

New England Botanical Club – Minutes of the 950th Meeting

10 September 1999 Prepared by Dr. Paul Somers, Recording Secretary

The 723rd meeting of the New England Botanical Club, being the 950th since its original organization, met on Friday, September 10, 1999, in the main lecture hall at Harvard University's Geological Lecture Hall with 30 members and guests present.

Vice President Lisa Standley opened the meeting, announcing the names of six new members and the recent deaths of two much respected New England botanists, Dr. Norton Nickerson, a retired Professor of Environmental Studies at Tufts University and former Editor-in-Chief of *Rhodora*, and Dr. William Niering, a Professor of Botany at Connecticut College. Announcements of upcoming events included a November 6th symposium entitled "Invasive Plants: Challenges, Options, and Methods of Control" in Framingham, Massachusetts, sponsored by the New England Wild Flower Society and NEBC's Millennium Field Trip to the Gaspe' Peninsula scheduled for July 9-15, 2000. Lisa then introduced the evening speaker.

Dr. Les Mehrhoff, curator of the George Safford Torrey Herbarium at the University of Connecticut, addressed the topic, "The Non-native Invasive and Potentially Invasive Flora of New England: A Regional Perspective." He explained first that his concern was primarily about non-native species that are out-competing native flora in portions of the "minimally managed" landscape. Where once we had old fields succeeding to *Rubus*, now we are likely to see the ubiquitous *Rosa multiflora* conquering the abandoned opening. Although early American botanist John Bartram complained in print about the proliferation of *Narcissus* cultivars into the natural environment around Philadelphia, there was little mention in the scientific literature of problematic plant introductions until a pair of papers authored by M. L. Fernald in 1905 and 1939 described certain "fugitives that had escaped." Reflective of the change in sentiment toward certain species, Fernald commented that the common name for *Hieraceum aurantiacum* in his native Maine changed from Venus' Paintbrush to Devil's Paintbrush. In the later paper, he noted a number of Asian taxa, such as *Lonicera japonica*, that were "crossing the landscape like a horde of huns." Mehrhoff points out that the term "invasive" should apply only to non-indigenous species, because technically a species cannot invade its own territory. When natives behave aggressively, he recommends we use the word "explosive." So as not to malign any species as inherently "bad," Les cited a line from an Aldo Leopold paper written in the 1940's that says that "the invasive species problem is an attribute of numbers, not species." If not for herbarium records, he points out, it would be hard to know whether certain taxa were native or weedy introductions. An example given was the widespread Dusty Miller, *Artemisia stelleriana*, a species for which Fernald found the first American collection to be from 1879, a specimen collected by William Farlow in Nahant, Massachusetts.

Mehrhoff then discussed current efforts by himself and others in New England to develop definitions and criteria to be used for determining which species are invasive or potentially invasive in the New England region. He listed the following as characteristics of invasive species: (a) being non-native, (b) having high seed production, (c) being capable of rapid dispersal, (d) having the ability to establish easily, (e) having a competitive advantage over associated plants, and (f) being persistent on the landscape. He then recognized two categories of

non-native invasive species: "Widespread and Invasive" and "Restricted and Invasive." A third "watch-list" group, he and New England colleagues are calling "Potentially Invasive Species." To determine to which of these three groups a species might belong, Mehrhoff, in typical taxonomic fashion, has developed a work sheet that progresses through a set of criteria like a dichotomous key. The four primary questions are: (1) Is it naturalized? (2) Is it capable of rapid and widespread dispersion and establishment? (3) Is it capable of dispersing over spatial gaps? (4) Is it capable of existing in high numbers away from artificial habitats? Four additional basic criteria are: (5) Is it currently widespread or at least common in the region or one or more habitat types? (6) Is it known to have numerous individuals in many populations in the region? (7) Does it out-compete other species in the same natural plant community? (8) Does it have the potential for rapid growth, high seed or propagule production, dissemination, and establishment in natural areas? A "yes" answer for all eight of these questions are important criteria for a Widespread Invasive or Restricted Invasive. To distinguish between these two categories of invasives, one must determine whether the species is widespread with many occurrences in minimally managed natural areas or simply common in part of the region or in one or more habitat types in the region. If the first four criteria are met, but one or more of the remaining four questions are not met, then the species qualifies as a "Potentially Invasive Species." Over 50 slide images were used to illustrate taxa being considered for the three categories described by Les. A draft list for New England was distributed along with a request for feedback on it.

What else is needed to deal with plant invasion problems? Among Mehrhoff's answers to this question are to do further inventory and research, including that aimed at getting a better understanding of species biology for many of the purported invaders. Early detection and removal of new invaders is another important action, he said. Another avenue he encourages is working with the nursery and landscaping industries to find native alternatives, to test and monitor new exotic introductions, and to educate their customers. A final item fitting into Mehrhoff's solutions is a computerized atlas of non-native invasive species in New England that would serve as a database of current and historical records. This, along with other information about invasive plants, he envisions being available at a web site. The web site for the herbarium at the University of Connecticut has a draft of Mehrhoff's list for Connecticut (<http://www.eeb.uconn.edu/collections/herbarium/herbarium.html>). Please contact Les directly for copies of lists and further information (vasculum@uconnvm.uconn.edu).