Rensselaerville Falls

THE EDMUND NILES HUYCK PRESERVE, INC.
P.O. Box 188
RENSSELAERVILLE, NEW YORK 12147

NEWSLETTER

(518) 797-3440
Spring 1985

EDITOR: Laura Stephenson Carter

KILLER PINES?

Visitors to the Huyck Preserve may have noticed sections of the forest where fifty foot tall pine trees stand, like soldiers at review, in perfectly straight rows. These are the pine plantations and nearly half a million acres of them were planted in New York State in the 1920's and 1930's as part of an effort to reclaim abandoned and eroding farmland.

Dr. Peter Tobiessen, of Union College in Schenectady, has been studying our scotch pine and red pine plantations to learn why hardwood trees cannot survive in the red pines. His research, which has been in progress for over ten years, may even have implications for our understanding of how acid rain affects forests in the Northeastern United States.

Hardwood trees, such as red maple and white ash, have already gained a foothold in the scotch pine plantations. In fifty to a hundred years, the scotch pines will have disappeared and an oak-maple forest will stand where the plantation is now. This is all part of the natural order of life in a forest.

But in the red pine plantations, hardwood seedlings struggle to survive. If they are lucky, they might live a couple of years. It is as if the red pines, to insure their own survival, are quietly killing off the hardwood intruders.

None of the obvious variables — light intensity, soil, water availability, seed distribution and germination — could explain what was happening. And yet something was different. What was it?

Then there was a clue. The leaves of the dying hardwood saplings showed signs of phosphorus deficiency. And an examination of the roots revealed why the saplings were not getting the phosphorus they so desperately needed. There were no mycorrhizae!

Many trees will not grow without mycorrihiza. Mycorrhizae (fungus-root) are branching thread-like filaments (mycelia) of fungi which live in association with the living roots of plants. They become extensions of the plant roots and actually help the plant to extract minerals from the soil. In return, of course, the fungi are supplied nutrients from

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ANATOMY OF AN INVADER

The recent arrival of an exotic crayfish, *Orconectes rusticus*, in Lake Myosotis and Ten Mile Creek may result in the decline of one or more of the four species of crayfish already living there. But the invasion has presented Dr. Robert Daniels, of the New York State Museum, with the opportunity to follow a natural experiment.

Invading or introduced organisms affect the balance of any ecosystem, and the arrival of a new species will force the organisms living in that area to respond. Studies showing the effect of a new species on a native species have been conducted, but only after the invader has become established. What scientists don't know is how the invader achieves its new status. Dr. Daniels will attempt to find that out as he studies crayfish on the Huyck Preserve again this summer.

Dr. Daniels, using a combination of field observations and field and laboratory experiments, will examine the characteristics which make an invading species either successful or unsuccessful. He will be monitoring changes while they are occurring, not after the fact. What makes this study different from others is that the success or failure of the invasion has not yet been determined.

Not only will Dr. Daniels' work lead us to a better understanding of the anatomy of an invader, but it will also serve to increase our knowledge of crayfish life in general.

Dr. Robert Daniels is a Senior Scientist at the New York State Museum. His research on crayfish is being funded through the Edmund Niles Huyck Preserve's grant program.

An Amphibian Adventure

By Linda J. Meyers

The Huyck Preserve is an excellent place for finding frogs and salamanders. The most common frogs on the Perserve are Spring-peepers, Green-frogs, Pickerel-frogs, Wood-frogs, and, of course, the infamous Bullfrog. Adult spotted newts are abundant in Lincoln Pond, but the young, known as red-efts, prefer to live on land and frequent drier areas of the forest. I also found a few Spotted salamanders and Red-backed salamanders last summer.

Salamander lovers take note, for I have discovered a place where Northern-two-lined salamanders are plentiful. I took my Nature Study classes out to search for these slippery critters during the last week in July. We found them under rocks alongside the stream, across the road from Lincoln Pond Cottage. Larval salamanders live in the cold stream during the spring and summer months.

The kids had a blast hunting for salamanders. Six year old Angel collected sixteen within one hour and this was while ten other children were searching within the same area!

Take a hike up to the stream this summer. It is a trip that should not be missed.

Linda J. Meyers, coordinator and instructor for last summer's nature study program, holds a Masters degree in Wildlife from South Dakota State University.

Bird Calls

See if you can match the bird with its call or song.

1. Mourning Dove	a. queedle, queedle
2. White-Breasted Nuthatch	b. hoo, hoo-oo, hoo, hoo
3. Blue Jay	c. coah, cooo, cooo, coo
4. American Crow	d. vee-ur, vee-ur, veer, veer
5. Gray Catbird	e. whi, whi, whi, whi, whi, whi
6. Veery	f. caw; cah; kahr
7. Wood Thrush	g. chick-a-dee-dee-dee
8. Red-headed Woodpecker	h. what-cheer, cheer, cheer
9. Black-capped Chickadee	i. queer; queeah
10. Northern Cardinal	j. ee-o-lay
11. Great Horned Owl	k. (catlike mewing)

Third Annual Huyck Summer Science Symposium Saturday, July 20, 1985

Learn about the studies being conducted on the preserve.
Meet visiting scientists.

Huyck Hikes To Start Sunday, May 19

Join us on Sunday, May 19, for the season's first Huyck Hike. Architect John Geritz will guide you through the streets of Rensselaerville, discussing some of the town's historic buildings, including some of the Preserve buildings.

Hikes will be held every weekend starting May 19 through Labor Day weekend. Some of the other hikes scheduled include one on freshwater sponges with Dr. Harrison, Dr. Beatty's "Why Forests Need Uprooted Trees," Tom Washburn on the Bald Eagle Hacking Program, Goldenrods with Dr. Sholes, as well as hikes on geology, birds, fish, plants, and other topics of interest.

Hikes will be held every Sunday afternoon at 1 p.m. and will last about 2 hours. Meet at the Mill House parking lot at the top of Main Street in Rensselaerville.

Summer '85

The E. N. Huyck Preserve will again offer swimming lessons and nature study classes for children this summer. Huyck Hikes, the popular Preserve nature walks, will be held every weekend, on Sunday afternoons, beginning May 19. And, something new, there will be tennis lessons. Look for details in the Summer Newsletter.

Historical Note

Did you know that it was on the Huyck Preserve, back in 1938, that bats were discovered to use a sonar-like sense to fly around in the dark without bumping into anything?

Donald R. Griffin, a Harvard biology student doing research on the Preserve in 1938, discovered that bats emitted pulses of sound and used the returning echoes to navigate and locate prey. Dr. Griffin, who coined the term echolocation and is now a noted biology professor at the Rockefeller University, has since conducted studies of the little known navigational skills and mental processes of many different kinds of animals.

1985 Recipients Huyck Preserve Grants

Bauhofer, Corlin R., M.S. (State Univ. at Albany)
A floristic study of the macro-fungi of the E. N. Huyck Preserve
Beatty, Susan. Ph.D. (Cornell University, 1981).
The role of competition in determining plant species composition of treefall mounds: does it exist?
Daniels, Robert., Ph.D. (Univ. of Calif., Davis, 1980)
Anatomy of an invader: Response of established crayfish populations to the presence of a neo confamilial.
Harrison, Frederick, Ph.D. (Univ. of S. Carolina, 1969)
Cytological studies of the freshwater sponge, Eurapius fragilis.
Martyniuk, John, Ph.D. (SUNY Binghamton, 1983)
The effect of web-site physiogomy on web sizes of the filmy dome spider, Prolinyphia marginata.
Sholes, Owen W. Ph.D. (Cornell Univ., 1982)
Growth & reproduction of Aster divaricatus (White wood aster) in the presence and absence of herbivores.
Thomson, James, D., Ph.D. (Univ. of Wisconsin, 1978)
Harder, Lawrence, Ph.D. (Univ. of Toronto, 1983)
Cruzan, Mitch, M.A. (Calif. State Univ. 1983)
Pollination, selfing and sexual allocation in Erythronium americanum. (Trout-Lily, Adder's Tongue).

ONGOING RESEARCH WITH OUTSIDE FUNDING:

Herbers, Joan. Ph.D. (Northwestern University, 1978) Queen Numbers in North American Ants.
Tobiessen, Peter. Ph.D. (Duke University, 1970). Inhibition of Mycorrhizae of Hardwood Seedlings Growing in Pine Plantations.
Wilcox, R. Stimson. Ph.D. (University of Michigan) 1969. Alternative Territory Strategies in a Water Strider.

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the plant — sugars produced by photosynthesis. This mutually beneficial relationship between the plant and the fungus is known as mutualistic symbiosis.

The roots of the healthy hardwood seedlings in the scotch pine plantations are colonized by a fungus symbiont called vesicular-arbuscular (V-A) mycorrhiza. Because the roots of the hardwood seedlings in the red pine plantations are not colonized by the fungus, the seedlings are unable to extract enough minerals, especially phosphorus, from the soil to survive.

Dr. Tobiessen is trying to determine how the red pines are inhibiting this V-A mycorrhiza. One hypothesis has to do with the role manganese might play in limiting the fungus. In general, as soil becomes more acidic, as it is under the red pines, more manganese is liberated. Whether the manganese is of a high enough concentration to limit the fungus has yet to be determined, but Dr. Tobiessen's findings might have implications for acid rain studies.

Sometimes, in the course of an investigation, other questions are raised that seem unrelated to the study at hand. Dr. Tobiessen has found that while the V-A mycorrhiza cannot survive in the red pine soil, another fungus — one that normally colonizes clover and corn — is there. Why? Clover and corn do not grow in the red pine plantations, so why should that fungus be there? Is it living off something else? Could it be that scientists don't know all they thought they did about the fungus? Is Dr. Tobiessen on the verge of a new discovery?

Long before the hardwoods have taken over the scotch pine plantations, Dr. Tobiessen will probably have solved the mystery of the "killer" red pines. But it remains to be seen what other secrets may be revealed in the process.

T-Shirt Order Form

Please indicate number wanted in appropriate space(s)

Child	Yellow	Teal Blue
XS (2 - 4)	_____	_____
S (6 - 8)	_____	_____
M (10 - 12)	_____	_____
L (14 - 16)	_____	_____

Adult	Yellow	Teal Blue	Green
S (34 - 36)	_____	_____	_____
M (38 - 40)	_____	_____	_____
L (42 - 44)	_____	_____	_____
XL (48)	_____	_____	_____

Prices:	**Preserve Office Pick-up**	**UPS Shipped**
Child	$8.50	$ 9.50
Adult	$9.50	$10.50

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quart	$ 8	$12.00
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BIRD CALL ANSWERS
1-c, 2-e, 3-a, 4-f, 5-k, 6-d, 7-j, 8-i, 9-g, 10-h, 11-b

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1985 Membership Dues

Junior (17 yrs. or younger)	$5.00	$_____
Active	$10.00	$_____
Supporting	$25.00	$_____
Contributing	$50.00	$_____
Sustaining	$100.00	$_____
Patron	$1000.00	$_____

Name: _____

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Please make all checks payable to The E.N. Huyck Preserve, Inc., and mail to the above address. Tax deductable: Annual report is on file and available through the N.Y.S. Department of State, Charities Registration section, or the Preserve. **Thank you.**

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