



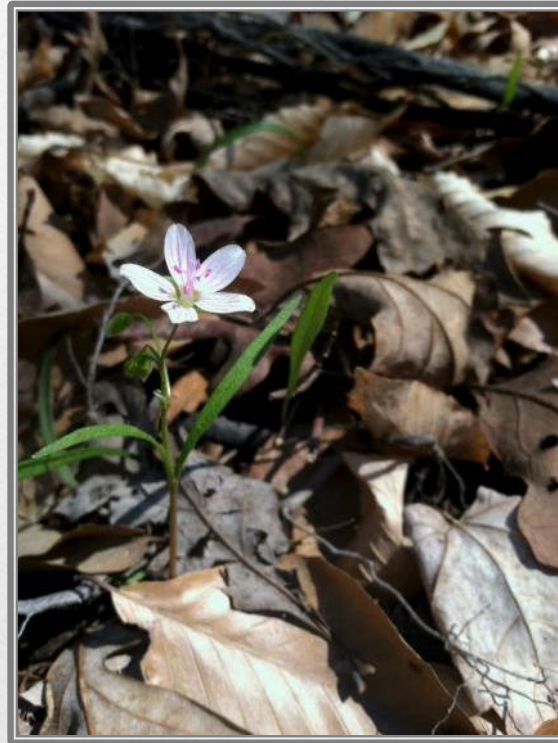
DUKE FOREST

Invasive Species Management

North Carolina Invasive Plant Council Meeting
5/29/15

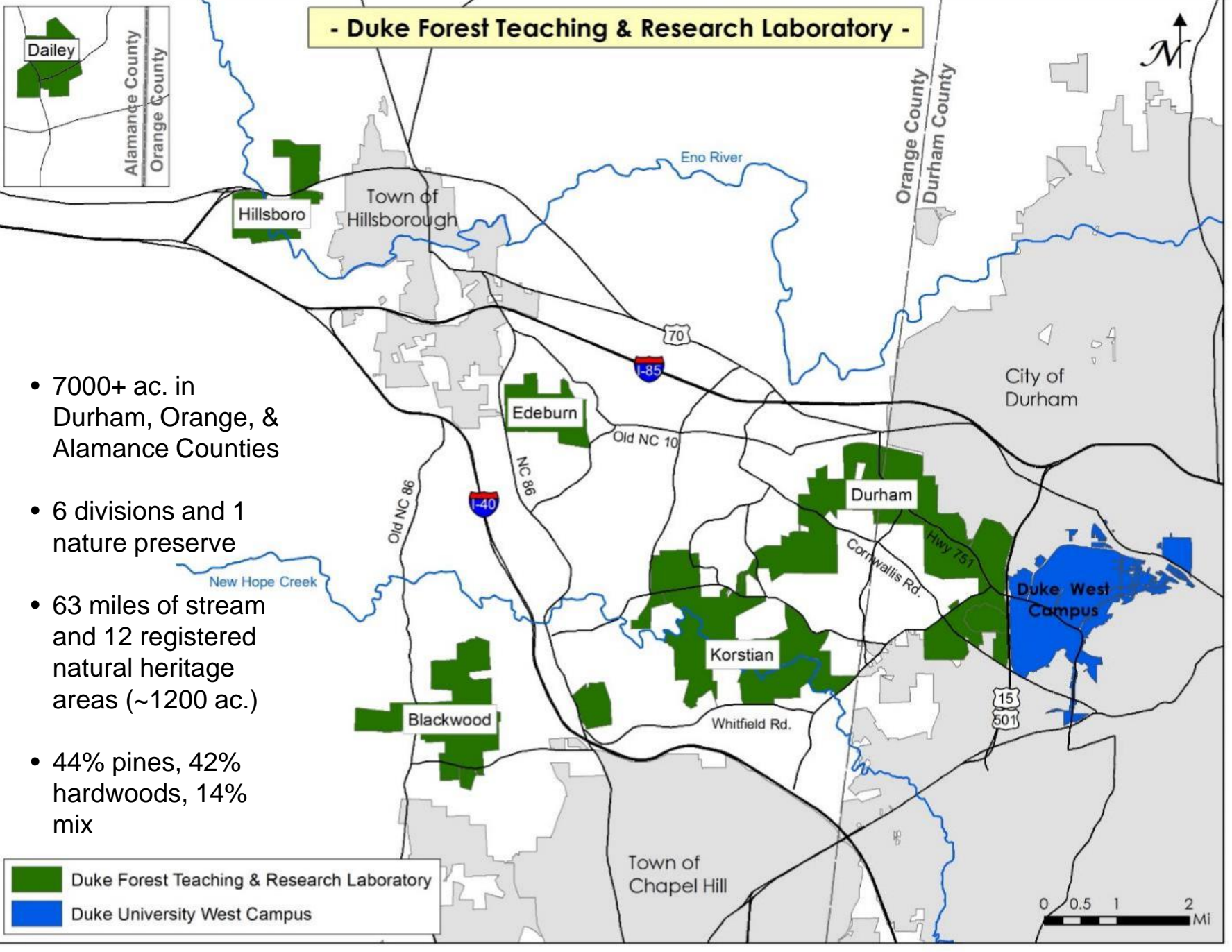
Agenda

- Introduction
- Approach
- Examples
- Challenges
- Opportunities



Spring Beauty, *Claytonia virginica*

- Duke Forest Teaching & Research Laboratory -

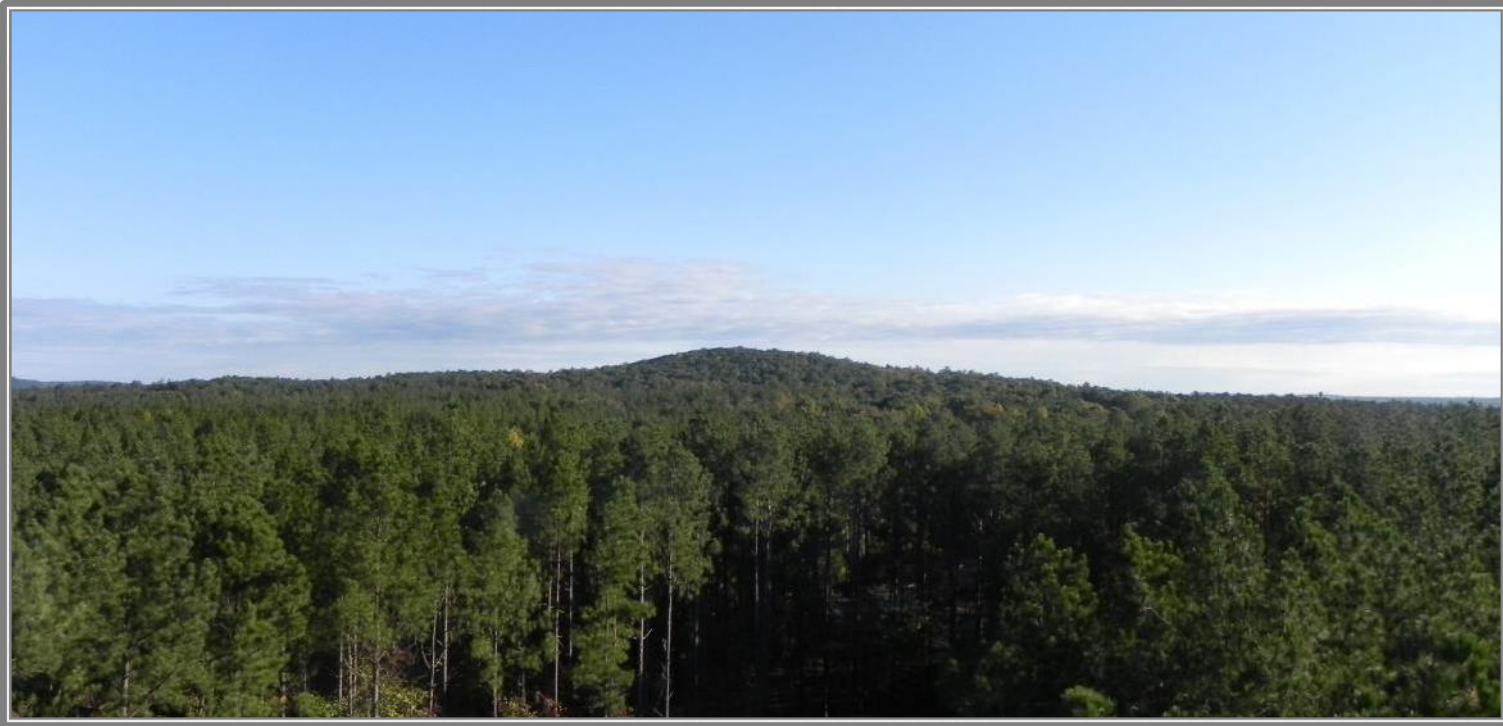


- 7000+ ac. in Durham, Orange, & Alamance Counties
- 6 divisions and 1 nature preserve
- 63 miles of stream and 12 registered natural heritage areas (~1200 ac.)
- 44% pines, 42% hardwoods, 14% mix

 Duke Forest Teaching & Research Laboratory

 Duke University West Campus

Duke Forest **MISSION**



- Facilitate research that addresses fundamental and applied questions concerning forested and aquatic ecosystems
- Aid in the instruction of students so that they will be informed citizens and effective stewards of our natural resources



What factors explain variation in *Microstegium vimineum*'s effects on nitrogen (N) cycling?

Investigators: Justin Wright (PI) and Marissa Lee
Duke University

Duke Forest **MANAGEMENT**

Priorities:

- Promoting the teaching and research mission
- Sustainably managing resources for timber, water quality, and wildlife
- Protecting rare species, unique ecosystems, historic features
- Providing education and outreach opportunities
- Offering recreational and aesthetic amenities



The mark of
responsible forestry



Duke Forest OPERATIONS

Activity	FY 13-14 (ac)	FY 12-13 (ac)	FY 11-12 (ac)
Pre-commercial Thinning	64	47	0
Commercial Thinning	118	27	9
Regeneration & Intermediate Harvests	185	117	85
Seed tree	44	44	0
Seed tree removal	9	33	69
Selection	41	20	16
Clearcut	69	20	0
Salvage	22*	0	0
Herbicide	89	61	98
Stand Improvement & Release	61	41	75
Chemical invasive control	27	20	23
Maintenance	1	0	0
Prescribed Burning	22	3	24
Planting	0	0	18
Other Cultural	54	5	53
Manual invasive removal	26	5	35
Stand improvement/remediation	28*	0	18
TOTALS	532	260	287



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Invasive Plant Management



Violet Wood Sorrel, *Oxalis violacea*

Goal: To control or eradicate non-native invasive plants and promote native plant populations where ecologically and economically feasible

Why?

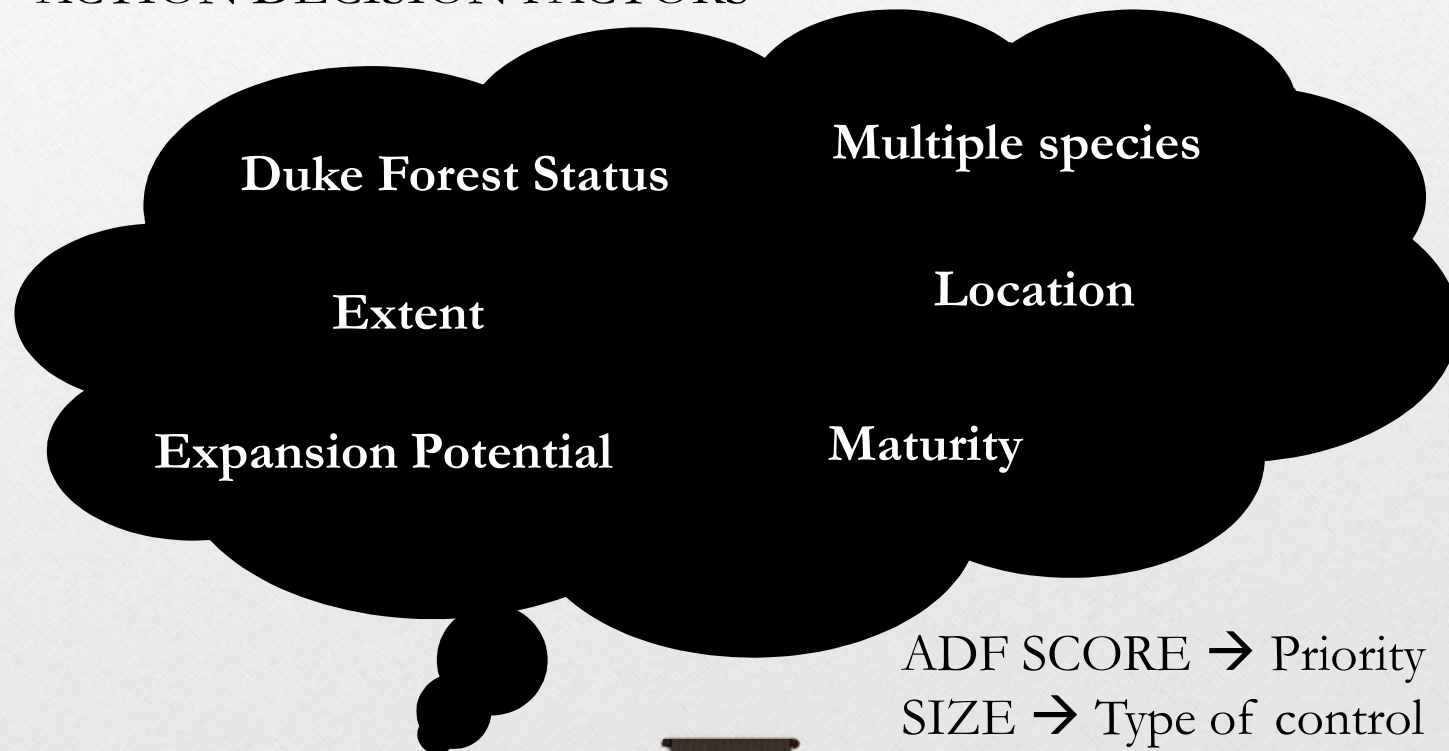


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Invasive Plant
Management

Approach: A combination of detection, threat ranking, prioritization, control, monitoring, and prevention

ACTION DECISION FACTORS



ADF SCORE → Priority
SIZE → Type of control



Glade Wild Quinine (*Parthenium auriculatum*)

Location Priorities:

Registered Natural Heritage Areas

Timber Management Stands

Occurrences of Highly Aggressive Invasives



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Invasive Plant
Management



Location Priorities:

Registered Natural Heritage Areas

Timber Management Stands

Occurrences of Highly Aggressive Invasives



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Invasive Plant
Management

Control

Mechanical

- Controlled burn
- Hand removal
- Cutting

Chemical

- Cut stump application
- Foliar spray
- Basal bark
- Hack and squirt



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Invasive Plant
Management



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PREVENTION

- Working with neighbors to address seed sources
- Educating the public about invasive species
- Promoting healthy populations of native species



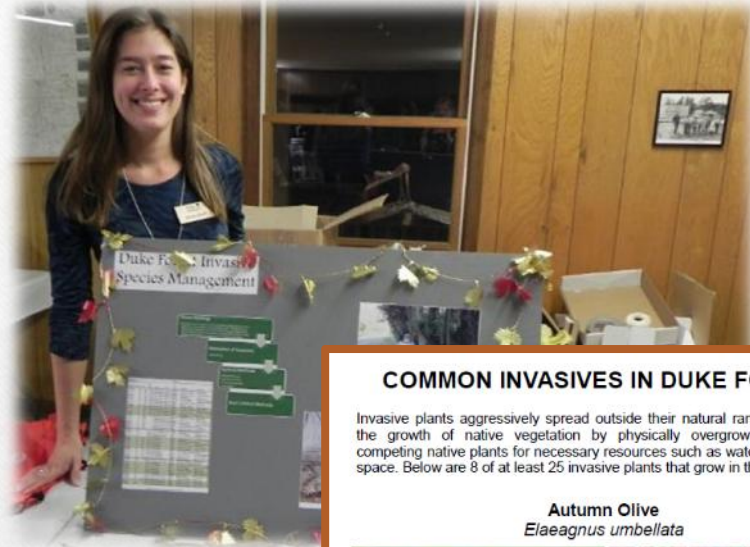


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Invasive Plant
Management

PREVENTION

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COMMON INVASIVES IN DUKE FOREST

Invasive plants aggressively spread outside their natural range. They hinder the growth of native vegetation by physically overgrowing and/or out-competing native plants for necessary resources such as water, nutrients, and space. Below are 8 of at least 25 invasive plants that grow in the Duke Forest.

Autumn Olive
Elaeagnus umbellata





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Invasive Plant
Management

PREVENTION

- Working with neighbors to address seed sources
- Educating the public about invasive species
- **Promoting healthy populations of native species**





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Invasive Plant
Management

Challenges

1. Time, \$, multiple priorities
2. High edge to area ratio
3. FSC Prohibited Chemicals
4. IS IT EVEN POSSIBLE???



Wisteria invasion into Eno River
Mesic Slopes Natural Heritage Site

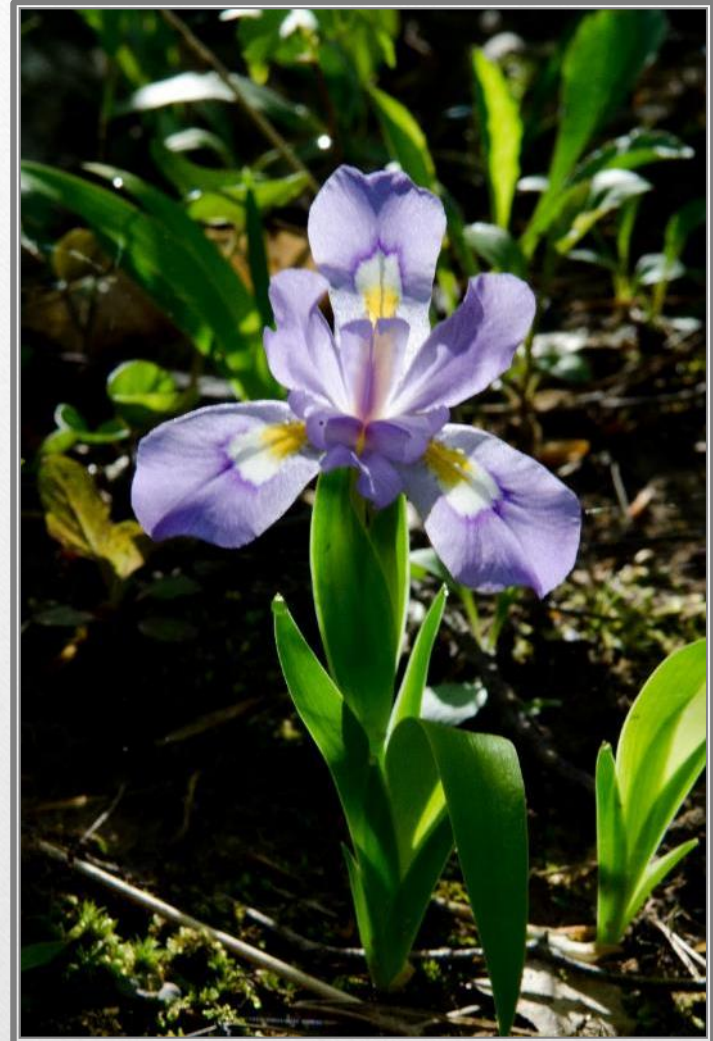


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Invasive Plant
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Opportunities

1. Dedicated capacity
2. Partnerships
3. Monitoring
4. Public involvement



Dwarf Crested Iris, *Iris cristata*

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