

# Ecological Restoration

Volume 24 Number 4 ■ December 2006

Published for the University of Wisconsin–Madison Arboretum



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# Ecological Restoration: Cultivating a "Civilized Landscape" in the Liberal Arts (Florida)

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At the 1934 dedication of the University of Wisconsin's Arboretum in Madison, Aldo Leopold presented the concept of an arboretum that would be "a sample of original Wisconsin . . . a starting point in the long and laborious job of building a permanent and mutually beneficial relationship between civilized men and a civilized landscape" (Leopold 1934). Joining Leopold was city planner, John Nolen. In 1911, Nolen authored a plan for Madison that recommended an arboretum "on the border of open country, farmland and forest" (Nolen 1911). Nolen had returned both to see his vision renewed and to receive an honorary degree. In his acceptance speech, he seconded Leopold: The nation needed a laboratory for conducting experiments "to repair the physical, biological, and aesthetic wastes [fomented] since . . . our stern Puritan forbears landed at Plymouth and began to subdue nature to their needs for liberty" (Nolen 1934).

Leopold and Nolen spent their careers redefining traditional American ideals to procure a "civilized landscape." Educators as well as professionals, they worked to embellish the landscape with places that promoted, as Leopold wrote in 1942, "lifelong opportunities for study and even experimentation" (Flader and Callicot 1991).

Educators at Rollins College in Winter Park have drawn from the works of Nolen and Leopold to integrate ecological restoration into the liberal arts. In 2002, faculty from the Department of Environmental Studies (ES) joined with the Elizabeth Genius Morse Foundation to restore the Genius Reserve, a 50-acre (20-ha) tract situated between three lakes in Winter Park. It contained 10 acres (4 ha) of mostly pristine mesic oak (*Quercus* spp.) habitat; 20 acres (8-ha) of live oak (*Q. virginiana*) pastoral landscape; 8 acres (3.2 ha) of habitat dominated by exotic species (now reduced to 3 acres or 1.2 ha); a 5-acre (2-ha) orange grove; and the residence of Rollins' late president, Hugh McKean. Hawks, owls, ospreys, bald eagles, otters, gopher tortoises, and red foxes are among the species that use the site.

The Reserve's urban location and diverse landscape made the University of Wisconsin-Madison Arboretum a logical model for restoration efforts. A faculty development grant enabled me to study the UW-Madison Arboretum and its archives, and then draft a conceptual restoration plan. An interdisciplinary team (environmental planner, field botanist, and landscape architect) then inventoried and "envisioned" the reserve, integrating this exercise into five ES courses. The outcome was a management plan with the goal of "restoring and preserving a glimpse of an earlier generation's aesthetic ideal, while providing a working laboratory in ecological restoration."

The management plan included a habitat map (using Florida Natural Areas Inventory categories) with areas dominated by exotic canopies slated as the focus of restoration work. This decision also helped refocus the ES curriculum and give seniors pragmatic experience in land management and ecological restoration. The Genius Reserve project became the genesis for a capstone class that integrates courses in field studies, environmental planning, sustainable development, and environmental history.

Before starting restoration projects, seniors analyze John Nolen's plans, read works by Aldo Leopold, and study healthy mesic oak habitats. Next, they use native landscaping texts to design restoration plans (including plant acquisition costs) for designated sites. Their work is presented to a landscape architect, who draws a formal plan. The Foundation oversees the removal of exotics and students provide the labor for planting native species (Figure 1). To provide additional plant materials, ES majors transformed an abandoned aviary into a native plant nursery. The Foundation provides student stipends to insure the nursery's operation. Once a site has been restored, the students monitor the area and devise a management plan that evolves as conditions change and information is collected.

For example, restoration of the 3-acre (1.2-ha) Banana Plantation site began with an inventory of native species. Professional crews with heavy equipment then removed a canopy of mature exotic trees. The students designed planting schemes for a hydric habitat dominated by red bay (*Persea borbonia*) and cypress (*Taxodium* spp.), and for a mesic ecotone dominated by southern red cedar (*Juniperus silicola*), southern magnolia (*Magnolia grandiflora*), and live oak. After drafting the final plan, the students planted species and covered the ground with pine straw to slow weed germination. A regimen of weed pulling and herbicide spray-



Figure 1. Students at Rollins College plant magnolia (*Magnolia* spp.) and saw palmetto (*Serenoa repens*) in a mesic/hydric ecotone near Lake Virginia. Photo by Stacey Matrazzo

ing is underway to reduce exotics until shading is effective. Native plants grown in the nursery (primarily understory trees and shrubs) will be planted to increase natural diversity and improve areas where original plantings failed to take.

In lieu of a final exam, seniors present their capstone experience and a report to Foundation officials. Graduates leave the college with an understanding of the interdependence between the liberal arts, citizenship, and civilization.

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The authors present the University of Washington Restoration Ecology Network capstone course as a collaborative learning model in which four to six student teams work on local restoration projects. Each project consists of 1) initial site visit and analysis; 2) draft project proposal reviewed by peers and clients; 3) final project proposal; 4) detailed work plans; 5) site preparation; 6) restoration installation; 7) project documentation; 8) stewardship plan; 9) training the client to maintain and monitor the restoration site; and 10) poster presentation. Clients include local government agencies, non profit organizations, public utilities, private landowners, and a range of educational institutions. Students learn to communicate effectively with different people and address a range of values among team members, clients, and community members. The authors contend the interdisciplinary approach to solving real world problems demonstrates how social and science elements combine to create successful projects.

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Shared Wisdom: Negotiating Nature. 2005. Martin, F.E. Landscape Architecture January, Pp.112-115.

Edgerton interviewed *Ecological Restoration* Editorial Advisory Board member, Paul Gobster, about his research on urban park controversies, especially restoration efforts. Gobster points out that these controversies, or "wicked conflicts," arise from deep value differences among stakeholders, largely revolving around aesthetic perceptions—people define nature differently and have conflicting visions for the limited natural areas in multicultural, urban communities. Land managers can reduce conflicts by being sensitive to the viewpoints of different stakeholders. Including stakeholders in the planning process can facilitate implementation and long-term management and may require facilitated negotiation techniques to resolve conflicts. Respecting conflicting values may require compromises rather than choosing ecological restoration goals at the expense of neighbors' aesthetics. Gobster recommends that restoration projects in high visibility areas should be small with aesthetic features, such as mowed edges, fencing, showy perennial displays, and strategic tree plantings that act as user-friendly "cues to care."