

## New England Botanical Club – Minutes of the 961<sup>st</sup> Meeting

6 October 2000 Prepared by Don Hudson, Recording Secretary

The 732nd meeting of the New England Botanical Club, being the 961st since the original organization, met at the Harvard Biological Laboratories on October 6, 2000 with 25 members and guests present. President Lisa Standley started the meeting with the introduction of guests and announcements. Nine new members were announced. Brandon Mann, volunteer coordinator of the New England Wildflower Society, is looking for Plant Conservation Volunteers to work in Connecticut and Maine. Dr. Standley read the obituary for Dr. Bernice Schubert who recently died at age 86. Dr. Schubert, a student of Fernald, made significant contributions to the systematics of legumes. Garrett Crow also noted that Mary Perry, a long-time club member who participated in the Newfoundland trip, died in August.

Paul Somers introduced the evening's speaker, Dr. James Fownes, of the Department of Natural Resources Conservation at UMass. Dr. Fownes spoke on "Productivity, disturbance and management of Hawaiian forests", based on research conducted while on the faculty of the University of Hawaii's Department of Agronomy and Soil Science. Hawaii (as Dr. Fownes demonstrated, the geographic center of the world) has a unique biota resulting from its extreme isolation and range of age of the island chain. The islands, formed as the earth's crust moves over a "hot spot", range in age from over 4 million years on Kauai to less than one year on portions of the island of Hawaii. These factors have created native plant communities, dominated by relatively few species, that occur on an extraordinary range of soil types.

Much of Dr. Fownes' research looked at the relationship between soil formation and forest productivity. Forest productivity was studied by using *Metrosideros polymorpha* (Myrtaceae), one of the most common dominant forest trees, across a broad gradient of soil ages. He tested various hypotheses concerning changes in nitrogen and phosphorus concentrations and availability in soils, and the relationship of plant productivity (leaf area, leaf turnover, photosynthetic rates) to soils of varying nutrient concentrations. One of his major conclusions is that *Metrosideros* is "frugal" – it conserves nutrients when they are at low concentrations or low availability.

A second research project involved *Acacia koa*, a striking native tree with sickle-shaped phyllodes. Koa is a valuable timber tree and heavily grazed by cattle, threatening its persistence. Like *Metrosideros*, it grows across a wide range of ecological conditions. One experiment involved determining the relationship between tree height, basal area, and productivity across a rainfall gradient on Kauai that extended from 11,000 to 500 millimeters of rain a year. Dr. Fownes also looked at the response of Koa growth and reproduction to grazing, to determine if there are strategies that allow these threatened trees to co-exist with grazing in buffers to preserves. He found that grazing, if introduced at least 5 years after the establishment of a stand of Koa, allowed trees to persist. Managed grazing, with periodic cattle exclusion for 5 or more years, appears optimistically to provide an integrated land use with conservation benefits.

The meeting adjourned at 8:10 PM for conversation and refreshments.