

LONG ISLAND BOTANICAL SOCIETY NEWSLETTER

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The Maritime Oak-Basswood Forest on Long Island's North Fork

Where on Long Island can you observe undulating sand dunes blanketed with beach grass, and desert-like swales interspersed with wet depressions supporting insectivorous plants, cranberry, and a slew of sedges and rushes? The south shore, right? Well, not always.

Although much of Long Island's north shore consists of tall bluffs directly bordering Long Island Sound, sand dunes and broad sandy swales do rarely occur. I am not referring to locations within protected harbors and coves, I refer to broad, well developed sandy beaches directly bordering the Sound.

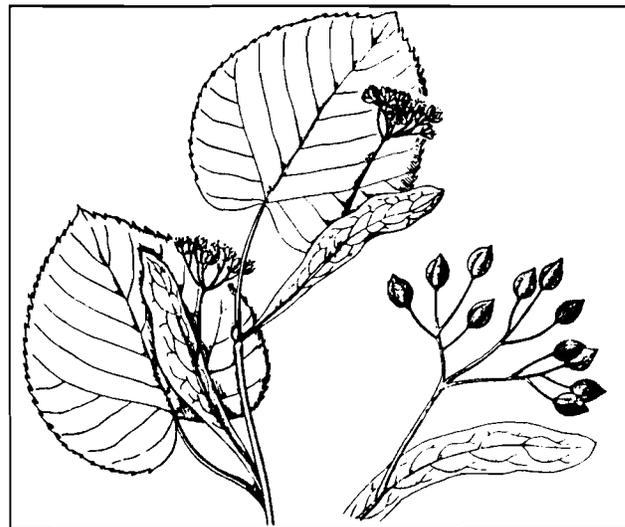
A system of low dunes and swales parallels Long Island Sound just east of Goldsmith Inlet in Peconic on the North Fork. Dr. Les Sirkin, professor of geology at Adelphi University, described this unique area in his book *Eastern Long Island Geology*, published in 1995: "The beach here is much wider due to excess sand in the longshore drift and perhaps a balance between east and west currents."

During the past few hundred years, strong winter winds have been constantly and unrelentingly

blowing this beach and dune sand landward up the faces of adjacent morainal bluffs composed of glacial till. The result has been the formation of a system of undulating dunes on top of the moraine. Think of it. Sand dunes deposited on top of 12,000 year old glacial moraines - a very unique geological process and formation.

A unique and possibly globally rare plant community has developed on this geologic formation: a pygmy forest largely composed of stunted, gnarled and contorted oak and basswood trees. The big surprise here is the occurrence of basswood (*Tilia americana*) which is normally a tree of rich moist woods, and is often associated with species such as sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), American beech (*Fagus grandifolia*), and American elm (*Ulmus americana*).

The maritime oak-basswood forest is dominated by dwarf individuals of post oak (*Quercus stellata*), black oak (*Q. velutina*), and basswood, with scattered individuals of shadbush (*Amelanchier canadensis*), black cherry (*Prunus serotina*), and hickory (*Carya tomentosa* and *C. glabra*). Some



American Basswood (*Tilia americana*). Illustration from Britton & Brown Illustrated Flora (1952). N.Y. Botanical Garden.

Highlights

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sandy ridgetops are dominated by red maple (*Acer rubrum*) which on Long Island is often associated with wetlands but here grows as an upland species. Also noteworthy is scattered individuals of paper birch (*Betula papyrifera*), a more northern species that is rare on Long Island; gray birch (*B. populifolia*), which superficially resembles paper birch, is common throughout the island.

Trees occurring on the tops of dunes are extremely gnarled and contorted. Century old oaks grow horizontal before sending twisted limbs skyward, only to be pruned back by constant exposure to salt spray, sand blow-up, cold wind, and winter ice. Here, the understory is sparse and patches of sandy soil are exposed. A few herbs have precariously colonized the bare sands: common hairgrass (*Deschampsia flexuosa*), starry false Solomon's seal (*Maianthemum stellatum*), wild sarsaparilla (*Aralia nudicaulis*), and an upland form of seaside goldenrod (*Solidago sempervirens*). Low lying areas between and behind the dunes are relatively protected; here the understory consists primarily of shrubs and lianas, including bayberry (*Myrica pensylvanica*), pasture rose (*Rosa carolina*), black huckleberry (*Gaylussacia baccata*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), and briers (*Smilax glauca* and *S. rotundifolia*).

I am aware of only one other New York occurrence of a plant community that resembles this maritime oak-basswood forest. Gordon Tucker and Ed Horning have informed me that a "dwarf basswood forest" occurs on South Dumpling Island, just off the north coast of Fishers Island. The forest covers the crest of the island's moraine, and is exposed to severe maritime forces. South Dumpling Island is located about 25 miles northeast of Peconic Dunes, and both locations experience very similar limiting ecological factors. How and why did basswood colonize and become established at such unlikely habitats? The early events that led to the development of such a unique forest may always remain a mystery.

Eric Lamont, Riverhead

The Pollen of American Chestnut

The North American continent saw the last of Europe when the growing mid-Atlantic ridge churned up past Iceland eons ago and shoved the New World adrift. And it was then that the great American forest tree genus *Castanea* established an independent lineage in America.

The chestnut family had colonized much of the continent by casting about its pollen powder into the ancient Cenozoic breezes. Some of this pollen became immortalized in raging volcanic floods some forty million years ago in the area that is now Yellowstone. Twenty million years later chestnut pollen along with its dentate leaves became ornaments in fossil beds of northern Idaho. Then some ten thousand years or so ago North America's northwestern flank saw its last link with Asia melt away at the Bering Straight and the geographic isolation of modern *Castanea* was complete.

And so *Castanea* pollen blew in the winds that swept the great divide, in the winds that powered tornadoes in the west, and in the winds that wore down the peaks of the Appalachians.

Chestnut pollen left its skeletons behind during the interglacial period 41,000-47,000 BC on Long Island (and in the Adirondacks). After the last ice sheet retreated and the chill of its aftermath waned some 4,500-5,000 years ago, *Castanea* reappeared in the northeast of North America (and on Long Island). It appeared as *Castanea dentata* which is likely a mutated form of chinquapin (a southern species appearing in Pennsylvania and south). The present natural range of *Castanea dentata* comprises pretty much the outlay of the Appalachian mountain range and foothills, including our notable glacial morainal home: Long Island.

The tree served as a forest stanchion providing shade, wood, food, and strength to the evolving eastern deciduous forest and its inhabitants. The early native Americans' bare feet pressed its leaves and pollen into the ground while collecting its nuts. And arriving settler's axes shaped the trunks into cabins and cabinets and later on into universities and college town barrooms.

The American chestnut tree, being a favored tree for its lumber, seed, and prowess, was then planted

outside of its post-Wisconsinian range into the soils of the Adirondacks, Michigan, Wisconsin, and Oregon where its pollen dusts the air today.

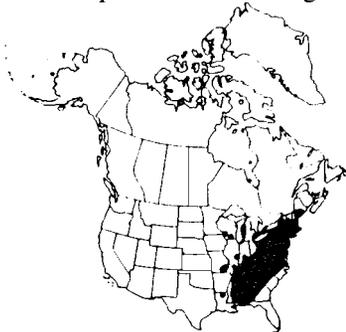
Just after the turn of this century the fungus *Chryphonectria parasitica* hitched a ride on some nursery stock from Asia (probably Japan) and made a feast of the American chestnut tree bark cambium. It ate its way through four billion trees up and down the Appalachians for five decades and left the species destroyed and disabled. In less than fifty years' time a tree that had a dominant position on this continent for over forty million years was annihilated. The creamy white catkins with their wind-borne pollen all but disappeared.

The chestnut trees of Long Island were no exception and they too were crippled to helpless root sprouts. And the few that remain today only occasionally manage to reach flower bearing heights of twenty or thirty feet before they too are drawn down by the consumptive blight fungus.

Since the pollen refuses to fertilize the flower of the tree from which it was shed, cross-pollination between trees must occur for fruit production which has thus become an even rarer event. And so the collected burrs that are often enthusiastically reported by scouting naturalists are merely full of undeveloped ovaries and barren of nuts.

The pollen can be carried by wind up to about a thousand feet under normal circumstances. And since the pollen of locally planted Japanese chestnut (*Castanea crenata*) and Chinese chestnut (*C. mollissima*) will gladly fertilize an attractive American chestnut ovary, some nuts within the burrs of American chestnut trees can be traced to hybridization by these transgressive species adding insult to injury.

During the spring, summer, fall, and winter of 1996 I followed up leads concerning the where-



Distribution of American Chestnut (*Castanea dentata*), Map from Flora of North America, Vol. 3 (1997), Oxford Univ. Press

abouts of flowering American chestnut trees from announcements in the LIBS newsletter and assorted local Long Island weeklies. Most of the well-meaning respondents sent in leaves of Chinese chestnut, Japanese chestnut, and horse chestnut (*Aesculus hippocastanum*). But there were accurate findings of true American chestnut that did manage to bear flowers. Unfortunately, none that I have seen to date had naturally occurring nuts within the ripe burrs. All flowering survivors found so far were on the Harbor Hill Moraine and ranged from Huntington to Wading River.

And so this summer during the month of July when the flowers of *Castanea* are in full display I set out with water containers, ropes, poles and snippers, and with the help of Jason Moore and my brother Dan, scaled backyard chestnut trees to reach and collect the prized male catkins at the ends of limbs. These pollen bearing catkins were then driven to other flowering American chestnut trees miles away. And again we worked our way up twenty to thirty foot tree trunks to pollinate the anxiously awaiting stigmas of female flowers. (Please note that trees adjacent to the chestnut trees were climbed instead, to avoid scarring the chestnut bark which might make it more vulnerable to blight infection.) Fortunately, North Shore Tree Service of Stony Brook helped out by providing and operating a bucket truck to assist in pollinating a lone dying thirty foot tree in Caleb Smith State Park. Thomas Allen Stock, who offered comment on the "coronation," said that he can't remember anything so boring and yet so exciting at the same time.

Hopefully I can now beat the squirrels come September and will have in my hand the first known true American chestnuts of Long Island in possibly fifty some odd years.

These nuts will then be planted in reserve orchards on Long Island (one of which will probably be in Caleb Smith State Park). There they can be grown and monitored for posterity as research advances. If enough are harvested some will go on to breeding programs in Meadowview, Virginia, and a genetic engineering project at SUNY Syracuse.

It is my hope that these efforts will help allay the terrible misfortune of a beautiful American landmark: the American chestnut tree.

John E. Potente, Long Island Director for the American Chestnut Foundation

Moores Woods Threatened With Development

"My feeling is, Moores Woods suffers from too little use. I think the fact that so few people use Moores Woods leads to misuse."

Mayor David Kapell
Greenport Village
June, 1997

Plans to develop the North Fork's 192 acre Moores Woods nature preserve into "a regional attraction" were recently presented to the Greenport Village Board by the Southold Town Transportation Committee. The ambitious plans include construction of a series of bike trails, elevated boardwalks with benches and information kiosks, a classroom building, bicycle racks, a skating rink, and parking lots.

Moores Woods has long been a mecca for nature enthusiasts. The ecosystem supports a significant diversity of flora and fauna. Five species of orchids have been reported from the site; one of them occurs along the edges of paths through the forest. The very rare cat-tail sedge (*Carex typhina*) and white-edge sedge (*Carex debilis* var. *debilis*) also occur along forest paths. During wet spring years the delicate primrose violet (*Viola primulifolia*) emerges from wet mucky depressions sometimes right in the middle of forest trails; only a dozen or so populations of this rare plant occur in all of New York. How might a regional bike course curving between forest trees impact these rare and endangered plants?

Unquestionably, the rarest plant at Moores Woods is the cranefly orchid (*Tipularia discolor*), with horizontal flower spurs that resemble the elongated abdomen of the true craneflies (in the insect genus *Tipula*); it takes only a little imagination to turn the delicate petals and sepals into the wings and legs of these common insects. The cranefly orchid currently occurs at only one location in New York - Moores Woods. For almost a century now, botanists have traveled from throughout the northeast to view this rare orchid at Moores Woods.

The only naturally occurring North Fork population of spring beauty (*Claytonia virginica*) also occurs at Moores Woods, and although this spring wildflower is common upstate, it is a rare find

almost anywhere on Long Island.

Although these last two wildflower species occur within the forest itself and not directly along trails, the development of Moores Woods into a regional bike center may attract off-road mountain bikers who may inadvertently destroy these rare plant populations.

Nature enthusiasts who leisurely stroll through Moores Woods can often observe salamanders during proper times of the year. Roy Latham, the famous naturalist from Orient, reported four different species of salamander from the vicinity of Moores Woods. What impact might speeding bicyclists have on these salamander populations?

The oak-tulip tree forest at Moores Woods is considered rare in New York, and is strikingly different from the typical oak-hickory forest of eastern Long Island. The area is largely underlain with fine sediments of clay which compact together to form underground lenses. These clay lenses inhibit the infiltration of water through the ground; water is often trapped near the surface resulting in rich, mesic to wet soil conditions and an elaborate system of freshwater wetlands. How might new bike trails, parking lots, and other proposed development impact these sensitive wetlands at Moores Woods? Could increased soil compaction and surface runoff have a negative impact upon the forest ecosystem?

I am personally aware of numerous environmental and educational groups that have utilized Moores Woods for nature studies during recent years, including Brooklyn Botanical Garden, Connecticut Botanical Society, Greenport High School, Long Island Botanical Society, Long Island Mycological Club, National Audubon Society, The Nature Conservancy, New England Wildflower Society, New York Natural Heritage Program, North Fork Environmental Council, Sierra Club, and Torrey Botanical Society. Certainly other groups have also utilized the site.

I propose that a feasibility study and full Environmental Impact Statement be completed before any development plans are implemented at this highly sensitive ecosystem. Only then will we be able to share with our children and grandchildren the natural heritage that has been bequeathed to us.

Eric Lamont, Riverhead

Society News

Search for Rare Orchid

The small whorled pogonia (*Isotria medeoloides*) is one of the rarest orchids in the eastern United States; it is a Federally threatened species that has not been observed in New York in many years. Historically, two populations occurred on Long Island: Fanny and Harriet Mulford reported it from Hempstead Lake in 1918, and William Ferguson reported it from the vicinity of Dix Hills in 1923. It hasn't been seen since. On June 18th, a team of LIBS botanists spent the day searching for the rare orchid in the vicinity of Dix Hills, West Hills, Half Hollow Hills, and Manetto Hills. The effort was organized by **Steve Young** (State Botanist for New York Natural Heritage Program, and LIBS member); participants included **Skip Blanchard**, **Julius Hastings**, **Eric Lamont**, **Tom Meoli**, and **Troy Weley** (botanist, NYNHP). All told, tens of thousands of individuals of the large whorled pogonia (*Isotria verticillata*) were observed, but no *medeoloides*. Afterwards the team concluded, "if no one looks, no one's gonna find it."

New Plant Checklist

After 11 years of preparation, *Revised Checklist of New York State Plants*, by **Richard Mitchell** and **Gordon Tucker**, is finally available from New York State Museum Publications. This 400 page, hard-cover book is a must for anyone interested in plants of Long Island. The treatment incorporates cutting-edge nomenclature and taxonomic decisions, and many pertinent synonyms. To order, send \$15.50 per copy, plus \$4.00 shipping and handling (all orders must be prepaid by check or money order) to: New York State Museum, Publications Department, 3140 C.E.C. Albany, NY 12230. For more information please call Dick Mitchell at 518/486-2027.

Update: Joe Beitel Memorial

For several years now, LIBS has been trying to obtain permission from Suffolk County Parks to place a memorial plaque in honor of **Joe Beitel** at Montauk County Park. Joe began his botanical career by conducting plant inventories throughout Suffolk Co. Parks; he went on to become an acknowledged authority on ferns and fern allies at the New York Botanical Garden, before passing away at the age of 39. Joe was also instrumental in establishing the Long Island Botanical Society.

LIBS member **Karen Blumer** has volunteered to revitalize the effort to establish the memorial plaque at Montauk County Park. Anyone interested in helping should contact Karen at 516/821-0975.

Field Trips

September 6 & 7, 1997 (Saturday & Sunday). **The Montauk Peninsula**. Joint trip with New York Flora Association. **Leader: Bob Zaremba**. We will be exploring the outermost limits of Long Island, an area famous for its unusual flora, including: Napeague Beaches, Walking Dunes, Oyster Pond, Montauk Point, the woodlands at Hither Hills, and grassland restoration burns at Prospect Hill. We may even see the very rare sandplains gerardia (*Agalinis acuta*), which should be in bloom at that time. Meet at Montauk, Saturday am; overnight lodging may be available at TNC's Mashomack Preserve on Shelter Island. Please register with and obtain details from Bob Zaremba at 518-273-9408 (note, this number is new).

September 13, 1997 (Saturday), 10 am. **Wertheim National Wildlife Refuge**: Shirley, Suffolk County. **Leaders: Robert Parris & Allan Lindberg**. This trip is a follow-up on Al's recent article on management of Phragmites (see LIBS Newsletter, Vol. 7(3), May/June 1997). Water level manipulation and burning has been used to eliminate Phragmites in a 20-30 acre freshwater impoundment. After lunch, we will explore some of the different plant communities at the Refuge. **Directions:** Take the LIE to exit 68 South (William Floyd Pkwy), continue south over Sunrise Hwy (Rte. 27) and turn right (west) on Montauk Hwy. Travel about 3/4 mi and turn left (south) onto Old Riverhead Road, cross railroad tracks and enter Refuge. Meet at Visitors Center which is about 1 mile into Refuge. Bring lunch. For more details contact Al Lindberg at 516/571-8500.

October 25, 1997 (Saturday). **Great Trees of Long Island**, northern Nassau County. **Leader: Vincent Simeone** (Assistant Director, Planting Fields Arboretum). Observe the island's largest trees (including State and National champions) during the height of autumn leaf color. We will meet in the vicinity of Oyster Bay, but specific details were not available before the newsletter went to press. For details, including meeting time and location, call Al Lindberg at 516/571-8500.

LONG ISLAND BOTANICAL SOCIETY
Founded: 1986; Incorporated: 1989.

The Long Island Botanical Society is dedicated to the promotion of field botany and a greater understanding of the plants that grow wild on Long Island, New York.

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|----------------|--------------------|
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| | Steven Clemants |
| Editor | Eric Lamont |

Membership

Membership is open to all, and we welcome new members. Annual dues are \$10. For membership, make your check payable to LONG ISLAND BOTANICAL SOCIETY and mail to: Lois Lindberg, Membership Chairperson, 45 Sandy Hill Road, Oyster Bay, NY 11771-3111

PROGRAMS

9 September 1997 - 7:30 pm*

Vincent Puglisi & Elizabeth Gulotta

(Nassau Community College)

"Field Biology in Costa Rica"

Slides of phytogeographic regions
with an emphasis on plants

Location: Bill Patterson Nature Center,
Muttontown Preserve, East Norwich

14 October 1997 - 7:30 pm*

Michael Flemming

(Brooklyn Botanic Garden)

**"Vegetation of the Siletz River
Watershed, Oregon"**

Slides with an emphasis on ethnobotany,
based upon Michael's MS degree

Location: Bill Patterson Nature Center,
Muttontown Preserve, East Norwich

*Refreshments & informal talk begin at 7:30pm, the meeting starts at 8pm. For directions to Muttontown Preserve call 516-571-8500.

LONG ISLAND BOTANICAL SOCIETY
c/o Muttontown Preserve
Muttontown Lane
East Norwich, New York 11732

