



LONG ISLAND BOTANICAL SOCIETY NEWSLETTER

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Anthracnose and Powdery Mildew: Two Threats to Flowering Dogwood

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The North American native flowering dogwoods, *Cornus florida* in the eastern United States, and *Cornus nuttallii* in the western U.S. and Canada, are both hosts of a relatively new anthracnose disease caused by the fungus *Discula destructiva*. The non-native Korean dogwood, *Cornus kousa*, is also a host for this disease but has less susceptibility than the native dogwoods. Dogwood anthracnose was first noted in the Pacific Northwest U.S. in 1976, and was reported in the eastern U.S. in 1979. Dogwoods in the New York City area were among the first noticed to be affected. On Long Island, Planting Fields Arboretum first called the disease to the attention of plant pathologists, in that same year. The range of the disease gradually spread down the Appalachians into the higher elevations of the South. Some spread into the Midwest has also occurred, possibly due to interstate shipment of infested nursery stock.

Strong public concern about the new disease was expressed immediately in the east, as *C. florida* is a popular and widely-planted ornamental for both full-sun and shaded conditions. Flowering dogwoods are important for their aesthetic value in private and public gardens and parks. Native woodland trees also contribute con-

spicuous beauty along roadsides. In eastern woodlands, the flowering dogwood is often the dominant understory species. In addition to the ornamental value of *C. florida*, its fruits are also a valuable important food source for many wildlife species, including migratory birds.

Symptoms

The impact of dogwood anthracnose is severe on *C. florida*. There are two kinds of leaf infection. Spots may be limited in size, with purple rims and yellow haloes, or may develop as extensive blotches, sometimes such that the entire leaf is blighted. Blight may progress down the petioles until the current-season shoots are invaded, resulting in girdling and death of the twigs. Dieback in the crown often results in the development of epicormic branches, which are especially subject to infection and dieback.

Discula destructiva sporulates on dead areas on both leaves and twigs. The spores produced on the previous season's shoots are an important source of inoculum for new leaf infections the following spring. Leaf blighting



Flowering Dogwood (*Cornus florida*),
Illustration from The New Britton & Brown Illustrated Flora,
The New York Botanical Garden

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and dieback can be extensive: symptoms appear in the lower branches initially and intensify and progress upwards annually under favorable environmental conditions. When the environment is favorable to disease, trees of *C. florida* often are killed within three years; seedlings may be killed in a single season. Tree death is often facilitated by secondary invaders, such as the shoestring root rot fungus, *Armillaria mellea*. Drought is another common accessory to tree mortality. Populations of dogwood in New York woodlands have been sharply reduced. Standing and fallen dead stems are now apparent, as well as surviving trees.

Research

Much of the research on dogwood anthracnose has been directed at understanding the effect of environmental parameters and geographic features on disease development. More open settings with exposure to sunlight (more typical for ornamental plantings) have been found to be much less conducive to disease than the understory conditions typical for the majority of the native *C. florida* populations. Measurements of evaporative potential in canopies of exposed dogwoods in contrast to understory trees have provided evidence that leaf wetness duration is strikingly different in the two environments. (The length of time that leaves are wet determines whether fungal spores have the opportunity to successfully germinate and penetrate the leaf surface to start infections). Drought stress has been shown to predispose *C. florida* to infection by *D. destructiva*. Studies in the Great Smoky Mountain National Park have shown that trees occurring at a high elevation, having a northern aspect and near to streams are most likely to have significant dogwood anthracnose symptoms.

Analysis of DNA from isolates of the pathogen from east and west coasts has indicated that the fungus is probably introduced, perhaps with two separate introductions to the two coasts. The results of comparisons of dsRNA are not inconsistent with this hypothesis. The nearly simultaneous appearance of the disease in the vicinity of two major port cities (Seattle and New York City), its rapid progression through the dogwood population, and the severity of the disease's impact all suggest that *Discula destructiva* is an exotic pathogen.

Current Situation

Although over the past few decades many trees have been killed or disfigured, symptoms are currently not much in evidence in dogwoods on Long Island. This is probably because environmental conditions have not been as favorable as they were during the late 1970's or mid-1980's, when diseased dogwoods were quite conspicuous. This spring's series of cool rainy days (which came at the end of the dogwood flowering period in Suffolk County) allowed many leaf spots, but blighting has not been observed. Many dogwoods which showed symptoms of lower branch dieback in the past have survived and recovered with only lower branch loss. These trees are primarily those in locations with better exposure to sunlight, whereas many trees in shaded sites were killed by dogwood anthracnose.

Another Dogwood Disease!

Another dogwood disease is gaining attention now: powdery mildew. Although powdery mildew fungi tend to look very much alike, they are often quite host-specific. Powdery mildew has been reported from dogwoods in the past, but it was not a commonly seen problem until just a few years ago when it suddenly appeared on nursery and woodland dogwoods all over the East Coast. Powdery mildew on dogwoods does not cause a thick white coating on plants, so it can be hard to recognize. The most typical symptoms are leaf reddening and curling of leaves at the ends of branches. Although not life-threatening, powdery mildew does reduce growth and might increase a tree's susceptibility to drought.

The sudden onset of powdery mildew is just as mysterious as the appearance of dogwood anthracnose about 15 years earlier. A new, more aggressive strain of the powdery mildew may have arisen in the U.S. . . . or a new strain of the fungus may have been introduced on imported *Cornus*, as has been postulated for *D. destructiva*.

For further information

Daughtrey, M. L., *et al.* 1996. **Dogwood Anthracnose, Understanding a Disease New to North America.** Plant Disease 80: 349-358. [Complimentary reprints are available upon request from: Margery Daughtrey, Cornell University, L.I. Horticultural Research Lab, 39 Sound Avenue, Riverhead, NY 11901.]

Nature and Humans

Tom Stanley

*"It's time we worry more about humans
and less about nature"*

I recently heard this statement from a politician as he was explaining his position on several of the environmental controversies currently under discussion in our country. A critical issue defining our future is contained within this simple sentence. Before reading any further I would ask you to take a moment and decide how you personally feel about this statement. Does it ring true? Does it reflect a position that is defensible, whether you agree philosophically or not?

Now I'm going to change a single word. It is time we worry more about monarch butterflies and less about nature or, it is time we worry more about sugar maple trees and less about nature.

Ask yourself how you feel about these slightly altered versions. I suspect most see these sentences as making absolutely no sense. How can we possibly worry more about butterflies or maple trees and less about nature? Butterflies and maple trees are nature, not something separate to be contrasted to nature.

Transferring this same logic to the original sentence illustrates clearly the lack of understanding of its author, and unfortunately of many others, as to the absolute sameness of humans and nature. We simply cannot worry more about humans unless we worry more about nature.

This is obviously much more than a semantic argument and as I stated in the beginning, it defines our future. Unless we become more ecologically literate, and understand the oneness of the human species and nature, we will continue to degrade and potentially destroy the system which in turn will directly degrade and ultimately destroy us.

Typically, this issue is debated in the philosophical and political arenas when in reality it should be learned in the classroom. Herein lies the solution. Simply put, the study of ecology must become a required curriculum throughout our educational system. Some progress is being made in this respect. However, the study of ecology is not nearly at the level of acceptance as reading, writing, and arithmetic and until it is, the progress will be inadequate.

An example in my own experience clearly illustrates this point. A longtime friend teaches environment and ecology at one of the area's finest private high schools. The students at this school will be tomorrow's leaders. The good news is that the school employs my friend to

teach these important subjects. The bad news is that the system prevents the majority of students from taking the courses. The fast track to top colleges does not recognize ecology as an important element of a high school transcript. Only those students who have an inherent interest, agree to a heavier course load, or perceive ecology as an easier science end up in my friend's classes. Would we accept learning the skills of reading or writing in this haphazard manner? Clearly not. A greater commitment is needed at my friend's school and by the system in general.

What about the rest of us who are past formal education? A simple suggestion may help move us in the right direction. From this point on, look at environmental issues as whether they are good or bad for nature and humans: not nature or humans. Remember, every species in nature has importance but only one species has the mental ability to fail to understand this basic principle.

Featherfoil Rediscovered on the North Fork

Eric Lamont

In 1872, Henri Young reported the first population of Featherfoil (*Hottonia inflata*) for Long Island, from a shallow pool in Northville, Suffolk County (see Bulletin of the Torrey Botanical Club, vol. 3, p. 51). This bizarre aquatic plant with its submersed feathery leaves and inflated flower stalks has always been considered rare in New York.

On the 4th of July, 1929, Roy Latham went botanizing in an extensive swamp forest north of Sound Avenue, on the North Fork. He specifically described the location in a letter (8 Feb. 1930) to the New York State botanist, Dr. Homer House: "Sound Avenue is a section on the Sound shore between Mattituck and Riverhead. It is Northville on some maps. Most of the region is Riverhead P.O., but some is in Mattituck. There is a chain of swamps through there differing from those near Riverhead and Mattituck and so I record on my herbarium sheets the very local name of Sound Avenue."

In one of the shallow ponds within the swamp forest Roy rediscovered Henri Young's population of Featherfoil. For nearly 60 years the plants had continued to thrive in the secluded swamp that had remained pristine and untouched by humans.

When my family and I moved to Northville in 1987, I

frequently went for walks in the complex maze of swamps beyond our house searching for Featherfoil. It has taken me eleven years to relocate the historical population. This past May, 126 years after Henri Young's initial discovery, I stumbled upon a shallow secluded vernal pond surrounded by thick stands of huge, woody buttonbush shrubs and a tangle of other wetland plants. On the south side of the pond were hundreds of individuals of Featherfoil in full bloom. Rediscovering the population was rewarding, but knowing that Henri Young and Roy Latham had also spent hours tramping through the same swampland made the experience extra special.

Wilbur Breslin's Mall

Maxwell Corydon Wheat, Jr.

Tourists arriving for marine festivals,
Billy Joel concerts,
kayaking, farm and wooded scenery.
Another shopping mall,
Wilbur Breslin's mall

Motor coaches riding past Yaphank
for East End wineries,
New England villages, nesting osprey.
What can tour guides say?
"Wilbur Breslin's mall."

Pine Barrens trails, ponds,
hiking, resting,
eating blueberries.
150-acre mall,
Wilbur Breslin's mall

Warblers, scarlet tanagers,
towhees singing
"drink-your-tea."
Mega shopping noises,
Wilbur Breslin's mall

Walt Whitman's thrush music:
"From deep secluded recesses...
Came the carol of the bird."
\$200-million-dollar mall,
Wilbur Breslin's mall

Poet William Cullen Bryant's
Cedarmere home, Bethpage Village,
1800s General Store in St. James.
Second biggest mall on Long Island,
Wilbur Breslin's mall

Towns again becoming communities:
Riverhead, Patchogue,
Oyster Bay.
Downtown-emptying mall,
Wilbur Breslin's mall

Lyrical Long Island:
Sagamore Hill, Nissequogue River,
Fire Island and Montauk Point lighthouses,
harbor seals in winter,
finback whales in summer.
One of twenty-five biggest malls in America,
Wilbur Breslin's mall

Society News

April Meeting. Margery Daughtrey presented a fascinating program on the history of dogwood anthracnose in North America. [Anthracnose refers to any of numerous destructive plant diseases caused by imperfect fungi.] This somewhat technical topic was explained in a remarkably clear way, with slides that illustrated the symptoms. In 1991, the cause of the disease was found to be a fungus that was new to science; Dr. S. C. Redlin described and named the new fungus *Discula destructiva*. The cover story of this issue of the newsletter summarizes Margery's talk.

May Meeting. Eric Lamont presented a slide show on the Grandifolia Sandhills of Long Island. The geology and the ecology of the ecosystem was discussed, and theories attempting to explain some of the complex processes involved in this dynamic ecosystem were presented. The meeting concluded with an update by **Frederick C. Schlauch** on the status of plans to develop the Sandhills into a mega-resort that would level sand dunes and destroy the maritime forest and its maritime wildlife populations.

Pine Barrens Exhibit

A new exhibit entitled "Barren and Waste Land: Long Islanders and The Pine Barrens" opened on January 31, 1998 at the Suffolk County Historical Society Museum in Riverhead.

Throughout history, the Long Island Pine Barrens has

meant different things to different people and cultures. To Native Americans, the Pine Barrens was an ecosystem rich in resources, to be used in meeting daily needs. European settlers used these resources too, although often in a more destructive manner and with impacts that have, in some cases, been irreversible. The purpose of this new exhibit is to interpret this relationship between various human cultures and the resources and landscapes that collectively comprise the Pine Barrens. The exhibit also illustrates many of the species native to the Pine Barrens.

The exhibition runs until December 31st. The Suffolk County Historical Society Museum is located at 300 West Main Street, Riverhead, NY 11901. Museum hours are Tuesday-Saturday, 12:30 to 4:30 pm. Admission is free, although a donation is appreciated. Call 727-2881 for further information.

Natural History Conference V

The New York State Museum invites you to the NEW YORK NATURAL HISTORY CONFERENCE V, October 14-17, 1998, A Forum for Current Research.

Researchers will present current information on natural history in New York State and northeastern North America. Conference V will include all areas of research as they relate to the subject of natural history, including anthropology, geology and history. It will be an interdisciplinary approach.

The program includes a conference speaker, workshops, paper sessions, poster sessions, field trips, illustrator's gallery and a book market.

If you are interested in more details, submitting an abstract for a paper or presentation, or in attending the conference, write to NYS Natural History Conference, Room 3140, CEC, NYS Museum, Albany, NY 12230, call (518)474-5812, or e-mail <smurphy@mail.nysed.gov>. Check the web page for information updates: <www.nysm.nysed.gov>.

New Members

The Long Island Botanical Society is pleased to welcome the following new members:

Margot Booth, Southold; **Marge Gargiullo**, East Windsor, NJ; **Jessie Harris**, Washington, D.C.; **Gary Herold**, East Patchogue; **Daniel Kriesberg**, Bayville; **Ann Libassi**, Middle Island; **Dana MacDonald**, Waterford, NY; **Terryanne Maenza-Gmelch**, Tuxedo, NY; **Eric Morgan**, Albertson; **Basil Northam**, Southold; **Bruce Plewka**, Coram; **Violet Schirone**, Syosset; **Robin Shea**, Mastic Beach; **Laurel Sisson**, Riverhead.

Field Trips

11 July 1998 (Saturday), 10:00am. Wolf Swamp & Big Woods Nature Preserves, Southampton Township.

Leader: **Tom Meoli**. Botanize these two TNC preserves located on L.I.'s South Fork. The former preserve features wetland/lakeside vegetation (swamp azalea may be in bloom). The latter preserve, literally across the street, features wide trails through an oak-beech forest. Directions: Head east on Sunrise Hwy (Rte. 27) over Shinnecock Canal and go about 5 mi until you pass the Southampton College RR station on your right and the Shinnecock golf course on left. Turn left at first traffic light after golf course onto N. Magee Street. Go about 1.5 mi and at 5-way intersection bear right (not sharp right) onto Millstone Brook Road. Preserves are 1/4 mi ahead. Look for fence, gates & signs. Parking along road. Bring lunch & liquids. Allow sufficient travel time to enter the South Fork. For further information please contact **Tom Meoli** at 516/427-9458.

1 August 1998 (Saturday), 9:30am. East End Orchid Foray. Meet at the intersection of Rte 114 & Swamp Road, south of Sag Harbor on the South Fork.

Leader: **Skip Blanchard**. This trip will focus on some of the showiest and most rare native wildflowers in New York, including the white fringed orchid (*Platanthera blephariglottis*), yellow fringed orchid (*P. ciliaris*), club-spur orchid (*P. clavellata*), crested fringed orchid (*P. cristata*), and pale crested orchid (*P. pallida*). An optional trip to the North Fork to see New York's only population of the crane-fly orchid (*Tipularia discolor*) is also possible. Bring lunch. May get feet wet. This trip will last a good part of the day. Allow sufficient travel time to enter the South Fork. For further information please contact **Skip Blanchard** at 516/421-5619.

22 August 1998 (Saturday), 9:30am. Mill Neck Preserve and Flagg Meadow at Tiffany Creek Preserve. Oyster Bay Cove, Nassau County.

Leader: **Al Lindberg**. Meet at the preserve parking area at Tiffany Creek Preserve, Sandy Hill Road, Oyster Bay Cove at 9:30am to car pool. During this trip we will visit two of northern Nassau County's finest wetland communities. Depending on the tide, we will visit the salt marsh at Mill Neck Preserve with its unusual maritime oak community. At Tiffany Creek Preserve's Flagg Meadow, we will observe freshwater wetland plants and large clonal groups of *Osmunda* ferns. Be prepared for wet walking, and bring insect repellent and lunch. For more information please contact **Al Lindberg** at 516/571-8500 (day), 516/922-0903 (evenings).

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.

President	Eric Lamont
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Treasurer	Carol Johnston
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Program	Skip Blanchard
Membership	Lois Lindberg
Conservation	John Turner Karen Blumer
Education	Mary Laura Lamont Thomas Allen Stock
Hospitality	Betty Lotowycz Jane Blanchard
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

Field Trips

(see page 31 for details)

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Mill Neck Preserve & Flagg Meadow at
Tiffany Creek Preserve
Oyster Bay Cove
Leader: Al Lindberg

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

