



Taming the Bamboo

Effective methods for controlling non-native invasive bamboo in residential and natural areas

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Eric Walker

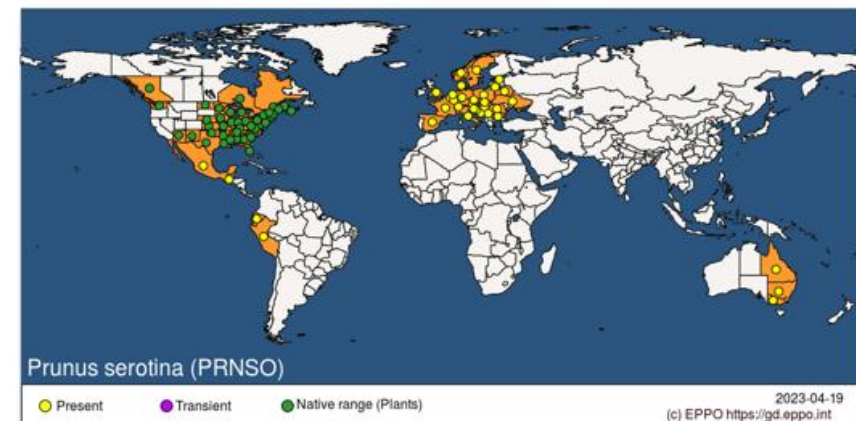
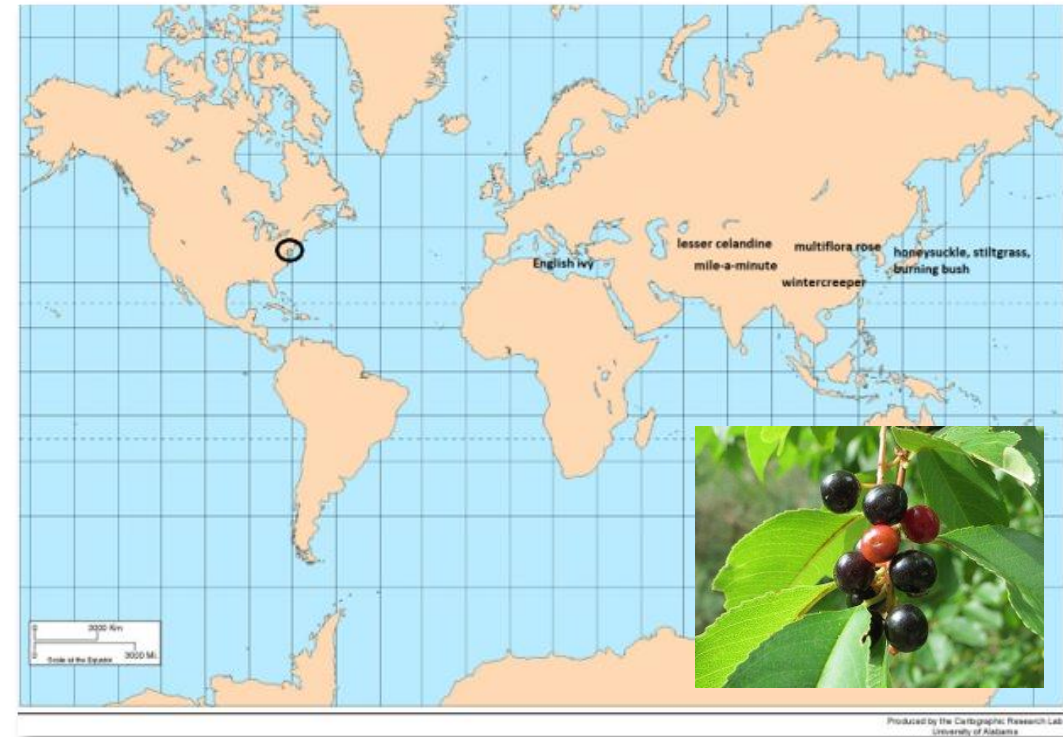
Natural Resource Specialist, Columbia Association

Outline

- Invasive Plants
 - What are they?
 - Why are they bad?
 - What is CA doing?
- Bamboo
 - Biology
 - Factoids
 - Negative Impacts
 - In Mid Atlantic
 - In Columbia
- Control Methods
- Project Examples
- Questions

Invasive Plants

- What are non-native invasive plants?
 - **Native:** Any plant that historically grew in this region (ecotype)
 - **Alien/Non-Native/Exotic:** occurring outside native range
 - **Naturalized:** reproduces successfully outside native range
 - **Invasive species:** plant or animal species that harm regional ecosystems- Native plants cannot be invasive (can be aggressive)
 - **Noxious weeds:** harmful or injurious plants usually regulated by an agency
 - Outside natural range: 10% will reproduce and survive (naturalized), 10% of those will be invasive (1% overall)



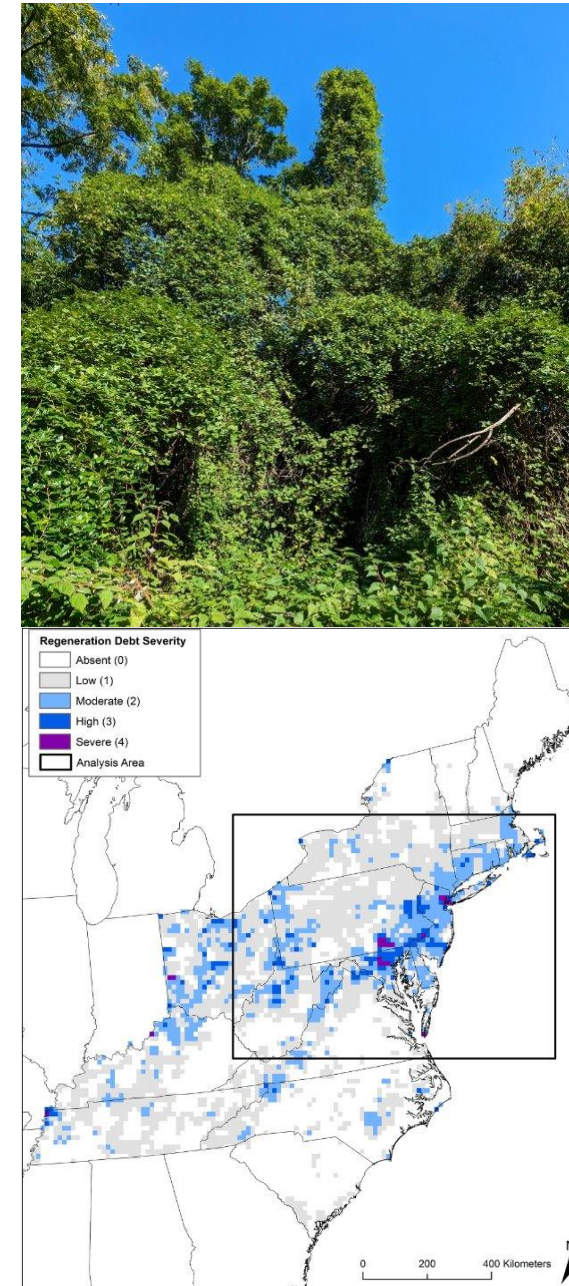
Invasive Plants

- Why are they bad?
 - Non-native invasive plants
 - Alter plant community structure
 - Break functional ecological relationships
 - Biodiversity Loss
 - Invasive species usually outcompete native plants for sunlight, nutrients, water, and space
 - Native plants are displaced, along with insects, birds, other wildlife



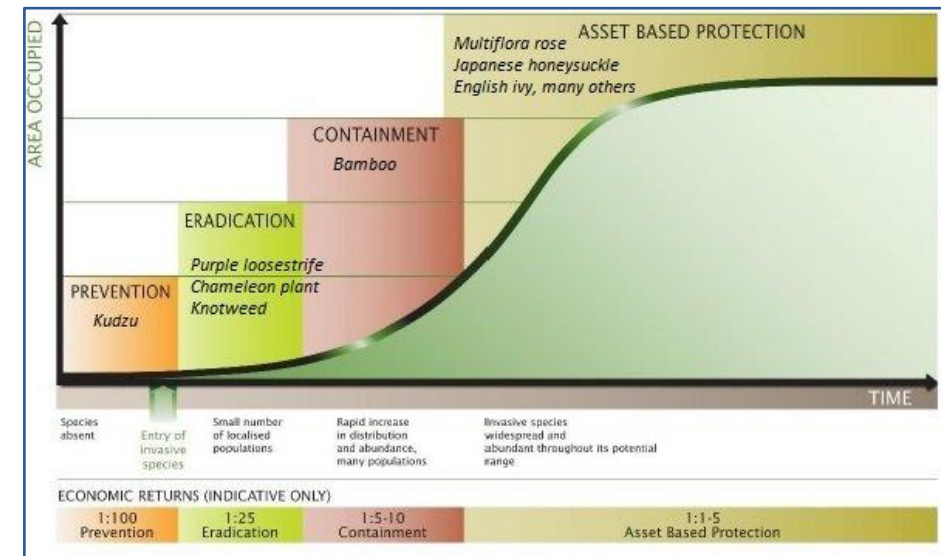
Invasive Plants

- In general:
 - Are introduced
 - Reproduce and spread rapidly
 - Persist in the environment
 - Have few natural predators to balance population
 - Difficult to remove once established
 - Very costly and time-consuming to manage
 - Damage natural resources
 - Can be a human health hazard
 - High “invasiveness”- robust vegetative growth, high reproductive rate, abundant seed production, high seed germination rate, and longevity



Invasive Plant Management in Columbia

- What is CA doing?
- Outreach/Education
 - [CA's Invasive Plant Resource and Reference Guide](#)
 - [CA's Approach to Invasive Bamboo Removal](#)
 - [Weed Warriors](#)
 - [Adopt-a-Spot](#)
 - Public Outreach Events
 - Tabling
 - Pull and Plant
- Field Work
 - EDRR
 - Purple loosestrife, Japanese knotweed, Chameleon plant
 - Tree-of-heaven
 - Bamboo
 - Habitat Restoration and Reforestation Sites
 - Resident Requests



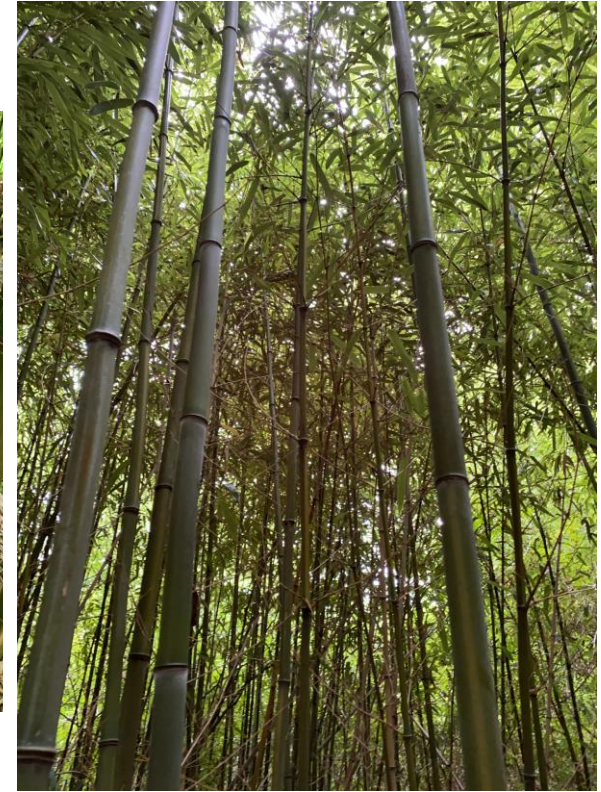
Bamboo

- Invasive

- Yellow-groove bamboo (*Phyllostachys aureosulcata*)
- Arrow bamboo (*Pseudosasa japonica*)
- Golden/fishpole bamboo (*Phyllostachys aurea*)

- Native

- Switch cane (*Arundinaria tecta*)
- Native River cane (*Arundinaria gigantea*)



Bamboo

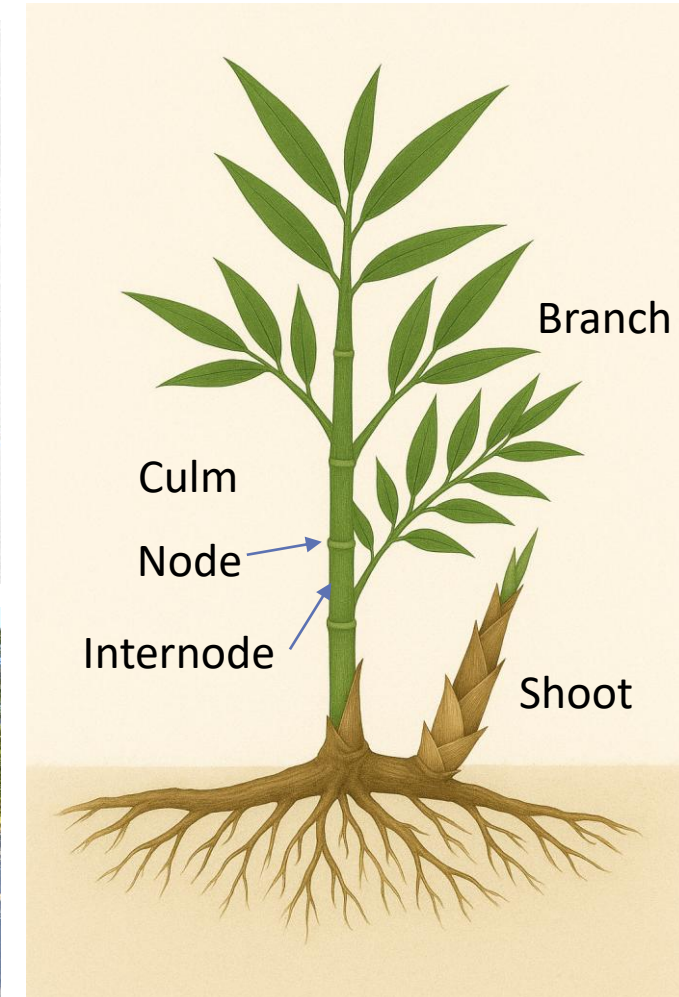
- Centers of Origin
 - Asia
 - 1,500 species
 - Introduced in 1800s
 - Erosion control
 - Privacy hedges
 - Pulp
 - Ornamental

Sulcus: the vertical groove between internodes, indicates a non-native bamboo species



Bamboo

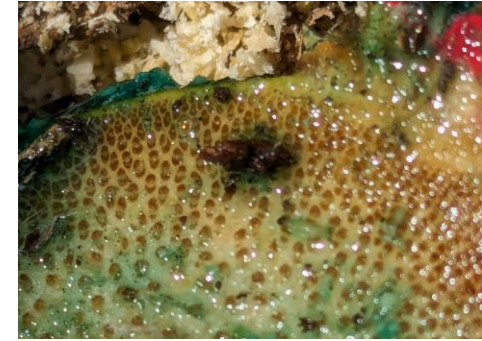
- Anatomy
 - Rhizomes
 - Pachymorph (clumping)
 - Leptomorph (running)



Bamboo

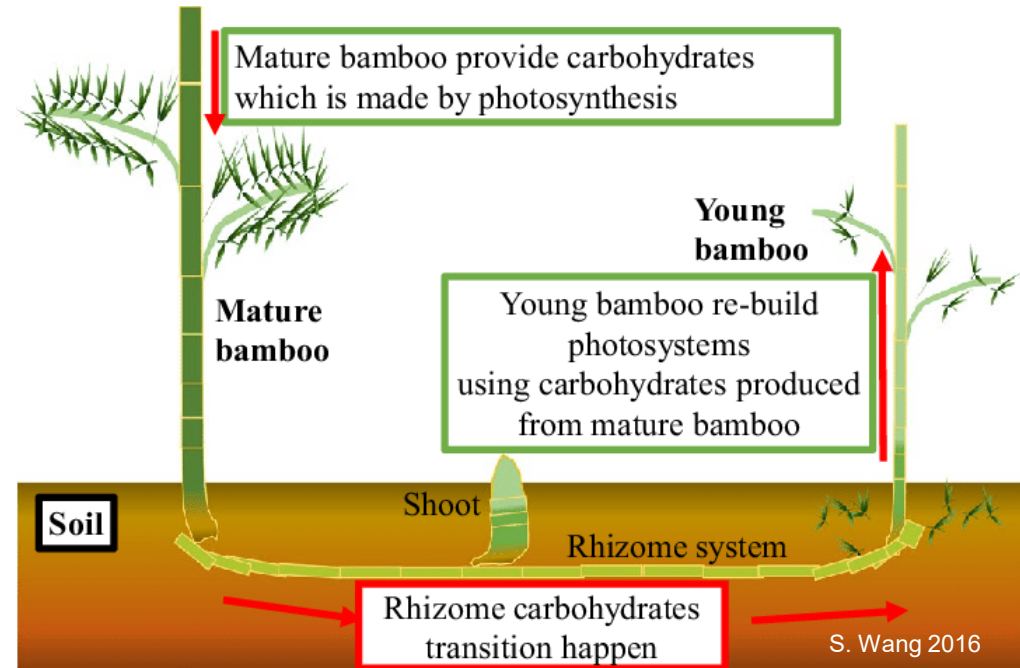
- Life cycle

- Perennial, woody grass
- In a constant state of renewal



- In General*

- April-October: Growing underground
- March-May: New culms shoot up
- June-September: Leaf growth and photosynthesis
- October-November: Leaf drop, preparing for dormancy
- December-February: dormant



Bamboo

- Negative Impacts
 - Once established, running bamboo forms dense thickets or stands, with little light reaching understory (biological dead-zone)
 - The underground rhizome network makes it very difficult to remove entirely. Small rhizome fragment left in soil can regenerate new shoots
 - Control or removal requires persistent action over multiple years
 - Spread only limited by sunlight, water
 - Can damage structure- brick, drainage, patios, foundation



Bamboo

- Factoids

- Culm diameter does not change after first year
- Ancient grass lineage (~40 million years)
- Fastest growing plant on earth (record is 36" per day)
- Stronger than steel (tensile strength)
- Gregarious flowering
- Very efficient carbon capture
- Histoplasmosis reservoir
 - Baltimore Bridge 1970. Bat guano exposure in bridge workers. 9 people sick
 - Louisiana 1977. Large blackbird roost burned, many sick
 - Arkansas- Oct. 2011. Red-wing blackbird roost, burn pile, 19 people sick



Regional Bamboo Laws

- **Maryland**

- Senate Bill 915 (2024)
 - Reorganizes invasive plant lists and priorities
- House Bill 090 (2023)
 - Authorizing the governing bodies of counties and municipalities to adopt ordinances to regulate invasive bamboo
- Montgomery County Native Plant Protection Bill 2625 (2025)
 - Bans sale of bamboo
- Frederick City (2025)
- Bowie (2025)
- College Park (2011)

- **Pennsylvania**

- Lower Moreland (2013), Aston (2014), Swarthmore (2015), Solebury (2016), Marple (2017), Radnor (2019), Franklin (2018), Green Lane (2023), Kennett (2025)

- **Virginia**

- 2018, Virginia's Code § 15.2-901.1- gives localities the authority to provide for control of running bamboo
- Fauquier County (2020)
- Fairfax County (2023)



MD HB 090

The governing body of a county or municipality, by ordinance, may regulate invasive bamboo, including by prohibiting a person from:

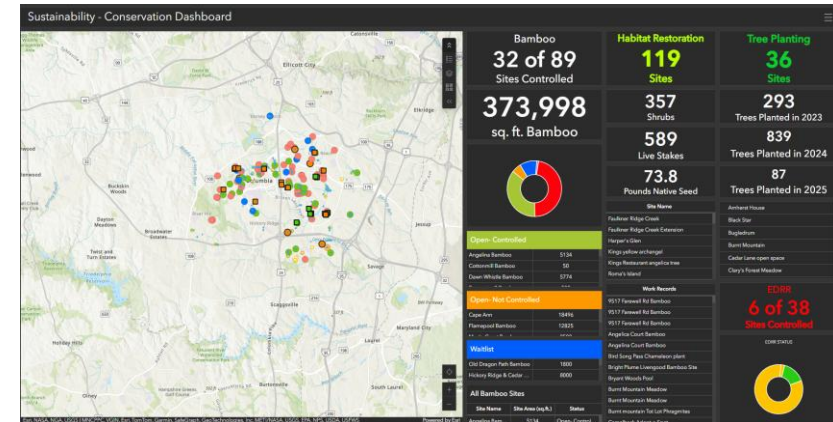
*(1) selling invasive bamboo;
(2) planting invasive bamboo; and
(3) allowing invasive bamboo to grow on the property of the person without proper upkeep and appropriate containment measures, including barriers or trenches.*

The governing body of a county or municipality may provide for the enforcement of an ordinance adopted under this section by:

*(1) requiring any damages caused by invasive bamboo to be mitigated; and
(2) establishing a civil fine.*

Bamboo in Open Space

- 32 sites under active management/control
 - Initial biomass removal complete
 - Area and/or cover percent is decreasing
 - Most are at "maintenance level" (less than an hour of work per site visit)
 - These are monitored, inventoried, checked, maintenance performed
 - 3-10 site visits per year
- 89 infestations, > 8.5 acres in Columbia
 - We prioritize bamboo patches for control only if complete removal is possible, and:
 - The infestation is solely owned by CA, and no landowner coordination is required, or
 - All neighbors with ownership of the patch agree to control bamboo on their respective property
 - Columbia Association cannot perform control work on private residential property
 - Columbia Association cannot fund or pay for bamboo control work on portions of infestations that exist on private residential property at this time
 - For bamboo patches small enough that a contracted removal effort is not needed, CA will work in tandem with residents/homeowners/landscapers
- We provide: Contractor and stakeholder coordination including in-person on-site meetings, education and outreach, technical support, control on adjacent CA property, and long-term inspection and monitoring



Control Methods

- Mechanical (Excavation)
 - A good first step if feasible
 - Remove propagules from system
 - Requires attention to detail and follow up
 - Costly
 - Disposal an issue
 - Rhizomes up to 36 inches deep



Control Methods

- Mechanical (Grinding)
 - Cost efficient biomass removal
 - Shreds bamboo into duff layer
 - Breaks up culms, rhizomes
 - Late Summer-Fall is optimal



Control Methods

- Mechanical (Tilling)
 - Disc implement
 - 1-2 weeks after grinding
 - Breaks up rhizomes
 - Dries out rhizomes
 - Cultivates soil
 - Good for large sites



Control Methods

- Mechanical (Mowing)
 - Repeated mowing control spread
- Mechanical (Brushcutting)
 - For steep terrain
 - Small patches



Control Methods

- Manual
 - Digging out by shovel/pickax is possible
 - Hand pulling is very difficult
 - Screen rhizomes from soil
 - Resprouts from leftover fragments
 - Small patches are feasible
 - Rhizomes are as deep as 36 inches



Control Methods

- Chemical (Herbicide)
 - Glyphosate
 - Glyphosate 5.4, Aquamaster
 - Aquatic formulations
 - No soil activity
 - Safer around trees
 - Surfactant- use 0.5% non-ionic surfactant
 - Must follow label
 - Must determine max ounces per acre allowed on site
 - Aquamaster = 8qts/Acre per year max
 - Imazapyr, others
 - High off-target risk
 - Can't be used under trees



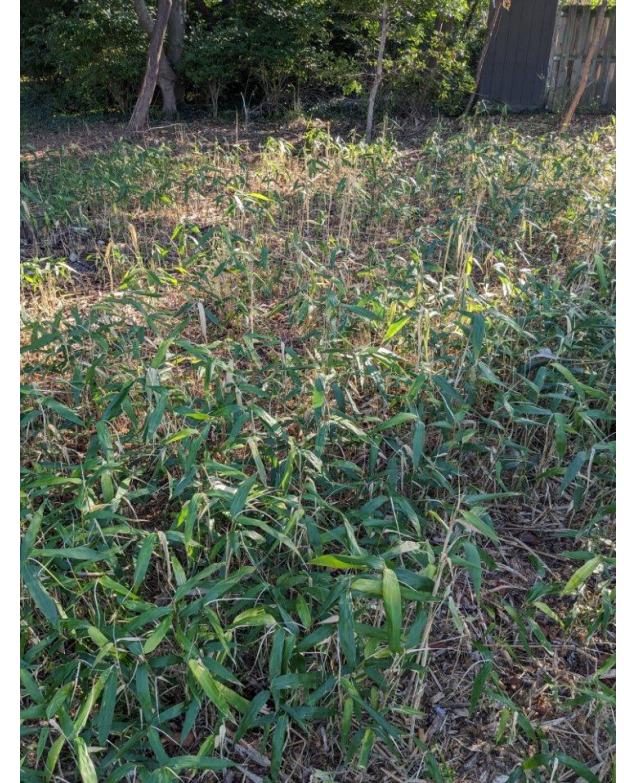
Control Methods

- Foliar Herbicide Application
 - 2-4% glyphosate + 0.5% non-ionic surfactant on fleshy, new growth
 - Non-selective, kills everything
 - Applied with a backpack sprayer
 - Sideswiper Tool
 - September-October optimal
- Cut/Stump Herbicide Application
 - Cut culms at ground level with saw
 - Cut small culms and visible rhizomes with pruners
 - Immediately apply 50% glyphosate to cut surface
 - Buckthorn blaster, paintbrush, or sprayer
 - Must watch max label rate
 - Year-round, September-October optimal



Control Methods

- Integrated Approach
 - Cut bamboo to stimulate growth
 - Will resprout and branch out low if cut May-October
 - Will resprout and branch up high if cut Nov-April (cut again in May)
 - Foliar spray regrowth
 - Year-round, September-October optimal
 - Cut/Stump under and around trees
 - Year-round, September-October optimal



Using multiple methods in combination is almost always more effective than using only one

Control Methods

- Cultural
 - Prevention is best!
 - Don't let neighbors plant it
 - Report new or small infestations
 - Outreach and Education
 - Decontaminate soil
 - Rhizome barriers for containment
 - Heavy gauge HDPE plastic
 - May go underneath
 - Smothering
 - Takes years
 - May creep outside edges



Control Methods

- In Summary
 1. Remove large biomass above ground
 2. Excavate if possible
 3. Grind down or cut if not
 4. Control resprouts using herbicide
- Follow the label (Federal Law)
- Use the information in the fact sheets
- Use multiple methods
- Be persistent but patient
- If hired: ensure applicators are licensed with MDA



Project Examples

King's Contrivance - Cottonmill Court

2021-2024, None seen 2025



Project Examples

King's Contrivance - Cottonmill Court



Project Examples

Harper's Choice - Oakenshield



Project Examples

Harper's Choice - Oakenshield



Project Examples

Harper's Choice - Endicott



Project Examples

Harper's Choice - Endicott



Project Examples

Harper's Choice - Endicott



Project Examples

Hickory Ridge – Sunny Spring

March 2024-present



Project Examples

Hickory Ridge – Sunny Spring

March 2024-present



Project Examples

Hickory Ridge – Sunny Spring

Native plants emerge from dormancy....



Project Examples

Town Center – Lake Kitt



Project Examples

Town Center – Lake Kitt



Project Examples

Wilde Lake – Wild Turkey Lane



Project Examples

Wilde Lake – Wild Turkey Lane



Project Examples

Wilde Lake – Wild Turkey Lane



Project Examples

Wilde Lake – Wild Turkey



Project Examples

Wilde Lake – Near Dam



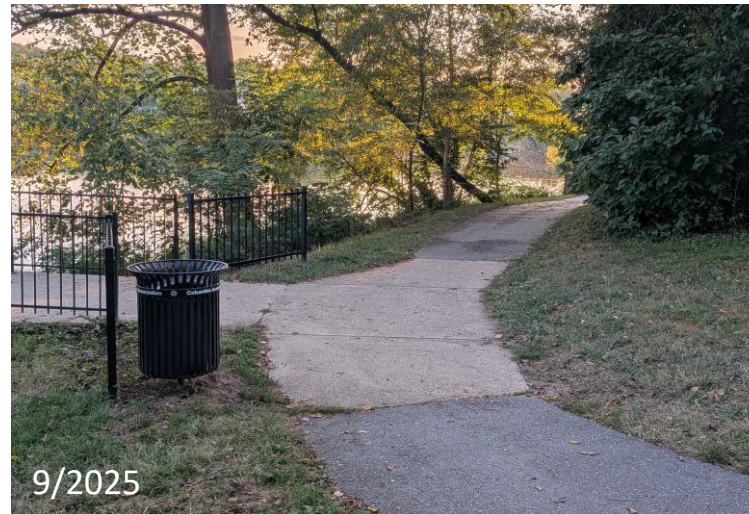
Project Examples

Wilde Lake – Near Dam



Project Examples

Wilde Lake – Near Dam



Project Examples

Small, new sites- very important!



Project Examples

New Project: King's Contrivance - Cape Ann Dr

- Forestry Grinding performed 8/26/25
- Forestry Tilling performed 9/4/25
- Foliar Spray scheduled upon resprouting to a height of 3 feet (October)
- Cut/Stump underneath desirable trees (October)
- Follow up control work May-June, October 2026
- Reseed and promote desirable vegetation where control is working well
- 5-10 years



Project Examples

New Project: King's Contrivance - Cape Ann Dr



Project Examples

New Project: King's Contrivance - Cape Ann Dr



Project Examples

New Project: King's Contrivance - Cape Ann Dr



Project Examples

New Project: King's Contrivance – Rainleaf Court

Same Process as Cape Ann



Project Examples

New Project: King's Contrivance – Rainleaf Court

Same Process as Cape Ann



Resources

University of Maryland Cooperative Extension: [Containing and Removing Bamboo](#)

College Park Maryland Tree and Landscape Board Fact Sheet: [How to Control Bamboo](#)

Fairfax County Factsheet: [Running Bamboo](#)

University of Florida Extension Fact Sheet: [Bamboo Control](#)

Alabama Cooperative Extension Fact Sheet: [Bamboo Growth and Control](#)

Whatcom County Fact Sheet: [Control Options for Bamboo](#)

University of Tennessee Fact Sheet: [Bamboo](#)

Metro Vancouver Canada: [Best Management Practices for Bamboo](#)

CAES / UConn: [Merritt Parkway bamboo experiments](#)

Fairfax County Website: [Running Bamboo](#)

University of Maryland Cooperative Extension: [Invasives in Your Woodland: Golden Bamboo](#)

Invasive Plant Atlas of the United States: [yellow groove bamboo](#)

Columbia Association: [CA's Approach to Invasive Bamboo](#)

Sample Site Plan: [Cape Ann](#)

Herbicide Application Tool: [Buckthorn Blaster Dauber](#)

University of Georgia Research: [Selectively controlling bamboo by herbicide stem injections](#)



Questions

Does mowing bamboo prevent it from spreading? Yes

Are native bamboo species as bad as non-natives? Not at all

Who do we report property owners who have bamboo to? If it's near Open Space, email below

Are there chemicals that are safe to use, but effective in killing bamboo? Yes, if used according to label

Eric Walker

eric.walker@columbiaassociation.org

Office:

Sustainability@ColumbiaAssociation.org for other questions