

New England Botanical Club – Minutes of the 929th Meeting

6 June 1997 Prepared by Lisa A. Standley, Recording Secretary

The 702nd meeting of the New England Botanical Club, Inc., being the 929th since the original organization, met on Friday, June 6, 1997 at the University of Massachusetts' Morrill Science Center in Amherst, with 35 members and guests present.

Following the reading of the minutes, Recording Secretary Lisa Standley called for the introduction of guests, followed by a request for old or new business, announcements or gossip. Lisa Standley reminded members of the August 9th field trip to Bash Bish Falls, led by Pam Weatherbee and David Hunt. Matt Hickler described the field trip to be held on Saturday.

Lisa Standley introduced the evening's speaker, Dr. Karen Searcy of the University of Massachusetts. Dr. Searcy spoke on the "Balds on Bare Mountain" (with apologies to Mussorgsky), her work with Paul Godfrey on the ecology and flora of the balds or barrens of the Holyoke Range. The Holyoke Range is a series of Triassic basalt flows known as the Holyoke Diabase, formed during rifting associated with the opening of the Atlantic. Later faulting raised and tilted the flow, resulting in one of the only east-west mountain ranges in North America. The tilted basalts are known as 'traprock' from a Swedish word for step. Similar (but north-south) traprock ridges occur in the Mt Tom range and southward through Connecticut.

There has been a long history of botanizing in the Holyoke Range, due to its easy access and popularity as a tourist destination. The first hotel on the summit of Mt. Holyoke was constructed in 1821, and herbarium specimens from the 1860's to 1880's are frequent. The NEBC held our third field trip, in 1913, in the Holyoke Range. Early collectors as well as those from the early 1900's thoroughly documented the showy forbs and sedges, but collected few if any of the grasses. When Dr. Searcy started her research, she found that although the flora had been well-documented in the 1860-1880 period, there was a poor inventory and understanding of its grassland or bald sites, and no information on the status or persistence of rare species that had been documented from the area over 100 years ago. She obtained funding from the Natural Heritage Program for two years to support an inventory of the balds, with the objective of determining their status, species composition, and ecology.

Two types of balds are currently recognized, all on the south-facing slope of the range. Rock balds form where basalt is little weathered, with exposed outcrops of solid rock. These have a relatively low diversity, with an average of 15 species. Grassy balds form where the basalt is more weathered and broken into 'clinkers', and are dominated by *Danthonia spicata* and *Schizachyrium*. The grassy balds have a higher diversity, with an average of 42 species.

The total flora of the balds includes 124 species, with an exceptionally low contribution (2%) of non-native taxa. Lichens, not yet inventoried, form a major part of the plant community. When compared to other grassland communities, the Holyoke Range balds share about 20% of their species with (respectively) New England sandplain grassland habitats, midwest prairies, and southern shale barrens. Rare species frequently occur on these openings. *Ranunculus fascicularis*,

Arabis missouriensis, *Asclepias verticillata*, *Polygonum tenue*, *Verbena simplex*, and *Carex bicknellii* are the more notable taxa.

Karen examined the relationship of the balds flora with the adjacent woods, and found that while some species of the balds never occur in the woods and some woodland species (*Oxalis violacea*) never occur on the balds, many other species do overlap the two habitats. The edges of balds may constitute a third microhabitat type, with a distinctive flora. The successional status, history, and future of the balds are also of interest. The south face of the Holyoke Range was grazed and burned from the early 1880's on. Junipers now growing in the balds are generally about 90 years old, suggesting that this area was pasture in the late 1880's. It is likely that balds, now isolated patches in a forested landscape, may have been larger and more widespread in the past. Are the patches that remain likely to succeed to forest, resulting in the loss of a unique habitat type and rare species populations?

Karen feels that the balds are maintained by severe climate. Her work has demonstrated that these open areas on the south-facing slope experience much hotter surface temperatures, lower soil moisture, and higher winds than the adjacent forests. These conditions appear to inhibit the growth of woody plants and maintain the important openings. Further research will focus on understanding the factors that preserve these balds and on understanding the population biology of the rare species that occur on these habitat 'islands'.

Following questions, the meeting adjourned at 8 PM for refreshments.