

New England Botanical Club – Minutes of the 928th Meeting

2 May 1997 Prepared by Lisa A. Standley, Recording Secretary

The 701st meeting of the New England Botanical Club, Inc., being the 928th since the original organization, met on Friday, May 2, 1997 at the Harvard Biological Laboratories with 42 members and guests present.

Following the reading of the minutes, President Hudson read the names of new members and suggested that Club members invite their guests and friends to join. He called for the introduction of guests, followed by a request for old or new business, announcements or gossip. The first volume of 1996 for *Rhodora* is finally hot off the press, and others will follow in the coming months. Don read the announcements of several upcoming meetings, with some uncertainty whether the Friends of the Farlow were discussing morals or morels. Dorothy Andrews announced that Bob Reed had been honored by the Town of Harvard, MA, for his volunteer work in the public schools with an award presented by Senator Durand on Earth Day. Barre Hellquist announced, with some gloating, his upcoming sabbatical at Australia's Sydney Royal Botanical Garden. Lisa Standley noted the August 9th field trip to Bash Bish Falls, led by Pam Weatherbee and David Hunt. David Barrington reported (via Les Mehrhoff) that the damned Vermont crocuses bloomed on schedule this year.

David Conant introduced the evening's speaker, Dr. Keith T. Killingbeck of the Department of Biological Sciences, University of Rhode Island, Kingston, RI. Dr. Killingbeck spoke on "The ecology of desert shrubs: Encounters with paradox and dogma in the arid Southwest". He offered Edward Abbey's definition of a desert as (paraphrased) "The bare skeleton of being, inviting speculation, clarity combined with the veil of mystery" as well as the more conventional definition of an area lacking water, humans, and trees. As demonstrated by his spectacular photographs, the deserts are places of vast open spaces, intricate details, and varied cultural history, made unique by the vivid contrasts of light and shadow, desolation and profusion.

Initially intrigued by the physiology of nutrient resorption, Keith investigated the nutrient dynamics of ocotillo, one of the Sonoran Desert's most spectacular flowering plants. Ocotillo is drought-deciduous, forming leaves up to 6 times a year in response to rainfall. He hypothesized that, with this large investment of nutrients and energy in a nutrient-poor environment, the plant should have extraordinary means of reabsorbing nutrients. Through innovative research techniques, the initial research found that researchers who purchase large quantities of pantyhose, twine, and fingernail polish attract attention in the small towns of the southwest. The research showed that ocotillo has very low nutrient resorption rates (lower than calculated for northeastern deciduous forests) but nutrient concentrations equivalent to those of more mesic plants, and that these rates were controlled by zinc, the critical metal cofactor for the enzymes that break down proteins and release nitrogen for resorption. Nutrient dynamics are controlled, not by adaptation to soil nutrient concentrations, but by soil metal concentrations.

Keith provided a tour of the two most interesting North American desert biomes. The Chihuahuan desert of Mexico and Texas is characterized by agaves, yuccas, barrel cactus, spectacular perennials such as bluebonnets and bladderpods, and by the ubiquitous creosote

bush. Creosote bush is the most dominant shrub in all three deserts and is actively invading desert grassland following overgrazing. Clones of this species have been shown to be the oldest known living plant, with documented ages up to 10,000 years. The Sonoran desert of western Mexico, Arizona, New Mexico and California has a somewhat different and more diverse flora, whose star players include saguaro, organ pipe cactus, ocotillo, the fabulous boojum, teddy bear cholla, and palo verde.

The evening's talk closed with striking visual impressions of the desert - vast space, light, and sculptural forms of plants and rock.