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NYFA Newsletter

New York Flora Association
of the New York State Museum Associates

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Are Invasive Plants Really a Serious Danger to Native Plants and Communities?

A Speculative Editorial by Richard Mitchell

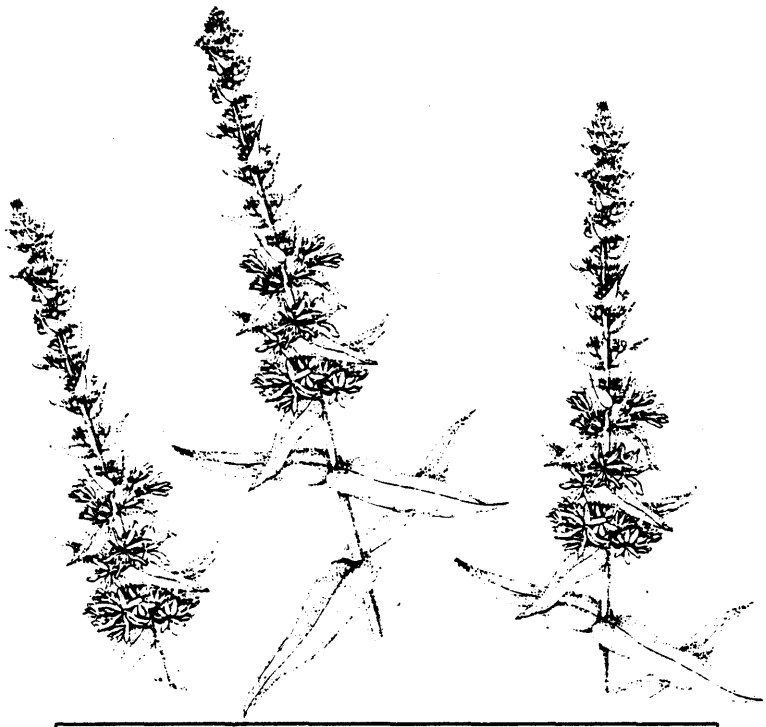
With the coming of a new council on invasive plants in New York, I feel obligated to ask some questions about imagined and actual threats to native vegetation. Recently I received a newsletter from the Maryland Native Plant Society, in which the lead article began with the following ominous statement: **"In the next century, the greatest threat to our native plants, and the wildlife species that depend on them, may well come from other plants."** Is this possible? My own field experiences tell me no.

If the statement had been made in 1799, it would have been profound, I suppose, but the barn doors have been open for a long time, folks. I say: **The greatest danger to our native plants and animals in the coming century will be us -- our land uses, as usual.**

When I see well-meaning people frantically pulling up *Phragmites* and *Lythrum* (which helps propagate them, of course), I'm horrified by the way propaganda can influence well-informed scientists, naturalists and conservationists. The news and entertainment media have been doing this to us for decades, and now a sound-byte, media mentality is becoming dominant in science and pseudo-science.

Remember the big, well-justified news campaign following the book, "The Population Bomb," by Paul Ehrlich? He was warning us about some very real global problems, and the media wouldn't let us forget it during the 1970s -- the newspapers and T.V. every night at six and eleven. Now, starvation and other problems from overpopulation are outrageously out of hand, **but when was the last time you heard about population pressure on the news?** Now we hear new, hot stories like passenger-rage and invasive plants.

So, why are invasive plants suddenly taking over native plant communities? I say they really are **not**, for the most part. Most have done their damage long ago in the Northeast, and they are now largely opportunistic, establishing in places where we (the over-populated ones) have already messed things up. Purple loosestrife loves wetlands that have been bulldozed, dredged and planted for wildlife, cat-tail marshes that have been "managed" and marshy shores that have been developed for housing and industry and then polluted.



Purple Loosestrife, *Lythrum salicaria* L., one of the species that has acquired the popularity of a "rock star," in a conservation media blitz

This showy plant has been around as a garden escape for at least two centuries, but it is just now following our well-orchestrated degradation of wetlands and meadows into some new local regions.

Once situations like this are brought to our attention, we, as citizens, tend to wake up suddenly and seek solutions -- sometimes misguided ones that

serve only to raise the prestige or holdings of special-interest groups, manufacturers and/or individuals, or (at least) to make big money for someone.

An Example from Personal Experience:

I live on a lake in Rensselear County where pollution from year-round dwellings and summer camps was abated in the 1970s, when sewers were put in. At the time I moved there (1976), things were supposedly at their worst, but my waterfront was beautiful, with a sandy bottom, a few native plants and a number of bass-spawning nests. You could sit and watch the fish, and even see turtle cruising by on occasion. Boating and water ski activities soon became much more prevalent, and I watched layers of silt wash over the sandy bottom as my grassy banks eroded back to rip-rap.

Eurasian Milfoil, *Myriophyllum spicatum* L., forms thick, mossy carpets up to a fathom deep in shallows along badly disturbed shores

Then came the Eurasian milfoil, with its dense, mossy growth, totally filling the shallows to depths of two or more meters. No more swimming. Within one month, in 1980, I found more than twenty dead star-nosed moles, who had apparently lost their way. While foraging for plant life, worms and minnows, they were unable to negotiate the maze of milfoil, only to drown while seeking their burrow entrances.

As you may expect, purple loosestrife established soon after the milfoil invaded, but only on the disturbed rip-rap exposed by power-boat wakes.

Solutions? Yes, the local lake society hired a weed-cutting machine for a dollar a minute, which assured that fragments of loosestrife found their way into every corner of the lake and became established. Later, they applied the herbicide "Sonar" ™.

As for purple loosestrife? A Dr. B. Blosso, of Cornell University, is working vigorously on a biological control program involving a beetle that will devour *Lythrum* and some of its relatives voraciously. He proposes that the insects be released on a large scale to decimate purple loosestrife.

One thing that this will almost surely do is to eliminate any remaining *Lythrum lineare*, one of our rarest plants, and endanger a number of related native plants. From a more selfish point of view, it might kill the beautiful stand of purple loosestrife that is stabilizing the rip-rap on my waterfront -- a showy hedge that is my only current defense against the speed-boat maniacs who started the problems.

Q. In my story, who lost quality-of-life?
(fish, native plants and local home-owners)

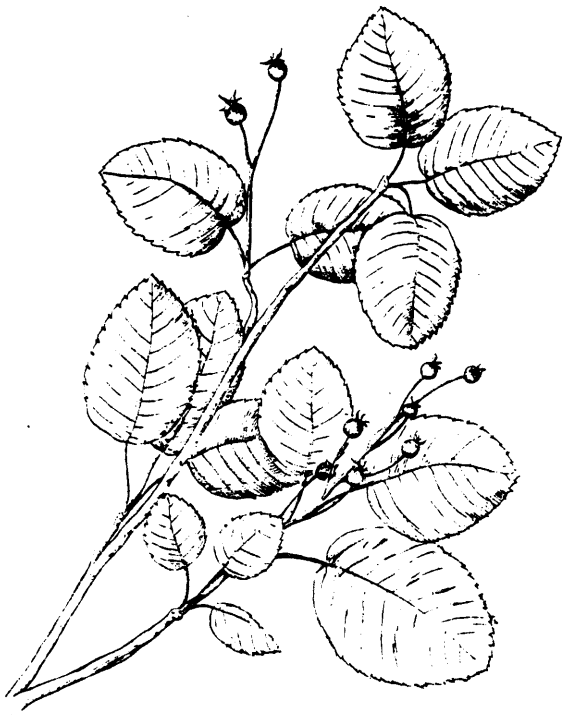
Q. Who benefited? (weekend boaters, owners of aquatic weed cutters and makers of herbicides)

I know, I'm being simplistic to make a point. Maybe one our ecologist/readers can cite for us a serious case in which purple loosestrife has been scientifically documented to invade a wetland, **replace** or **cause the extirpation** of a federally listed or State endangered rare plant species. I know it might happen, but where and when has it happened?

Where is strong experimental evidence that something like this **actually occurs**, before we sentence the accused culprit-species and its relatives to death? I admit that I have not yet looked carefully in the literature. Please correct me if I'm unaware. Meanwhile, I continue to see purple loosestrife, in hundreds of relatively undisturbed wetlands, as being pretty benign, filling only minor *niches*, side-by-side with rare wetland and aquatic plants in many cases.

When it comes to curmudgeonry, I can't begin to match Andy Rooney, but, at this point, he might say: Did ya evah notice? When people suddenly make a big deal out of the obvious, then have a lot of meetings and form action committees and hype the media?... it's usually to cover up some really serious problems that they don't have a clue how to solve.

I welcome rebuttals to the above opinions, which are totally my own. But, please be nice and give us some facts. RSM



A Repeat of a Challenge to Ecologists

Please forgive me a follow-up related to the previous article on invasive plants. It seems to me that "weediness" in a given area (measured by whatever parameters you wish) appears proportional to the degree and type of human disturbance at the site. In a study of an old-growth area in Pack Forest (Warren Co., NY), Gordon Tucker and I found that over **40 acres** of diverse, old growth forest, including streams, small bluffs, a pond and a former burn, had **NO WEEDS!** Despite the fact that you can stand with one foot in pristine conditions and the other on an extremely weedy roadside border, no one seems interested in this. If I were an ecologist, I would be seriously engaged in trying to figure out what is going on. Am I hopelessly naive to even ask? See Mitchell & Tucker (1994) Bull. Torrey Bot. Club, pp. 76-83. RSM

More Plants of the Rare Nantucket Juneberry Discovered -

by Steve Young, NYNHP

On an early May trip to the South Fork of Long Island Natural Heritage Botanists Steve Young and Troy Weldy discovered more than twice as many plants of this rare shrub than were previously known. Over 100 plants are now known from Shinnecock Hills to the Montauk area. The Nantucket Juneberry (*Amelanchier nantucketensis* Bickn.) is distinguished by its rhizomatous stems of short stature, a height usually under 1 meter, and short, narrow, often curled petals (3-5 mm long by 1.3-2.1 mm wide). The petals bear pollen on their curled edges (andropetaly).

Amelanchier stolonifera Wieg. is very similar, but the petals are larger and flat, and do not bear pollen. Nantucket Juneberry was historically thought to be a hybrid of two native species: *A. canadensis* and *A. stolonifera. Amelanchier nantucketensis* is a globally-rare species that occurs in open sandplain grasslands, morainal heathlands and pitch pine-scrub oak barrens, from Nova Scotia and Maine south to Nantucket, Martha's Vineyard and Long Island's South Fork. There is also one location on Staten Island, and a report from Great Falls, Maryland.

Search for a Rare Wasp Calls Attention to a Notable Sand Delta Habitat - by Anne Johnson

As part of an ongoing search for a certain rare wasp species, Dr. Frank Kurczewski of SUNY College of Environmental Science and Forestry in Syracuse was looking for oak savanna and pine barren habitat. He drove up to Fort Drum in Jefferson County one day, toward the end of the summer of 1996 and was pleasantly surprised by what he found - a habitat reminiscent of portions of lower Michigan, southwestern Ontario, and the New Jersey pine barrens.

The southwest portion of Fort Drum sits on a sand delta laid down by an ancestral Black River where it entered glacial Lake Iroquois. These sands are considered very young by soil scientists, meaning that they have not had much time to accumulate organic matter and begin the soil formation process. In areas near the mouth of the delta the sand reaches depths of more than 100 feet. Currently, these sands support open oak/pine forest and successional northern sandplain grasslands. Dr. Kurczewski wondered about the historical lineage of this landscape. Are these oak savanna and pine barrens the result of previous logging followed by man-made fires and military

activities? Do they reflect an ancient landscape governed by the limitations of excessively well drained, nutrient-deficient sands? If the latter is the case, then there was a chance this rare wasp species, which historically required large open sandy areas, may be present there. To answer this question, he tracked down the 1790's to early 1800's land survey field notes (not an easy matter) for 384 lots of Macomb's Great Lot Number Four.

The field notes contained lists of trees, brief descriptions of land conditions, landscape features, and some notes on soil type (for instance, "land middling poor", "poorly watered by two small runs in the west", "sandy soil", and "rough and rocky"). These data, along with the digitized boundaries of the original lots, have now been incorporated into Fort Drum's Natural Resources GIS system.

Aerial photographs taken in 1945 and 1960 show many open areas and a savanna-like aspect, and photographs of the original Pine Camp taken at its inception in 1908 show an area with very few trees and much open space. But the original land survey field notes speak primarily of lots with mesic deciduous forest and only occasional small, sandy openings are noted. Only 28% of the lots on sand were pine-oak dominated. These lots were concentrated near the great bend of the Black River, and this is the area that currently supports the majority of the open oak woodland and pine barren type habitats.

Additional historic notes described pine trees covering the landscape as far as the eye could see, and indicate that immense quantities of pine were cut, supplying local sawmills for a number of years. Hough, in his History of Jefferson County in the State of New York (1854), says "Immense quantities [of pine timber] have been cut off, and fires have run over more or less of the tract, every few years, since 1804, so that between the two agencies, they have been mostly stripped of their timber, leaving a light, barren, sandy soil of little value."

The soil was (and is) so sterile that it is doubtful that anyone farmed the area for an extended period of time after the logging, and in 1908 the federal government bought the area then known as the Pine Plains. The similarity of the landscape on Fort Drum's sandy soils to the oak openings in Michigan and southwestern Ontario would indicate that the activities of settlers and military have somehow affected the landscape. It is conceivable that after logging and burning, the area was very slow to recover and is now being maintained in an early successional state by military activity.

These sand delta communities support a unique assemblage of native plant species, including some rare sedge species that seem to require sand and disturbance: (*Cyperus houghtonii*, *C. schweinitzii*, and *Carex houghtonii*). More common and characteristic species include common hairgrass (*Deschampsia flexuosa*), a sedge (*Carex lucorum*), stiff-leaved aster (*Aster linariifolius*), pinweed (*Lechea intermedia*), rockrose (*Helianthemum canadense*), trailing arbutus (*Epigaea repens*), bastard toadflax (*Comandra umbellata*) and various grasses (*Panicum depauperatum*, *P. linearifolium*, and *Oryzopsis pungens*).

Butterfly-weed (*Asclepias tuberosa*), at the northern extreme of its range and quite rare in our area, appears sporadically. Characteristic trees include native pitch pine (*Pinus rigida*), white pine (*P. strobus*), northern red oak (*Quercus rubra*), and white oak (*Q. alba*). The introduced species, winged pigweed (*Cycloloma atriplicifolium*) and knapweed (*Centaurea maculosa*) are found along the more disturbed roadsides, and species planted for soil stabilization include red pine (*Pinus resinosa*), jack pine (*Pinus banksiana*), pitch pine, and beach grass (*Ammophila breviligulata*). This area also provides important habitat for grassland bird species such as upland sandpipers (*Bartramia longicauda*), grasshopper sparrows (*Ammodramus savannarum*), and savannah sparrows (*Passerculus sandwichensis*).

Besides information on the sandy areas of the military post, field notes reveal some interesting pre-settlement features on the more commonly occurring loamy soils. Beech (*Fagus grandifolia*) was by far the most dominant tree species (all but one of the 384 lots had beech growing on it, and 89.6% of the Fort Drum lots had beech as one of the top three dominant species). Hemlock (*Tsuga canadensis*), maple (*Acer* spp.), elms (*Ulmus* spp.), and basswood (*Tilia americana*) were also common and dominant as components of a mixed forest. Elm was recognized as an important species also in the 1955 Fort Drum Forest Management Plan, which speaks of elms with diameters greater than 16 inches as co-dominants in many stands. These loamy soils were heavily

forested in the early 1800's, then extensively cleared and farmed. After an additional purchase by the federal government in 1945, the land began to revert, and many areas are now heavily forested.

Beech is currently found as a subordinate species only, elms are found only in reverting fields and wetlands (and then only relatively young trees), and basswood and hemlock are dominant in places but their distribution is limited. Interestingly, there was also quite a lot of black ash (*Fraxinus nigra*), a species which occurs only sporadically now. Black birch (*Betula lenta*) and walnut (*Juglans nigra*) were present during the original surveys but do not appear to be present now. Three entries for maples were recorded - "maple", "rock maple", and "white maple".

We assume that the early surveyors did not usually differentiate between red (*A. rubrum*) and sugar (*A. saccharum*) maples, since both the "white" maple and "rock" maple were listed in a small portion of the lots, while so-called "maple" occurred in 91.4% of the lots. Both red and sugar maple are now common, with the red maple being far more prevalent. Currently, there are also scattered stands of black and silver maples on the post; though not in the areas noted during the original survey.

Fort Drum maintains an active natural resources inventory and monitoring program on its 107,265 acres. Both the role of military activity in maintaining the open character of the sandy areas and the fragility of the sandy communities have been recognized and data incorporated into management documents. This is a case where military and conservation uses mesh. A research project has been planned involving restoration of native grasslands on sandy soils; it will be implemented in what are now barren areas that resulted from borrow activities that occurred during and expansion of the installation in the mid-1980's.

Other management activities in the sandy areas include prescribed burns and leafy spurge (*Euphorbia esula*) control. The future of the unique sandy communities on Fort Drum appears secure, due to an active natural resources management program and concern on the part of the training community that their areas are maintained as useable lands.

In case you are wondering, Dr. Kurczewski never did find the wasp he was looking for!

Book Review:

Adkins, Leonard M. (Photos by Joe and Monica Cook) 1999. Wildflowers of the Appalachian Trail. Menasha Ridge Press. 214 pp. (soft cover)

This is truly a terrific little book, with a fetching layout, and magnificent photos. It should possibly have been entitled "Wonderful wildflower stuff you probably won't ever get to see along the Appalachian Trail, and if you do, it isn't really this beautiful." Too long a title?

The layout places a color photo on each right-hand page and a verbal sketch on the left that includes a description and interesting essay on the species. It is well-written, and, for the most part, accurate, but leave it to me to always open any book up to an obvious mistake -- *Chimaphila maculata* labelled *C. umbellata.* Never Mind.

My only serious objection to the book is that it is laid out in groups by flower color, just as if it were an actual guide to the plants of a trail that covers thousands of miles. You obviously can't use the book to identify anything that is not in it, and most things are not. The nomenclature is a half century old, but this is explained, and reconciliation with Kartesz' more current list is attempted in the text under each species.

Remember, this is not a botany book, but a vanity piece, and a damned good one. The photos are nearly flawless, unless you are one of those purists who believes in capturing everything with natural light. These photographers are professionals, who use every trick in the book, from fancy reflectors to strobes. The overall effect is a series of what I would call photo-essays on interesting flowers that sometimes transcend reality and take on qualities akin to those of the glass flowers of the Harvard Botanical Museum.

This book is the perfect gift for your hiker friend with an interest in botany, but, I'm sorry, they didn't tell me how much it costs. For details, contact "The Unofficial Guides," (Macmillan Travel) P. O. Box 43059, Birmingham Alabama 35243 or check it out through one of the nature book vendors on the internet.

Some illustrations are from the New York Botanical Garden's (1998) publication: The Illustrated Companion to Gleason & Cronquist's Manual.

NYFA 1999 Field Trip #2:

Long Island Rivers and Forests

Sat. and Sun. August 28-29. Summer NYFA trip to Long Island where we will explore one of the pine barrens rivers, looking at river aquatics. A second day will feature visits to some of the unusual coastal forests. We will try to arrange housing for Saturday night.

For information, contact Bob Zaremba at 518-273-9408 ext. 226
or email: rzaremba@tnc.org.

Dues?

We Don't Want to Lose You as a Member.

Don't forget to look above your name on your envelope to determine the last time (year/century) you paid your ten bucks.

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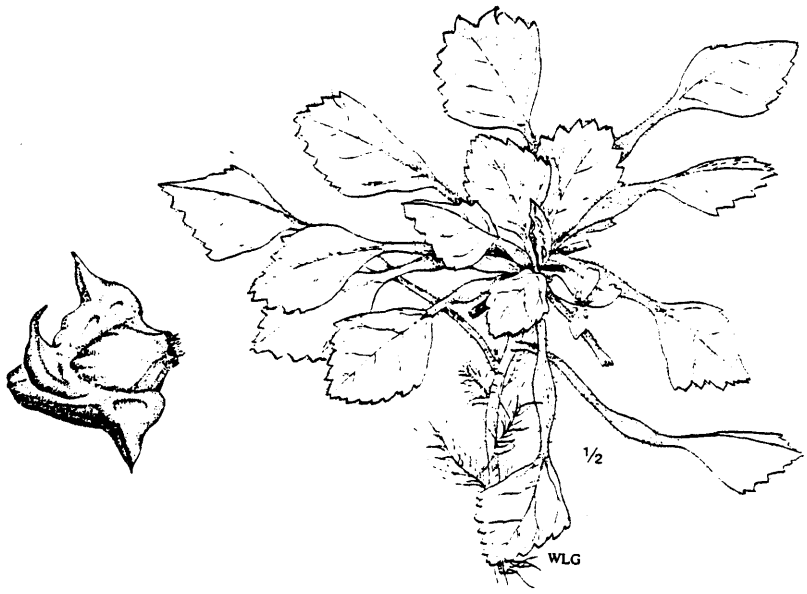
We Need Your Input! Please send articles on any aspect of New York field botany, ecology or botanical history to our address on the header. Let's diversify the information being shared.



***Trapa natans* L., water chestnut, is one of the more aggressive aquatic weeds known. It is an Asian annual that can completely cover the surfaces of lakes and river backwaters, shading the bottom and changing the native plant and animal balance of a body of water permanently. The fruits penetrate the hooves of animals and may remain dormant on the bottom for years until dredging or other disturbances stimulate germination and bring on a population explosion.**