaines' Mill Wetland	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Gaines' Mill Wetland	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Gaines' Mill Wetland	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
4	Gaines' Mill Wetland	Johnson grass	Registered Tech	Foliar-Specialized													4 oz/gal Rodeo
4	Gaines' Mill Wetland	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
3	Gaines' Mill Wetland	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Gaines' Mill Wetland	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Gaines' Mill Wetland	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Gaines' Mill Wetland	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Gaines' Mill Wetland	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
6	Malvern Hill View West	Japanese barberry	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	Malvern Hill View West	multiflora rose	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	Malvern Hill View West	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	Malvern Hill View West	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
6	Malvern Hill View West	sericea lespedeza	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan
6	Malvern Hill View West	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	Malvern Hill View West	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
5	Malvern Hill View West	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
5	Malvern Hill View West	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Malvern Hill View West	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Malvern Hill View West	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
3	Malvern Hill View West	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Malvern Hill View West	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Malvern Hill View West	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L

Note: Add 0.25-0.5 oz / gallon of non-ionic surfactant to all foliar applications

Treatment Prescriptions for: West House Viewshed, and Totopotomy Creek Field Edge

Priority Rank	Habitat Management Zone	Species	Lead Worker	Method	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Comments
6	West House Viewshed	autumn olive	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	West House Viewshed	autumn olive	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	West House Viewshed	empress tree	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	West House Viewshed	empress tree	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
5	West House Viewshed	empress tree	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	West House Viewshed	mimosa	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	West House Viewshed	mimosa	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
5	West House Viewshed	mimosa	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	West House Viewshed	multiflora rose	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	West House Viewshed	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	West House Viewshed	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	West House Viewshed	sericea lespedeza	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan
5	West House Viewshed	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	West House Viewshed	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
5	West House Viewshed	yam	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	West House Viewshed	yam	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	West House Viewshed	Johnson grass	Registered Tech	Foliar-Specialized													4 oz/gal Rodeo
4	West House Viewshed	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
4	West House Viewshed	Oriental lady's thumb	Registered Tech	Foliar-Broadleaf													1.5 oz/gal Vastlan or Rodeo
4	West House Viewshed	Oriental lady's thumb	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
3	West House Viewshed	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	West House Viewshed	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	West House Viewshed	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	West House Viewshed	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	West House Viewshed	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
6	Totopotomy Crk Field Edge	autumn olive	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	Totopotomy Crk Field Edge	autumn olive	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
6	Totopotomy Crk Field Edge	multiflora rose	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
6	Totopotomy Crk Field Edge	sericea lespedeza	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan
6	Totopotomy Crk Field Edge	winged euonymus	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Totopotomy Crk Field Edge	Chinese wisteria	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
5	Totopotomy Crk Field Edge	Chinese wisteria	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Totopotomy Crk Field Edge	Chinese wisteria	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Totopotomy Crk Field Edge	empress tree	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Totopotomy Crk Field Edge	empress tree	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
5	Totopotomy Crk Field Edge	empress tree	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Totopotomy Crk Field Edge	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Totopotomy Crk Field Edge	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
5	Totopotomy Crk Field Edge	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
5	Totopotomy Crk Field Edge	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option
4	Totopotomy Crk Field Edge	Oriental lady's thumb	Registered Tech	Foliar-Broadleaf													1.5 oz/gal Vastlan or Rodeo
4	Totopotomy Crk Field Edge	Oriental lady's thumb	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
3	Totopotomy Crk Field Edge	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Totopotomy Crk Field Edge	ground ivy	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Totopotomy Crk Field Edge	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Totopotomy Crk Field Edge	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Totopotomy Crk Field Edge	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Totopotomy Crk Field Edge	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Totopotomy Crk Field Edge	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L

Note: Add 0.25-0.5 oz / gallon of non-ionic surfactant to all foliar applications

Treatment Prescriptions for Chickahominy Bluff

Priority Rank	Habitat Management Zone	Species	Lead Worker	Method	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Comments
4	Chickahominy Bluff	autumn olive	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
4	Chickahominy Bluff	autumn olive	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Chickahominy Bluff	golden bamboo	Volunteer	Cut													Stumps to be sprayed by Registered Tech or Certified Applicator in fall
4	Chickahominy Bluff	golden bamboo	Registered Tech	Foliar-Specialized													5 oz/gal Rodeo; cut early summer and spray regrowth in fall
4	Chickahominy Bluff	golden bamboo	Registered Tech	Stump-aqueous													50% Rodeo
4	Chickahominy Bluff	marsh dayflower	Registered Tech	Foliar-Specialized													3 oz/gal Rodeo
4	Chickahominy Bluff	mimosa	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
4	Chickahominy Bluff	mimosa	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo
4	Chickahominy Bluff	mimosa	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Chickahominy Bluff	Oriental lady's thumb	Registered Tech	Foliar-Broadleaf													1.5 oz/gal Vastlan or Rodeo
4	Chickahominy Bluff	Oriental lady's thumb	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
4	Chickahominy Bluff	porcelainberry	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
4	Chickahominy Bluff	porcelainberry	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
4	Chickahominy Bluff	sericea lespedeza	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan
4	Chickahominy Bluff	shrub honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
4	Chickahominy Bluff	shrub honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	Chinese wisteria	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Chickahominy Bluff	Chinese wisteria	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	Chinese wisteria	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	common chickweed	Registered Tech	PRE													0.33 oz/gal Prodiamine 4L
3	Chickahominy Bluff	ground ivy	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	Japanese honeysuckle	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Chickahominy Bluff	Japanese honeysuckle	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	Japanese honeysuckle	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	Japanese knotweed	Volunteer	Cut													Cut in June; regrowth to be sprayed by Registered Tech or Certified Applicator
3	Chickahominy Bluff	Japanese knotweed	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	Japanese knotweed	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	Japanese stiltgrass	Registered Tech	Foliar-Specialized													.05-.01 oz/gal Rodeo, use higher concentration for mature plants
3	Chickahominy Bluff	Japanese stiltgrass	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
3	Chickahominy Bluff	Japanese wisteria	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Chickahominy Bluff	Japanese wisteria	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	Japanese wisteria	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	mile-a-minute	Registered Tech	Foliar-Broadleaf													1.5 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	mile-a-minute	Registered Tech	PRE													0.67 oz/gal Prodiamine 4L
3	Chickahominy Bluff	Oriental bittersweet	Volunteer	Cut													Climbing vines; cut vines to be sprayed by Registered Tech or Certified Applicator
3	Chickahominy Bluff	Oriental bittersweet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	Oriental bittersweet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	privet	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	privet	Registered Tech	Stump-aqueous													Pathfinder II or 50% Rodeo
3	Chickahominy Bluff	tree-of-heaven	Registered Tech	Foliar-Broadleaf													3 oz/gal Vastlan or Rodeo
3	Chickahominy Bluff	tree-of-heaven	Registered Tech	Stem-hack													Pathfinder II or 50% Rodeo; Best control option

Note: Add 0.25-0.5 oz / gallon of non-ionic surfactant to all foliar applications