Duke Forest

Annual Gathering

November 9, 2017
Agenda

• Introductions
• Presentations
  • Duke Forest’s Year in Review
  • Wildlife: Home in the Forest
• Clarence Korstian Award
• Closing Remarks

Southern Cloudywing, *Thorybes bathyllus*
Agenda

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Southern Cloudywing, *Thorybes bathyllus*
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
Duke Forest Management

- 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

Downy Rattlesnake Plantain, *Goodyera pubescens*
Duke Forest

Year in Review

2016 - 2017

Sundrops (Oenothera fruticosa)
PVC pipes mark transects installed by Duke Ph.D. student, Rebecca Dalton, to understand shifts in flowering phenology in spring ephemerals and its effects on population dynamics.
PI: Emily Bernhardt
Duke Biology Professor

• Stream PULSE
• Korstian – New Hope Creek, Durham – Mud Creek, Edeburn – Stony Creek
• Part of a massive effort that includes nearly 500 streams and rivers nationwide.
• Better understand role of streams and rivers in nutrient cycling (carbon and nitrogen) and modulation of climate change effects
PI: John Walker, Environmental Protection Agency

Air Quality Research - Measurement and modeling of air-surface exchange of reactive nitrogen and carbon in a mixed hardwood forest to assess National Ambient Air Quality Standards and develop deposition budgets of nutrients.
Duke Forest Teaching

- 28 activities
- 23 educators
- 118 visits
- 1,375 students
Undergraduates from Warren Wilson College spent 2 days in the Duke Forest learning about forest management, including silviculture and natural resource protection.

ED: Dr. Dave Ellum and Duke Forest staff
ED: Brian Schneider and Duke Forest staff

Students from a 2-year forestry degree program at Haywood Community College visit the Duke Forest every year to learn about silviculture, timber management, and resource stewardship.
Duke Forest
MANAGEMENT &
STEWARDSHIP

Stand Improvements  181 acres

- Hardwood control  59
- Invasive control  27
- Pre-commercial thinning  75
- Site preparation  16
- Site restoration  4

Harvests  209 acres

- Regeneration
  - Patch cutting  3
  - Seed tree  27
  - Selection  28
  - Shelterwood  48
- Intermediate
  - Commercial thinning  76
  - Selection  18
- Other harvests
  - Seed tree removal  9

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Pre-commercial thinning

The first “tending” in a regenerated pine stand is the reduction of tree stem density to ~400 trees/acre (10’ x 10’ spacing). This promotes vigorous, healthy tree growth.
Korstian Division – Culvert Replacements

Two major culverts replaced along tributaries to New Hope Creek. Many original roads and culverts were installed by the CCC back in the 1930s. Unfortunately, we were unable to preserve the hand-set stone retaining walls.
Duke Forest **EDUCATION & OUTREACH**

- 24 activities
- 637 people
- 76 hours
Duke Forest VOLUNTEERS

- 3 events
- 13 people
- 10 hours
Duke Forest

Project Updates

Land snail among flowering Stonecrop, *Sedum ternatum*. 
Duke Forest **Five-Year Strategic Plan: 2017 - 2022**

Stewardship for Long-Term Sustainability

Research and Teaching

Community Engagement
Duke Forest Five-Year Strategic Plan:

Stewardship for Long-Term Sustainability

Steward the natural, financial, and human resources of the Duke Forest to ensure its long-term sustainability as a major University asset for research, teaching, and community outreach.

- Diversify revenue sources
- Conserve and restore resources
- Maintain stable land base
Duke Forest Five-Year Strategic Plan:

Research and Teaching

Stimulate substantial contributions to scientific knowledge and interpretation through use of the forest in research and teaching, especially at the frontiers of our understanding and appreciation of the natural world.

- Promote across new disciplines, technologies, and audiences
- Strengthen recognition as a major research and teaching destination

Milkvine, *Matelea spp.*
Duke Forest Five-Year Strategic Plan:

Community Engagement

Engage with the University and public communities to expand the forest’s role as a stage for academic exploration and to share vital insights about the interaction between humans and the environment, putting that knowledge in the service of society.

- Bolster staff capacity
- Connect communities with science

Coral Honeysuckle, *Lonicera sempervirens*
Deer Management Program

Harvest and Spotlight Data

- Total Deer Culled
- Post-hunt Deer Survey

Yearly Data:
- 2009-2010: 86
- 2010-2011: 78
- 2011-2012: 81
- 2012-2013: 100
- 2013-2014: 74
- 2014-2015: 105
- 2015-2016: 56
- 2016-2017: 55

Graph shows the difference in deer culled and surveyed post-hunt from 2009-2010 to 2016-2017.
Shepherd Nature Trail Restoration

This project was funded through the Duke Forest Improvement Fund and by the Durham County Matching Grants Program for Recreation and Open Space.
A collaborative effort to identify high-priority landscape corridors that connect a network of critical wildlife habitats within the Jordan Lake watershed and across the “land bridge” between New Hope Creek (Cape Fear River Basin) and the Eno River (Neuse River Basin).
Rosepink, *Sabatia angularis*
Upcoming Events

• Management Tour
  • Saturday, December 9, 2017

• Pine Cone Pacer 5K (9th)
  • Saturday, April 14, 2018

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• For details and to register, go to our website or call 613-8013

• Check the website frequently for additional events or sign up for our Event Listserv