

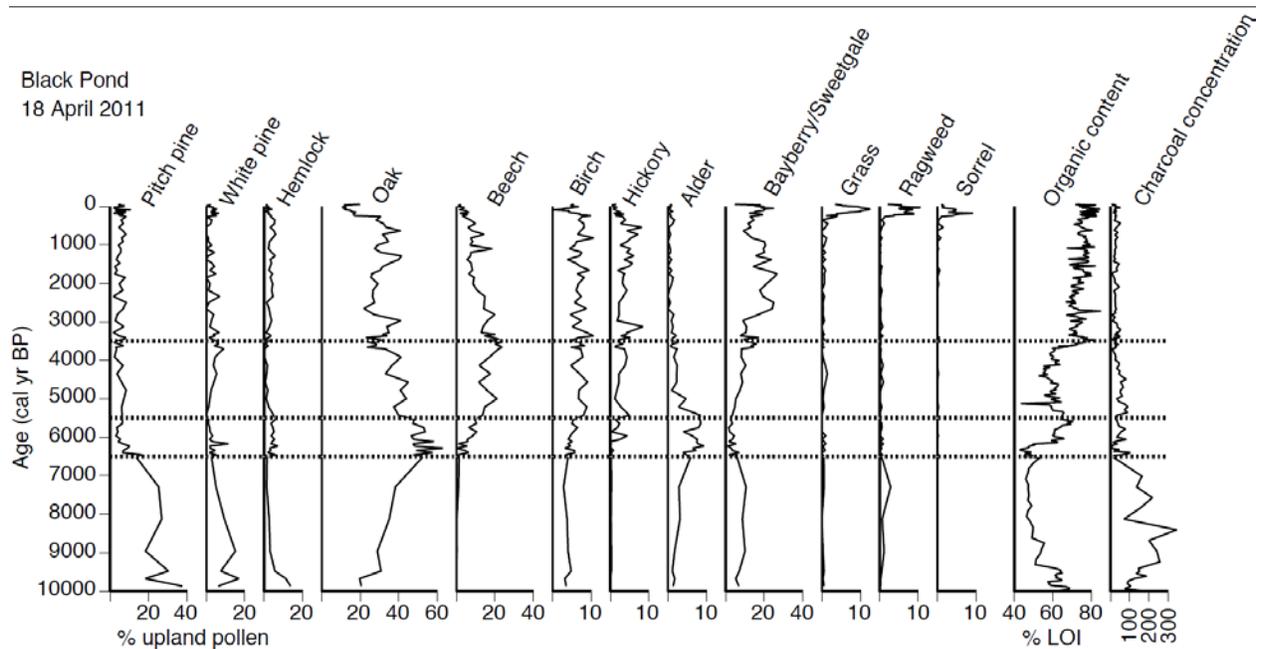
The Long-term History of the Squibnocket Area

Progress Report on the Paleoecology of Black Pond

Wyatt Oswald and David Foster – Harvard Forest, Harvard University

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Black Pond on Red Gate Farm in Aquinnah was investigated by ecologists at the Harvard Forest in order to extend the understanding of the long-term history of Martha's Vineyard into the southwestern portion of the island, a region with great ecological and conservation value and a landscape with a lengthy history of human habitation. The site was chosen because it is a small pond that should provide a fairly local record of vegetation, fire and human activity across the landscape above Squibnocket Pond that will complement other records obtained by this and other research groups elsewhere on the island – Harlock Pond at Seven Gates, Duarte Pond south of Lagoon Pond, Jeffers Pond on Chappaquiddick, Cedar Tree Neck in West Tisbury. The intent is to synthesize these records within a regional understanding of climate change, coastal geomorphology (sea level rise and island formation) and human history from archaeology and historical records. The Squibnocket Pond area was extensively used by native groups during prehistory and by colonial farmers and subsequent residents over the past 400 years.



Pollen diagram from a seven meter sediment core from the center of Black Pond. Analyses were undertaken at the Harvard Forest with pollen counted by Barbara Hansen

Initial analyses of a 7-meter-long sediment core from Black Pond provide new insights into the post-glacial ecological history of Martha's Vineyard. The base of the core was radiocarbon dated to 10,000 years ago. However, the pond may be older, as the coring operation ended when the small crew could no longer penetrate stiff sediments. The interval from 10,000-6500 years ago, a period of climate warming leading up to the isolation of the island from the mainland, features a high abundance of pitch pine, white pine, and oak pollen. High concentrations of charcoal suggest that these forests burned frequently and/or intensely. Between 6500 and 5500 years ago, pitch pine and charcoal decline, oak and alder reach peaks, beech and hickory increase in abundance and the organic content of the sediment rises. Oak pollen declines and beech increases further between 5500 and 3500 years ago, as has been observed at other sites on Cape Cod and the adjacent islands, including Martha's Vineyard (Foster et al., 2006). However, neither of these changes is as pronounced or abrupt in the Black Pond record as it is in other nearby sites such as Harlock Pond, Blaneys Pond (Naushon) or Deep Pond (Falmouth); thus oak remained relatively abundant near Black Pond during this period, which is known as the middle Holocene. The pollen of bayberry/sweetgale increases during the last 3500 years, accompanied by a further rise in the organic content of the sediment, which may signify either a great increase in wetland vegetation around the pond or an expansion of more open shrub-covered landscape. A drop in oak pollen and sharp increases in grass, ragweed, and sorrel in the uppermost sediments mark European deforestation and agricultural activities. The low charcoal concentrations and limited abundances of these weedy taxa in the proceeding millennia suggest that Native Americans had little impact on late Holocene fire and vegetation composition. This latter observation runs counter to some long-held views about native activity but meshes well with the interpretations coming from the work of Elizabeth Chilton (Umass), Dianna Doucette (Harvard Peabody Museum and PAL) who have worked extensively on the Vineyard.

More work remains to finish this project, including filling in details back to 10,000 years.

References

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