

What makes a plant invasive?

Controlling Invasives Once You've Got Them...

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Today's Outline

- Terminology
- What characterizes an invasive; why do they become invasive?
- Common problem plants here in the Piedmont
- How to control them once you've gotem'

What is “native”?

- Occurs naturally, or has existed for many years in an area (Wikipedia)
- Lives or grows naturally in particular region w/o human intervention (National Arboretum)
- Was present in a defined area prior to European settlement (many suggest this)



Why go native?

- May be best adapted to site
- May be lowest maintenance
- Maintains sense of place
- Best food for wildlife
- Not “invasive”



May be best adapted and low maintenance...



Create sense of place...



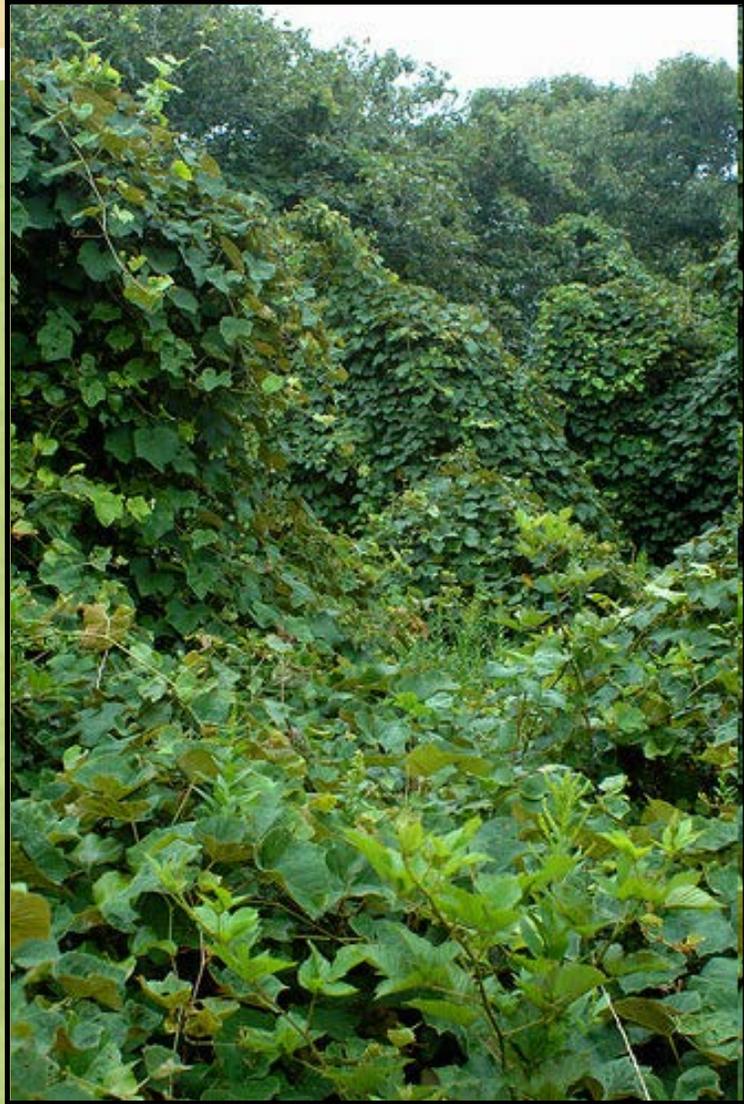
Lonnie Poole Golf Course



Wildlife Food



Can native plants be invasive?



Production issues of natives

- Complex seed germination requirements
- Difficulty in cutting propagation
- Lack of reliable information!

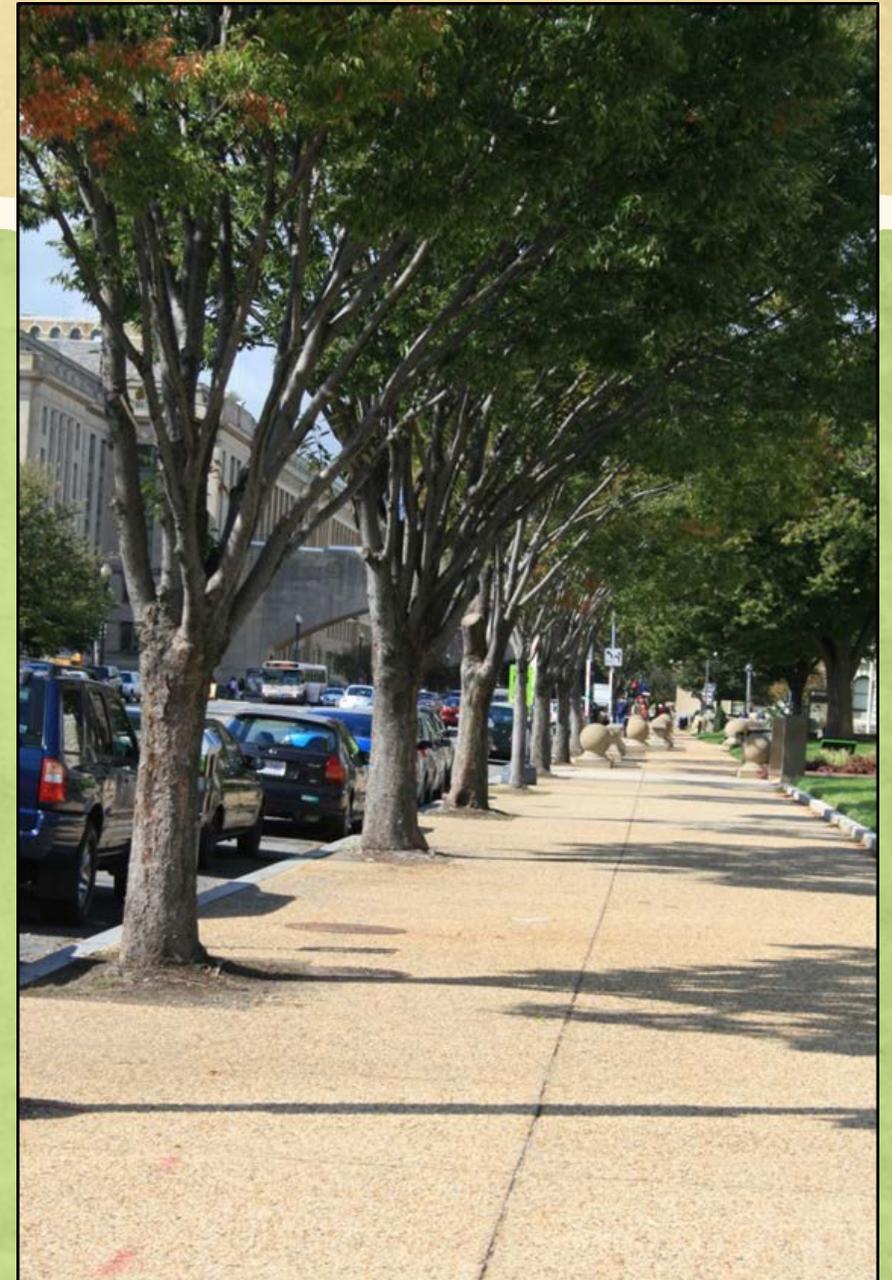


Allure of the exotic...



- May be best adapted to site
- May be lowest maintenance
- Showier (?)
- Variety
- Wildlife

May be best adapted to the site or low maintenance...



Variety



Wildlife



Invasive Plants

- Spread rapidly
- Crowd out native species
- Adversely affects ecology (e.g. clog wetlands and waterways)
- Different than noxious weeds*
- Not all naturalized taxa are invasive

*A noxious weed as one that is injurious to agricultural or horticultural crops, natural habitats or ecosystems, or humans and livestock.

Purple loosestrife, *Lythrum salicaria*



mile-a-minute vine, *Polygonum perfoliatum*

Criteria for Invasiveness (Trueblood 2009)

- Is it a noxious weed?
- Is it sold in the horticultural trade in NC?
- Is it native?
- Is it known or suspected to be present in natural areas?

Criteria for Invasiveness (Trueblood 2009)

- Ecological impact
- Current distribution and potential for expansion
- Management difficulty
- Benefits and value



How do these invaders get here?



- Estimated >40,000 taxa introduced since 1500 AD
- Of these 2,500 – 3,000 species persistent in U.S.
- 300 of these truly invasive

Very Early America

- Beginning in the 1700's, a growing interest in fruit trees arose. This interest following settlers across the continent to the American west. Apples for food and cider, plums, and pears were particularly popular.



Winslow Homer painting of grafting of fruit trees in 1870, Photo: Wikipedia



What Makes a Plant Invasive?

- Common characteristics of invasiveness:

- Ability to reproduce vegetatively; ability to readily disperse
- No pre-germination treatments needed (no seed dormancy)
- Long flowering period
- Cultivation helps preserve small populations, despite adverse environmental conditions



- No pressure from native predators, parasites and competitors
- Climate characteristics between native and introduced ranges
- Invasive tendency in native range

Effects on the Nursery Industry

- State and federal bans
- Loss of business due to reputations of plants
- How does a nursery compensate for potential loss of revenue?
- Slow propagation = long term in production; longer time to pay out



Miscanthus, silvergrass

Ligustrum sp., privet

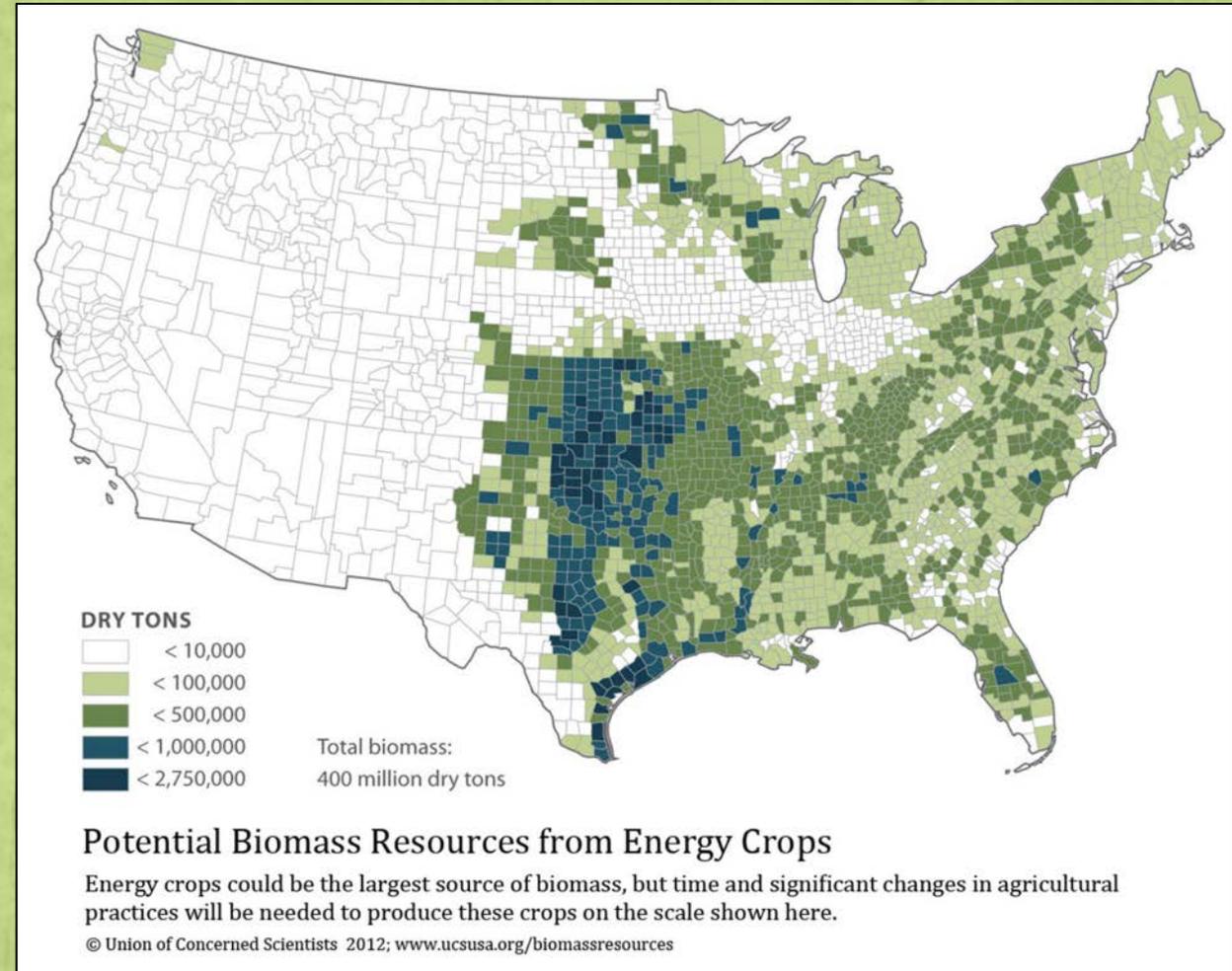
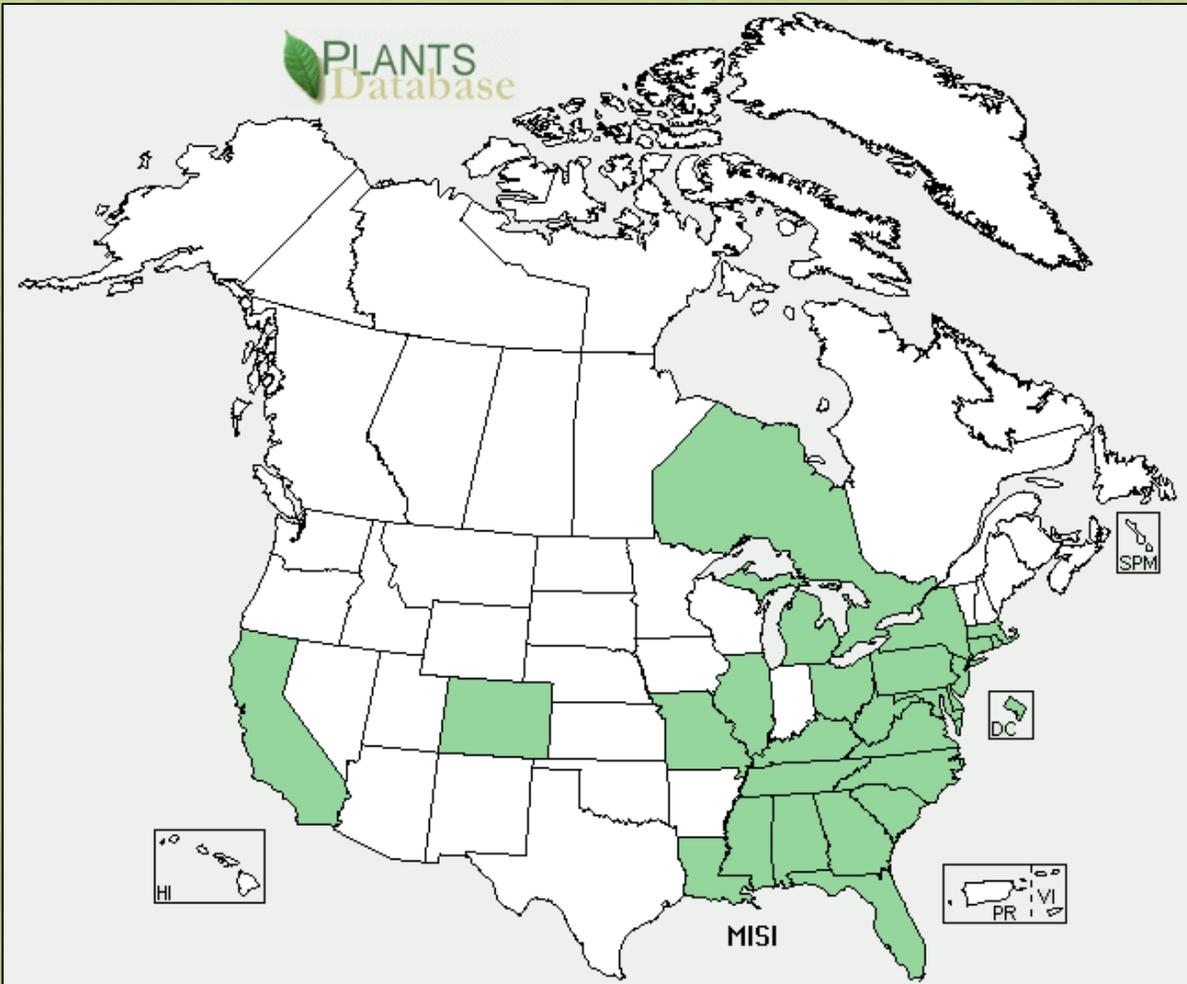


Vinca minor, periwinkle and *Eleagnus pungens*, thorny olive



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Maidengrass or silvergrass, *Miscanthus* spp. Friend or Foe?



Are These Natural Landscape?



Portland







Constitution Avenue



UNC- Durham, NC



Dealing with the issue of invasive plants

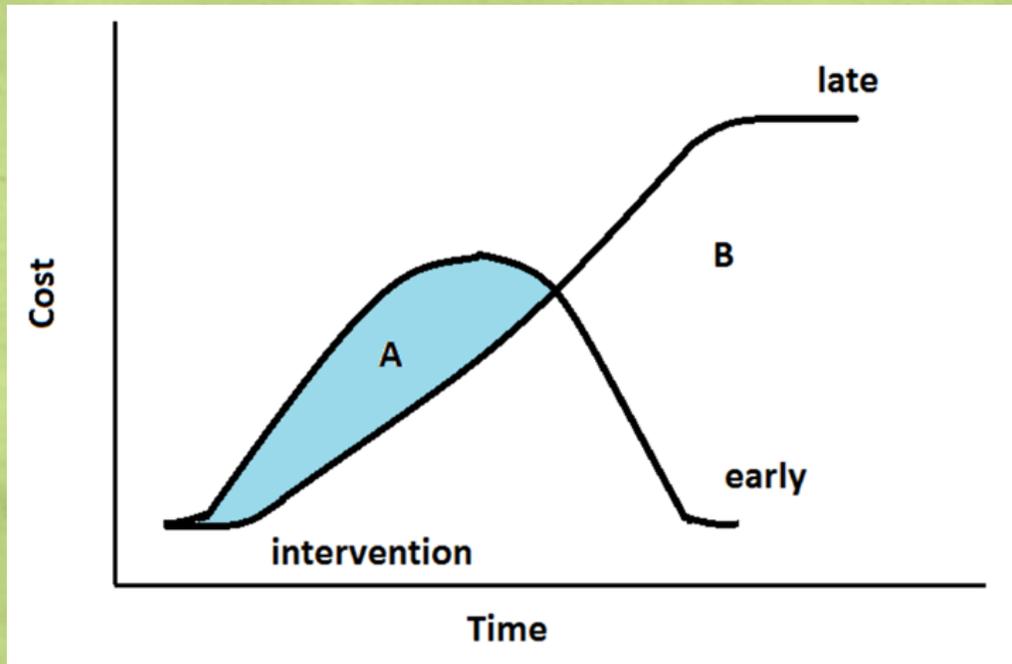


- Breeding sterile cultivars
- Native alternatives
- Non-native alternatives
- Know the issues!



Management Objectives

- Prevention and exclusion
- Early detection/rapid assessment; and
- Control/containment/eradication



▪ Basic Control Principles

▪ Herbicides

- Directed foliar sprays
- Stem injection/girdling
- Cut and treat
- Basal sprays
- Soil spots

▪ IPM

- Grazing
- Burning
- Mechanical control
- Hand work

IPM in Action





UGA1404040



Aquatic plant chopping machine



UGA2307271

Herbicides

- Directed foliar sprays
 - Most cost effective treatment for most invasive species
 - Mid-summer to late fall applications most effective (depends on weed species)
 - Use only foliar active herbicides
 - Use spray shields
 - Select correct wands and/or tips for the site conditions

- Stem injection/girdling
 - Selective
 - Larger trees and shrubs
 - Possibly transferred to untreated plants- root grafts, root exudates
 - Do not treat if rain expected w/in 48 hr. period
 - Late winter to summer





■ Cut-treat

- Apply to outer circumference of fresh-cut plants
- Woody stems (including cane and bamboo)
- Remove sawdust to improve translocation
- Add non-ionic surfactant (follow herbicide labels) to add penetration
- Late winter and summer

■ Basal sprays

- Herbicide-oil-penetrant mixes
- Use wick applicator or backpack sprayer
- Must fully wet lower 12 – 20 inches of woody stem
- Most effective- woody stems <6" diameter or larger stems of susceptible species
- Stream-line method: woody trees and shrubs up to 2" diameter and up to 6" diameter of highly susceptible species
- Late winter and early spring; summer ok
- Avoid ester herbicide formulations on hot days



- Soil spots

- Velpar L herbicides (hexazinone, soil active)
 - Apply in metered amounts to soil
 - Work grid pattern for many stems
 - Very species specific
 - Apply spring or early summer
 - Can be used in blueberry fields



UGA2307267

Commonly used Herbicides

- Foliar active:
 - Aminopyralid (Milestone VM)
 - Fosamine (Krenite S)
 - Glyphosate
 - Triclopyr (Garlon 3A and 4, Release)
- Foliar and soil active
 - 2, 4, D + picloram (Pathway and Tordon 101)
 - Clopyralid (Transline)
 - Dicamba (Banvel, Trimec, and Surge)
 - Hexazinone (Velpar L)
 - Imazapic (Plateau)
 - Imazapir (Arsenal AC, Polaris)
 - Metasulfuron (Manor Corsair)
 - Picloram (Tordon K)
- READ AND FOLLOW LABEL DIRECTIONS; WEAR PROPER PPE
- Foliar and soil active most effective (least # applications) on invasives
- Use selective herbicides that target specific species
 - Apply when desirables dormant
- Minimize damage to non-targets

Pulling it All Together

- Know the difference between-
 - Native
 - Exotic/non-native
 - Invasive
 - Noxious weed
 - Naturalized
- Learn about the plants and life cycle
 - For best treatment
 - To avoid planting well-known invasive species
 - Often takes repeated efforts to control

- Know which herbicides work best and when

Questions?

Thanks!