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Hardwood Ecosystem Experiment

THE HEE UPDATE

SPRING EPHEMERALS, SOIL, AND DEER EXCLOSURES

Indiana University has recently joined the Hardwood Ecosystem Experiment's research team. This spring, Dr. Angie Shelton began a study of spring ephemeral and soil arbuscular mycorrhizal fungi (AMF) communities in the HEE's array of deer exclosures.

White-tailed deer browsing can have a significant impact on forest communities.

White-tailed deer are an important driver in the development of forest communities. The impacts of deer browsing can range from a reduction in tree and herbaceous plant growth and regeneration to a complete alteration of forest succession.

Spring ephemerals (wildflowers) are particularly sensitive to deer browsing due to their early arrival in spring and the brief time they spend above ground. AMF are highly susceptible to decline in areas of heavy deer browsing. AMF improve many soil processes and help supply important nutrients to the roots of their host plants.

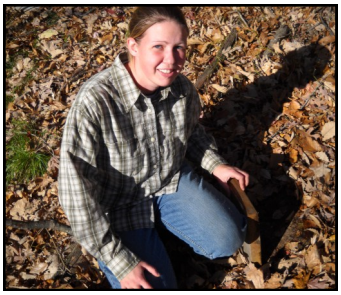
A field crew from Indiana University surveyed spring ephemerals at all 32 deer exclosures and their associated control plots at Morgan-Monroe and Yellowwood State Forests. Because of the warm spring, many species were several weeks ahead of their typical emergence and flowering times. Other species, such as jack-in-the-pulpit, emerged at approximately the same time as usual despite the warm weather. To capture both cohorts of plants, they sampled the plots in two rounds. They surveyed five 0.5 m x 0.5 m quadrats per plot in late March to early April and then another four quadrats in the same plots about three weeks later. This insured that data was collected across the range of flowering times of the various spring ephemeral species. Data is still being entered and analyzed so results are not yet available. However, the researchers have observed apparent differences among the different units, harvest methods, and slope aspects.

The same crew has also collected soil samples from each of these plots. They are currently analyzing the samples for nitrogen, phosphorus, and organic matter. They will soon be starting a greenhouse experiment using these soils to examine the AMF and other soil communities. They will compare root colonization of sorghum plants grown in the soil from the different plots to look for differences in the soil microbial community due to harvest method and deer browsing.

Fire pink is a common spring ephemeral in the forests of southern Indiana.

Graduate Students: Coming and Going

The past several months have seen quite a few changes in the complement of graduate students working on the Hardwood Ecosystem Experiment. Congratulations to the following recent graduates:



Jami MacNeil defended her master's thesis on November 30, 2011 at Purdue.
Title: The Effects of Forest Management on Terrestrial Salamanders

Ken Kellner defended his master's thesis on February 27, 2012 at Purdue.
Title: Temporal Dynamics of Mast and Small Mammals: Short-term Responses to Silviculture in Southern Indiana

Jennifer Wagner defended her master's thesis on March 20, 2012 at Ball State.
Title: Cerulean Warbler Population and Breeding Response to Recent Silviculture and Influences of Prey Availability on Avian Nesting Ecology

Ryan Dibala defended his master's thesis on March 27, 2012 at Ball State.
Title: Population Response of a Declining Songbird to Silviculture: How Cerulean Warbler (*Setophaga Cerulea*) Territory Size and Settlement Patterns Fare in the Face of Forest Disturbance

Melissa Malloy defended her thesis on April 13, 2012 at Purdue.
Title: Effects of Forest Management on Breeding Bird Populations of Mixed Deciduous Forests of Southern Indiana

Beginning with the 2012 field season, two new graduate students have joined the HEE's Cerulean Warbler research program at Ball State University. Welcome Sasha Auer and Kevin Barnes!

Since the project's inception in 2006, 12 students have completed their graduate degrees as part of the Hardwood Ecosystem Experiment.

The new HEE interpretive sign is now installed at the Unit 3 clearcut along Main Forest Road in Morgan-Monroe State Forest.

FIA Tour

A group of about 20 individuals from the Forest Inventory and Analysis (FIA) management team visited the Hardwood Ecosystem Experiment on Wednesday, June 20, 2012. Jack Seifert (IDNR-DoF), Scott Haulton (IDNR-DoF), Jeff Riegel (Purdue), and Rebecca Kalb (Purdue) discussed various aspects of the project. The current field crew demonstrated the small mammal trapping procedures with the help of a short-tailed shrew and a white-footed mouse.

Check us out on the web!

www.HEEForestStudy.org

What's happening this summer?

- Breeding bird surveys
- Small mammal trapping
- Cerulean Warbler surveys
- Bat acoustic monitoring
- Bat mist-netting with new radio-telemetry component
- Moth sampling
- Nightjar surveys
- Summer Barred Owl productivity surveys

Bobcat Sighting

Scott Haulton (IDNR-DoF) reported seeing a bobcat this spring at Morgan-Monroe State Forest near the Unit 3 clearcut on Main Forest Road.

Do you have pictures from any HEE related event or activity?

If so, you can submit them to the HEE Project Coordinator for archiving. Please include any information about the pictures.