

Cooper's Hawks have nested in Dunn's Woods for years. Photo Credit: Elizabeth Raff



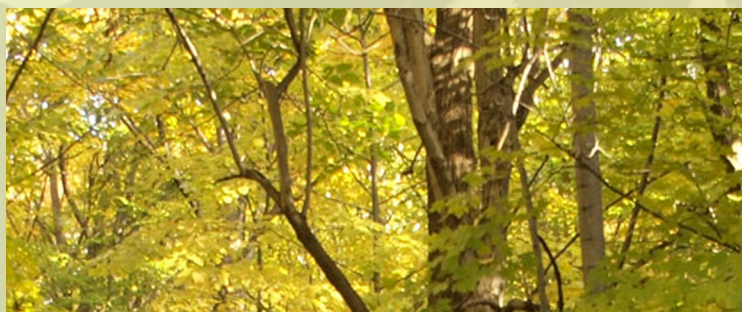
Invasion.

Threats: Over twenty exotic invasive plant species are present in Dunn's Woods, including Purple Wintercreeper (*Euonymus fortunei*), an evergreen groundcover. Purple Wintercreeper is choking out native wildflowers and tree seedlings throughout the woods. In May 2011, two severe windstorms damaged or killed dozens of trees, opening up large gaps in the canopy that invasive plants can exploit. Planting of native trees, shrubs, wildflowers, ferns and woodland grasses into the gaps is needed to reestablish a healthy native community resilient against invasion.

- Produce oxygen
- Purify air and water
- Cool the campus, helping to mitigate the urban heat island effect
- Offer a biological carbon sink that offsets climate warming greenhouse gases
- Moderate flooding and prevent soil erosion

Dunn's Woods is an approximately ten-acre, 100+-year old wooded area at the heart of Indiana University's Bloomington campus. The site has a deciduous forest canopy and is maintained with a minimum of disturbance. The woods provide a serene and beautiful green space in an otherwise urban area and are host to wildflowers such as Trout Lily, Wild Ginger, and Spring Beauty; Cooper's hawks, diverse insects, box turtles, squirrels, and other animals; and many species of fungi and bacteria. In addition to supporting biodiversity and providing aesthetic enjoyment, the woods:

## ECOLOGY OF THE WOODS



# Dunn's Woods

Reconnecting with Place  
Conserving Our Natural & Cultural Heritage

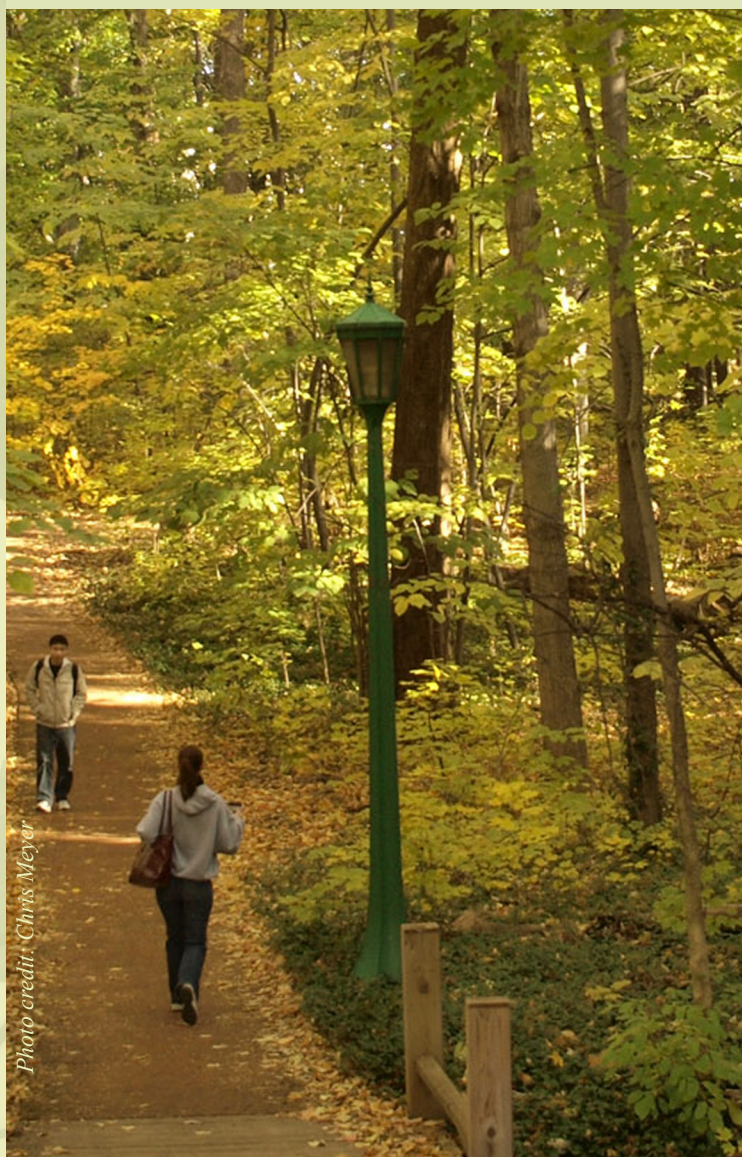


Photo credit: Chris Meyer



The Old Crescent in the late 19th century.

Dunn's Woods has a long history as a sanctuary for nature and human reflection. 1883: IU purchases 20 acres from the Dunn family for a new campus. The Dunn's Woods area is a tree-dotted turf amidst the Old Crescent quadrangle

- 1890s: Botany professor David Motter planted 1000+ trees collected locally
- 1940's-1950's: Woods are neglected, understory becomes overgrown
- 1953: Landscapers planted Purple Wintercreeper and English ivy on campus
- 1980s: The Old Crescent and Dunn's Woods are listed on the National Register of Historic Places. Faculty, students, and alumni participate in a "Save the Woods" campaign to protect the woods from development.
- 2000's: Faculty, staff, and students work to remove Purple Wintercreeper. Biology faculty and students conduct research, and work with IU's Landscape Architect and an Office of Sustainability intern to initiate study of Purple Wintercreeper control methods.
- 2010-2011: An Office of Sustainability Research Development Grant supports research, teaching, outreach and restoration efforts that integrate land use history and ecology. A restoration experiment is established. Invasive plants are mapped and restoration efforts begun. Damaging wind storms occur in 2011.
- Present: There has never been an official act to protect the Woods, and windstorms have made it highly vulnerable to exotic invasive species. Increasingly active stewardship to preserve the woods is imperative. Funding from Audubon and Toyota support continued restoration efforts in Dunn's Woods, and expansion of the project to include a city-owned site, Latimer Woods.

## HISTORY

## VISION

Dunn's Woods can be a showcase of Indiana's natural woodland heritage. Through research, teaching, and outreach, we can reduce the impact of exotic invasive species and restore the woods' beauty, species diversity, and ecological services. Transforming Dunn's Woods can help to transform people's sense of ecological connectedness within the landscape. Future activities include:

- Leading volunteers in removing exotic invasive plants
- Planting wildflowers and other native plants grown in campus greenhouses
- Extending research to include monitoring of plant, insect, and bird species diversity, and ecosystem services
- Developing courses, workshops, films, and other teaching and outreach materials to promote awareness of ecological connections, methods of invasive species control, and restoration of native biodiversity within our local landscapes



Dunn's Woods provides the backdrop for Earth Day 2004 at Sample Gates. Community involvement will be key to restoring and preserving Dunn's Woods. Photo credit: Heather Reynolds



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- Researching the historical and cultural forces that have shaped this woodland environment
- Conducting and applying ecological research aimed at mitigating exotic invasive plants and promoting native biodiversity
- Developing teaching and outreach opportunities that reconnect students and local citizens with their cultural and natural heritage

## THE DUNN'S WOODS PROJECT

## RESEARCH

Dunn's Woods is an active site for research by faculty and students. Areas of study include methods of Purple Wintercreeper control and native species restoration, the soil microbial community and its influence on growth of exotic vs. native plant species, and plant species traits such as drought tolerance. Research to date shows that hand-pulling of Purple Wintercreeper is effective but very slow, native plants can be slow to recover and are vulnerable to herbivory by rabbits and other animals, soil microbial composition differs underneath Purple Wintercreeper and promotes its growth, and Purple Wintercreeper is more tolerant of drought stress than common native species.



**LEFT:** Undergraduate Jacob Gube sampled soil from the root system of Purple Wintercreeper and other woodland plants for study of microbial communities.

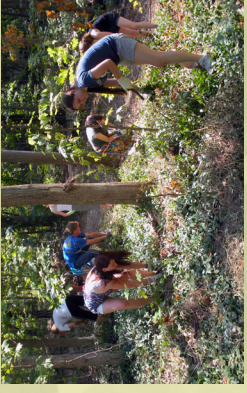
**CENTER:** Undergraduate William Rutherford investigated drought tolerance of Purple Wintercreeper and native species.

**RIGHT:** Graduate student Jonathan Bauer is investigating methods of removing Purple Wintercreeper and restoring native woodland species. Photo credits: Heather Reynolds





**Left:** Yellow Trout Lily (*Erythronium americanum*) and pink spring beauty (*Claytonia virginica*) are two of many wildflower species found in Dunn's Woods. Photo credit: Heather Reynolds



**Left:** A volunteer day with IU students and faculty to remove Purple Wintercreeper and replace it with native woodland species. Photo Credit: Heather Reynolds



**Left:** Mayapple (*Podophyllum peltatum*), a common spring wildflower in Dunn's Woods. Photo Credit: Heather Reynolds  
**Below:** A GIS map of Dunn's Woods surrounded by the Old Crescent. Footpaths are in yellow.



Map Credit: Rachel Powers. June 2011. NAD83 IN State Plane FIPS 1302. Accessed at: <http://www.indiana.edu/~gisdata/local/iub306.html>

**Below:** Kirkwood Observatory, built in 1900, possibly from stone gathered within the woods, stands at the western edge of Dunn's Woods. Photo courtesy of Wikimedia Commons.



**Below:** Purple Wintercreeper covers much of the Woods in thick carpets like this, seen near the Maurer School of Law. Such dense growth inhibits wildflowers and other native plants. Photo Credit: Heather Reynolds



**Right:** An old limestone quarry sits at the southwest end of Dunn's Woods. Bore holes can still be seen in the limestone outcrops. Great Blue Lobelia (*Lobelia siphilitica*) and Blue Mistflower (*Conoclinium coelestinum*) are among the native wildflowers that have been restored to this wetland area. Photo credit: Heather Reynolds

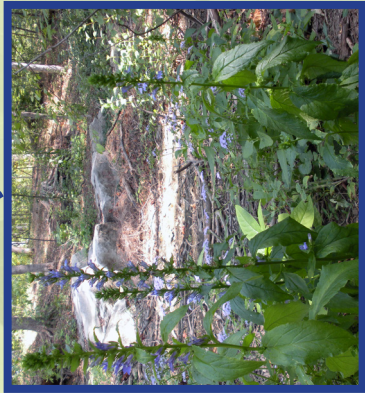


Photo Credit: Anita Bracaleme

**Left:** Jack-in-the-Pulpit (*Arisaema triphyllum*) is very sensitive to high densities of White-tailed Deer.



**Left:** White Fawn Lily (*Erythronium albidum*) a common spring wildflower in the eastern portion of Dunn's Woods. Photo credit: Roger Hangarter



**Above:** The first IU class tree (1889), damaged and then cut down as a result of windstorms. It was a long-standing custom for every graduating class to plant a tree on campus. Photo Credit: Heather Reynolds



**Above:** Adam & Eve, Jean Paul Darriau, Bronze, 1968, Indiana University Art Museum. Adam was damaged by storms in Summer 2011. Photo credit: Heather Reynolds