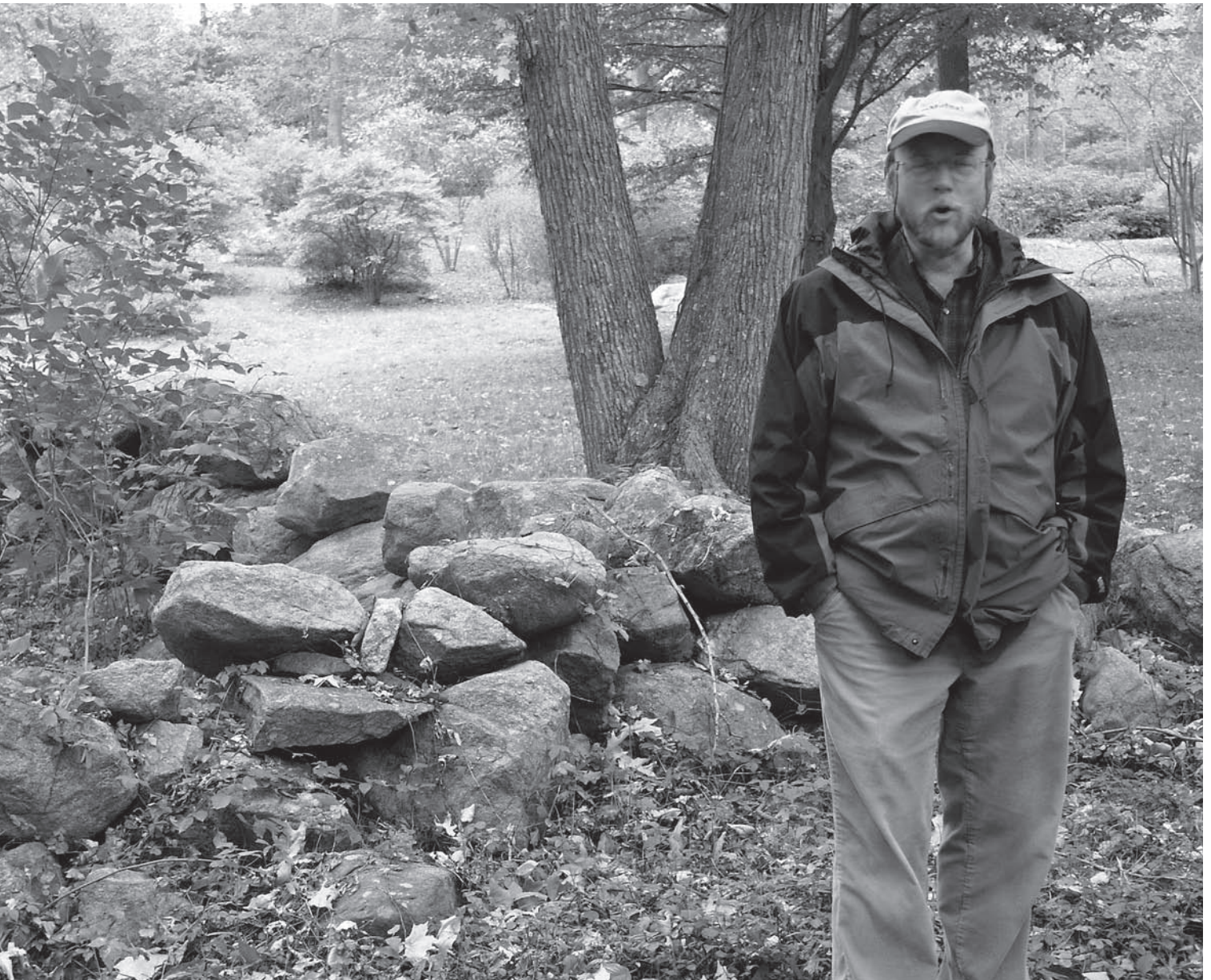


teaching



OPPOSITE PAGE, TOP: PAGE FROM A KEY
TO ARBORETUM POND INVERTEBRATES

BOTTOM: GIS MAP OF MOUNTAIN
LAUREL SHRUB DISTRIBUTION IN THE
BOLLESWOOD NATURAL AREA

ABOVE: UCONN GEOLOGY PROFESSOR
ROBERT THORSON DISCUSSES
ARBORETUM STONE WALLS.

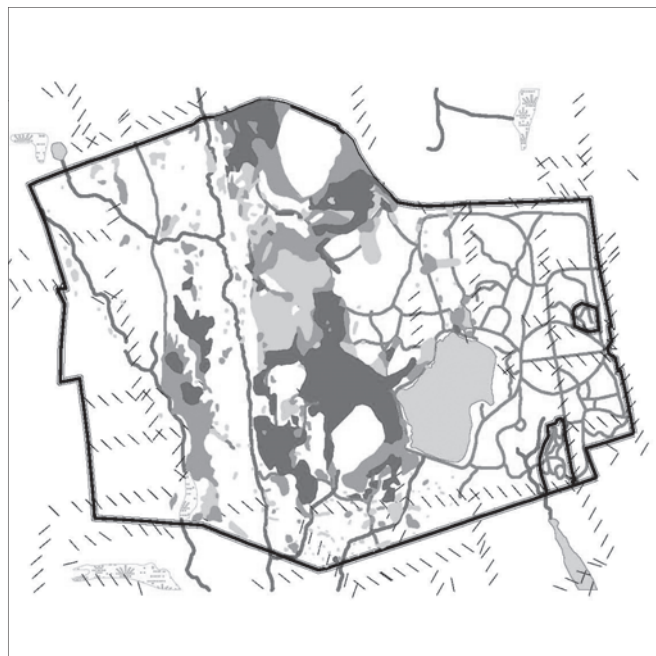
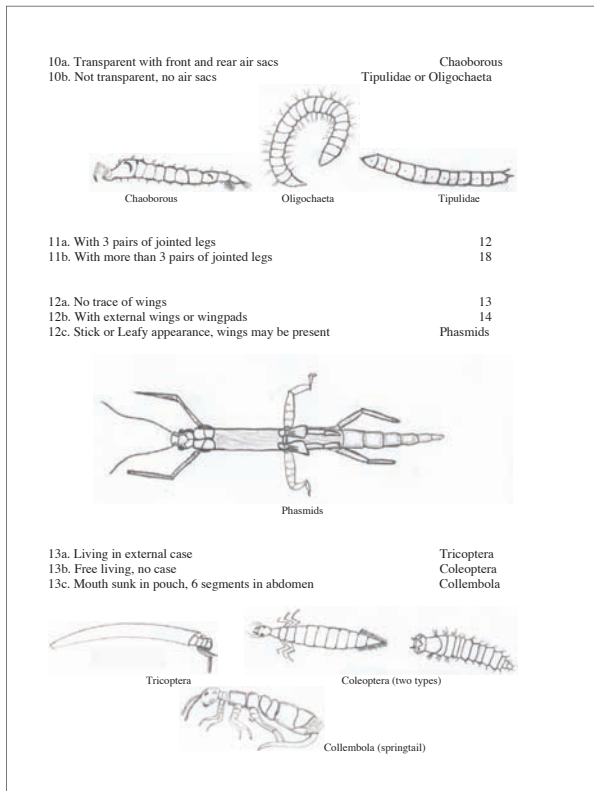
biology professor Steve Loomis' invertebrate biology course did quantitative sampling of invertebrates in the Arboretum pond associated with the lily pads, the benthic (bottom) environment, the open water and the pond edge. Such sampling has gone on for a number of years, and the results will be very interesting to compare to sampling done after a portion of the pond is dredged to a greater depth in the next few years. Mike Patterson '07 developed an illustrated key to the Arboretum pond invertebrates as an individual study project.

The relatively new ecology course (part of the four-course introductory biology sequence) continued to be developed by biology professors Anne Bernhard and Robert Askins. The Arboretum is used for six classes with five or six lab sections, each with 12-15 students.

Professor Bernhard, a marine microbial ecologist, also uses the Mamacoke salt marsh in her microbiology class to teach about the role of microorganisms in these special habitats. In her research program, she has used the Mamacoke marsh to collect samples of nitrifying bacteria with the goal of understanding their physiology and distribution.

Botany professor Peter Siver's freshwater ecology class collected phytoplankton and zooplankton from a variety of habitats in the Arboretum. They also set up an experiment to measure and compare the light spectrum reaching different locations, including in an open field, under a forest canopy and at different depths in the Arboretum Pond. Professor Siver's "Plants Protists and Fungi" class collected snow and water from seven different Arboretum locations and measured the pH and anions in the samples. On field trips in the Arboretum, the class collected bryophytes (mosses and liverworts) for laboratory examination to observed flower structure.

Ethnobotany Professor Manuel Lizarralde began to integrate Geographic Information Systems (GIS) technology in two of his courses during the fall 2005 semester. In his ecological anthropology course, students used GPS units to map stone walls in the Arboretum's Native Plant Collection, with the aim of understanding past agricultural land use. Professor Lizarralde invited University of Connecticut geologist and stone wall expert Dr. Robert M. Thorson to talk to his students and Arboretum staff about classifying and interpreting stone walls. Thorson then led the group on a field trip in the Native Plant Collection to observe walls and discuss projects. With more than 14 linear miles of stone walls within the College Arboretum's 750 acres, there is much

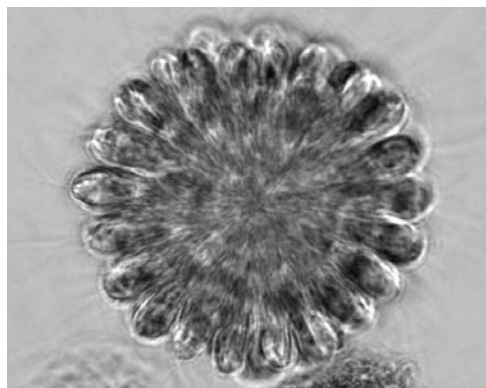
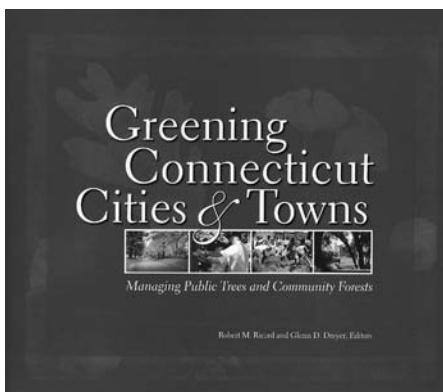





**ABOVE: CLEARING AND GRADING
OF FIVE ACRES IN MEADOW
RESTORATION PROJECT**

**LEFT: DIRECTOR DREYER'S BOOK
ON MANAGING PUBLIC TREES**

**RIGHT: SYNURA SPP, A COLONIAL
PHYTOPLANKTON COLLECTED
FROM THE ARBORETUM POND BY
THE FRESHWATER ECOLOGY CLASS**





mapping and interpretation to be done. In Professor Lizaralde's ethnobotany course, pairs of students chose among 14 native trees and shrubs and used GPS units to map the distribution of the species in the Native Plant collection and Bolleswood Natural Area.

ES/Geology Lecturer Beverly Chomiak's Introduction to GIS course utilizes the ever-increasing Arboretum geographic database for both teaching exercises and student projects. One interesting project was the mapping of mountain laurel (*Kalmia latifolia*) distribution in the Bolleswood Natural Area. Started by Scott Peterson '06, this was completed during the summer by Emily Southard '06. In addition to mapping the location and abundance of the shrubs, they also compared the distribution to various environmental factors including soils, geology, topography and aspect.

While teaching Introduction to Physical Geology, professor Doug Thompson and lecturer Beverly Chomiak used the Arboretum for four laboratory sessions.

Chemistry professor Bruce Branchini asked the Arboretum to cultivate the perennial plant *Centranthus ruber* for an exercise in his Organic Spectroscopic Methods course. The purpose was to teach students the techniques for extracting and identification of plant based organic compounds using modern spectroscopy, particularly Nuclear Magnetic Resonance (NMR). The experiment exemplifies procedures for obtaining bioactive compounds from natural sources, which have been the origin of many modern medicines.

Bryan Connolly, a botanist from Mansfield, Conn., taught Plant Systematics and the Local Flora and Plant Ecology, two courses that have utilized the Arboretum more than any others over the years. Mr. Connolly will teach these courses as a visiting instructor until the Botany Department is able to recruit a new tenure-track ecologist for the faculty.

update on the Meadow Restoration Project

Site preparation work continued on the 12-acre meadow at the eastern end of Benham Avenue. Seven acres of the site had been in a meadow/thicket stage of vegetation development but with heavy encroachment at the periphery by forest species and many invasive exotic plants. After mechanical clearing last year, multiple herbicide and mowing treatments were used to inhibit the many undesirable species from re-growing. The meadow complex was expanded by clearing an additional five acres last year, and this area was graded, mowed and herbicided. A meadow seed mixture was specified and ordered for spring 2006 planting. We anticipate that as this meadow develops, it will have increasingly important conservation, teaching and research functions.

publications

Two publications resulting from the long-term vegetation studies in the Arboretum's Bolleswood Natural Area were published in the same issue of a leading botanical journal this year. Both Sarah Goslee '92 and Melanie (Daisy) Small '03 were botany majors and participated in the long-term surveys. Sarah utilized the data in her Ph.D. dissertation at Duke, and her paper is probably the last which will include the late Dr. William Niering as a co-author. Daisy's honor's thesis was the basis for the hemlock paper.

■ Goslee, S. C., W.A. Niering, D.L. Urban and N.L. Christensen. 2005. Influence of environment, history and vegetative interactions on stand dynamics in a Connecticut Forest. *Journal of the Torrey Botanical Society* 132(3): 471-482.

■ Small, M., C. Small and G. Dreyer. 2005. Changes in Hemlock-dominated Forests Following Woolly Adelgid Infestation in Southern New England. *Journal of the Torrey Botanical Society* 132(3):458-470.

Glenn Dreyer has been involved in community tree programs since becoming a member of the Connecticut Urban Forest Council in 1992. The State's Urban Forestry Cooperative Extension Educator Bob Ricard invited him to help write and edit a book based on the popular Meskwaka Tree Training Program for community volunteers that is held each summer at Connecticut College. The book is an introduction to everything needed for a successful community tree management program. Glenn wrote the chapters on basic tree biology; tree Identification; and tree protection during construction. Glenn and Bob, in addition to editing the book and supplying most of the photographs, co-wrote the chapters on the history of community forestry in Connecticut; ecology, ecosystems and urban areas; and community assessment. Thanks to Susan Sachadt, the UCONN graphic designer and illustrator for this project, this book won a Silver Communications Award from District 1 of the Council for the Advancement and Support of Education (CASE).

■ Ricard, R.M. and G.D. Dreyer, eds. 2005. *Greening Connecticut Cities and Towns: Managing Public Trees and Community Forests*. University of Connecticut College of Agriculture and Natural Resources. Storrs. 265 pages.

The following article was sent to the Arboretum by co-author David Wright, the parent of a 2005 Connecticut College graduate. The paper describes a previously unknown butterfly species and includes color photographs of the butterfly and two closely related species taken in the Arboretum.

■ Pavulaan, H. and D. M. Wright. 2005. *Celastrina serotina* (Lycaenidae: Polyommatainae): A new Butterfly species from the Northeastern United States and Eastern Canada. *The Taxonomic Report of the International Lepidoptera Survey* 6(6): 1-18.

■ Patterson, Michael, 2005. An artificial key to the common aquatic invertebrates of the Connecticut College Arboretum Pond. Individual Study Report. 10 pages.