

New England Botanical Club - Minutes of the 990th Meeting **12 September 2003** Arthur V. Gilman, Recording Secretary *pro tempore*

The 763rd meeting of the New England Botanical Club, being the 990th since its original organization was held at the University of Massachusetts-Boston Field Station on Polpis Rd., Nantucket, MA. The fall away meeting was well attended by over 25 members and guests. Following brief remarks and remembrances of long-time Club member Dr. Wesley N. Tiffney, Jr., who ran the field station for many years, the Club welcomed Dr. Ernie Steinauer, Director of the Massachusetts Audubon Society's programs on Nantucket, who spoke on "Restoring and Maintaining Nantucket's Rare Plant Communities."

The particular Nantucket communities of most concern from a botanical perspective are sandplain grassland, which is considered globally endangered, and coastal heathland, which is considered globally threatened. Rare species of these habitats include butterfly-weed (*Asclepias tuberosa*), bushy rockrose (*Helianthemum dumosum*), broom crowberry (*Corema conradii*), silvery aster (*Aster concolor*), New England blazing star (*Liatris borealis* var. *novae-angliae*), and lion's-foot (*Prenanthes serpentaria*). There is a serious debate about the original extent of these habitats. In presettlement times (when there was a large but mostly seasonal population of Native Americans) they may have been limited to immediate coastal areas, where salt spray reduced woody plant cover. In any case, it is apparent that these plant communities were in large part maintained over a period of more than 200 years by sheep-grazing, which was at times quite intensive (in 1700 there were 17,000 sheep on the island).

With approximately 40 percent of Nantucket's land area in some type of long-term conservation protection, the primary local threat to these habitats is not, as in so many mainland regions, from development. Nor does it suffer from invasion of exotic species. Instead, the encroachment of mostly native, woody species threatens to convert (or, perhaps, re-convert) large areas of these habitats to mere scrub-shrub and forest. Scrub oaks (*Quercus ilicifolia*, *Q. prinoides*), huckleberry (*Gaylussacia baccata*), and bayberry (*Myrica pensylvanica*) are aggressive colonizers and invaders of lands that were kept open by intensive sheep grazing over a long period of time. Pitch pine (*Pinus rigida*), which is said by islanders to have been lacking in presettlement times and introduced to the Island only in 1850, is also a culprit, while Japanese black pine (*P. thunbergii*) is now present on the moors and grasslands as well.

Management is aimed at suspending or retarding the forestation of these habitats. Currently, Massachusetts Audubon Society is actively managing approximately 2500 acres on Nantucket, primarily through mowing and prescribed burning. Both methods have positive and also negative aspects; neither is inexpensive. One of the major problems, for both methods, is that the woody species are adapted to loss of their crowns or above-ground parts, and very quickly re-establish their dominance in the habitat. Quantitative data show that there is not a significant difference between these two management tools in reducing woody plant cover, at least in the time frame that they have been employed at Nantucket (approximately 15 years). It is apparent that fire, although it has received good press as a preferred management tool, is a maintenance tool but not a restoration tool. Neither fire nor mowing, alone, will be sufficient to restore or enhance these habitats. Ongoing experiments to increase their efficacy include litter removal (i.e., raking off the mowings), and re-establishment of sheep pasturage on a limited scale. It may be necessary to undertake seed supplementation to overcome losses that have already occurred, as there does not seem to be an adequate source of propagules for optimum, or desired, population levels of rare species. In light of this research and his experience on Nantucket, Dr. Steinauer suggests the following conservation priorities: 1) Acquiring and maintaining existing high quality plant communities should be the highest priority. 2) A formula should be developed to rank potential restoration sites that maximize the cost to benefit ratio. 3) Use agricultural grasslands as introduction sites for seeds of rare species. 4) Consider the use of other management tools such as herbicides or grazing. 5) Consider seed supplementation from on or off-island populations.

NEBC Field Trips on Nantucket Island - 13 September 2003

Threatening skies held off throughout Saturday for Club members to enjoy a series of outings on Nantucket. Field trips were led by Dr. Ernie Steinauer, speaker the previous evening, by Cormac Collier of the Nantucket Land Council, by Rachael Freeman, and by Pam Polloni. Beginning at the Middle Moors, a coastal heathland area near Altar Rock, the Club enjoyed an hour of leisurely botanizing that familiarized us with such plants as the locally common, but globally rare golden aster (*Pityopsis falcata*), bearberry (*Arctostaphylos uva-ursi*), the scrub oaks (*Quercus ilicifolia* and *Q. prinoides*), various asters, narrow-leaved goldenrod (*Euthamia tenuifolia*), and goat's-rue (*Tephrosia virginica*).

Following on to Pout Pond, the high water from a wet summer made aquatic botany difficult, although Oakes's pondweed (*Potamogeton oakesianus*) was in full fruit, and Robbin's spike-rush (*Eleocharis robbinsii*) and water-willow (*Decodon verticillatus*) were in flower. A few members walked north to see one of the smaller bogs on the island, Donut-Hole Bog, tawny with cotton-grass (*Eriophorum sp.*), but also difficult to botanize due to high water.

The next stop was a nearby stand of several acres of broom crowberry (*Corema conradii*), a species of conservation concern on the island. The mounding topography was striking, with taller islands of oaks – rather like a lush alpine garden in aspect. Here, lengthy discussions centered on the Cistaceae: beach-heathers (*Hudsonia ericoides* and *H. tomentosa*), rockroses (*Helianthemum propinquum* and *H. dumosum*), and pinweeds (*Lechea maritima*). Although some of the vehicles bounced uneasily through loose sand and over the bouldery roads on the glacial moraine, everyone was back safe at the University of Massachusetts Field Station for lunch, where Dr. Rick Kesseli explained some of his work on dioecy in groundsel-tree (*Baccharis halimifolia*), which is abundant there. Members botanized along the beach and the edge of the salt marsh, where Pam Polloni discovered a new station for seabeach knotweed (*Polygonum glaucum*). Dr. Matt Hickler pointed out *Parthenocissus vitacea*, perhaps new to the Island.

The afternoon was spent at the Smooth Hummocks Coastal Preserve area, where leaders pointed out the research plots for silvery aster (*Symphiotrichum concolor*), and members studied such attractions as purple gerardia (*Agalinis purpurea*), New England blazing star (*Liatris borealis* var. *novae-angliae*), and showy aster (*Symphiotrichum spectabile*). A search for the southern bracken (*Pteridium aquilinum* var. *pseudocaudatum*) was bootless, but members were rewarded with a nice showing of lion's-foot (*Prenanthes serpentina*), a species of concern on the island. Sandplain flax (*Linum intercursum*) and Nantucket shadbush (*Amelanchier nantucketensis*) rounded out the list of rarities.

Botanizing was not confined to field trips, however. Local botany in Nantucket Village proved interesting for those from colder climes: from the abundantly planted and sparingly escaped sweet autumn clematis (*Clematis ternifolia*) and butterfly bush (*Buddleia davidii*) to the abundance of sycamore maple (*Acer pseudoplatanus*), which might well be christened the Nantucket plane tree, members enjoyed their strolls into and about town.

Submitted by Arthur V. Gilman