

## Biodiversity Project at Willard's Island, Hammonasset State Park

Come October, 1999, a project planned by Menunkatuck Audubon Society gets underway on Willard's Island at Hammonasset Beach State Park. As many of you know and appreciate, Willard's Island is an upland area about 13 acres surrounded by tidal salt marsh. An observation platform is located at its northern tip on a tidal creek that drains into the Hammonasset River estuary.

Early on, this area was farmed, and in 1920 became part of the Park campground. When retired as an active campground in 1972, the area was mostly open grassland with a few large fruit trees, some large red-cedars, and occasional oaks and red maples. Subsequently, red-cedar regeneration accelerated and, today, the central portion of the "island" is essentially a monoculture of red-cedar.

While large red-cedars are favored roosting sites for great-horned and saw-whet owls and their berries are eaten by some 30 species of birds, the developing dense stand of cedars will become less and less desirable for owls and other species as lower

branches of large trees become shaded and killed, and as openings that once supported grasses and shrubs disappear.

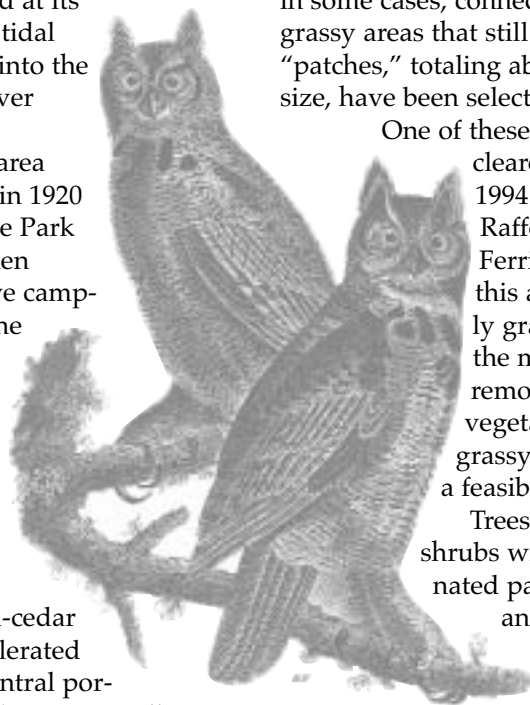
Our project, planned for October, is designed to maintain and restore vegetational diversity of Willard's Island by maintaining, enlarging, and in some cases, connecting upland grassy areas that still exist. Five "patches," totaling about an acre in size, have been selected for treatment.

One of these is a 0.1-acre area cleared of trees in 1994 by Charlie Rafford and Henry Ferris. The fact that this area is still mostly grass indicates the the mechanical removal of woody vegetation to favor a grassy groundcover is a feasible approach.

Trees, vines, and large shrubs within the designated patches will be cut and removed and then either piled or chipped.

Periodically, thereafter, the areas will be mowed to keep trees from reinvading. If necessary, bare areas will be seeded or planted with grass plugs to hasten grass establishment.

Prior to removal of trees, and every spring and fall thereafter, (Continued on Page 6.)



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# MENUNKATUCK AUDUBON SOCIETY

is a chapter of National Audubon Society. The newsletter is published bi-monthly by Menunkatuck Audubon Society.

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## Microhabitat in an Aquarium

### Part Two

#### Discovering the Abundant Life in a Tank of Pond Water

Early spring has become a time for discovery in our household. We haul our aquarium and its wooden stand up from the basement and set it up in the living room. When my husband and I graduated from a 10-gallon tank to raise tadpoles and salamander larvae to a 30-gallon one, we allowed for much more airspace in the tank. This would prove to be a wise decision, as many of the creatures in our "pond microhabitat" metamorphosed into airborne insects.

Wiping out the dust from the inside of the tank, we arrange a pile of rocks as a focal point. The rocks will serve as an underwater shelter for many creatures. When moss and bark are added to the top surface of the pile, a place is created for froglets to emerge from the water. Branches, secured so that they will protrude from the water, provide the necessary metamorphosing perches for the flying insects. Scooping water from our backyard water garden, a neighbor's vernal pool, or a nearby pond, we include the leaf litter and muck, since an abundance of creatures exist there. We top it off to a depth of about five inches with tap water (well water containing no chlorine or water softeners). The small aquarium air pump is installed and the

screened lid secured. Now it's time to sit back and wait for the soup to settle.

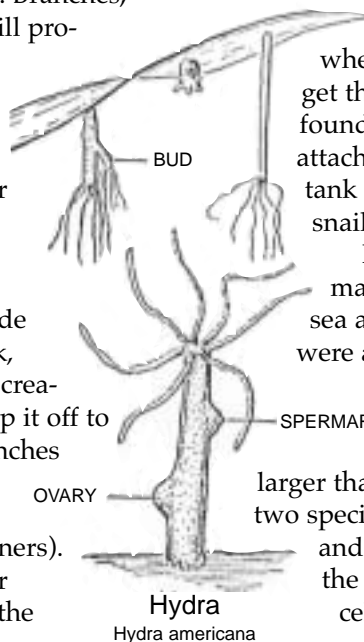
A friend had recommended we get our hands on the Golden Guide, *Pond Life*, to aid in our identification of aquatic life. This little gem of a book is loaded with illustrations and descriptions of plants, animals and fungi found in North American ponds and lakes, including microscopic life forms. It would become our most valuable tool in discovering what was residing in our aquarium.

First discovery: we had snails; boy, did we have snails. From the typical conical-shelled snails to the tiny 1/8" flattened shells of fresh-water limpets, the tank was snail heaven. When the limpets traveled along the glass sides of the aquarium we were privy to what was going on under their shells: a rasping mouth worked along the surface of the glass, consuming algae or decaying matter. Peering through a hand lens at such a

mouth, one can see where science fiction writers get their ideas. Over time we found small clear egg masses attached to the leaf litter or the tank glass. Minute shelled snails developed within.

Hydras, fascinating animals related to marine corals, sea anemones and jellyfish, were attached to surfaces like leaf litter or the tank

glass. The ones in our aquarium were no larger than one-half inch. We had two species, one that was white, and one that was green from the algae living within its cells. Tentacles at the top of



Hydra  
Hydra americana

**Menunkatuck on the Web:**

[www.audubon.org/chapter/ct/mas/index.html](http://www.audubon.org/chapter/ct/mas/index.html)

the body reach out to capture prey. We watched as mosquito larvae and other tiny creatures became entangled in the hydra's tentacles and were consumed. One way hydras reproduce is by forming buds that branch into a new, smaller version of the adult animal. We had many branching hydra in our tank.

One year, in the silt and coarse sand at the bottom of the aquarium, we discovered a small patch, probably an area no larger than two square inches, of tiny dancing worms. They protruded from the silt, these fine red strands of undulating life—

Tubifex worms!  
The Pond



Slender Bloodworm  
Tubifex tubifex

*Life* guide says that they are tube builders and their heads are buried in their silt tubes while their tails wave above. Are these the same tubifex that are dehydrated and used as aquarium fish food? They were great fun to watch, as the slightest disturbance would cause them to zip down into their tubes in unison. When all calmed down, their tails would slowly emerge again and begin the dance anew.

Another year, as a shaft of sunlight shone through the tank, a small milky cloud formed in the water. Tracing it to its point of origin, I saw that one of the 1/4" fingernail clams was shooting out minute particles from between its shells. Was it spawning?! Usually by the end of the season, when we empty the aquarium back into the pond or vernal pool where we originally got the water from, the fingernail clams in the tank have died, so I didn't hold  
(Continued on Page 4.)

# 1999 Calendar

September 8, 1999

*A Birder's View of Reptiles and Amphibians*

*Peter Warny, Jr.*

September 25, 1999

*"Take Flight!" Teachers' Workshop*

*Flo McBride*

October 13, 1999

*Clean Waters—Starting in Your House and Yard*

*Heather Crawford*

November 10, 1999

*Following Terns in Two Hemispheres*

*Helen Hayes*

December 8, 1999

*Wild Turkeys in Connecticut*

*Chuck Collins*

**Indoor meetings are at the Guilford Community Center and begin at 7:30 P.M.**

**The Guilford Community Center is on Route 77 between Route 1 and the Guilford Green.**

**Refreshments are served.**

## Trip Announcements

### **Birding in Costa Rica**

February 1 - 11, 2000

Leaders: Charlie Gomez and John Himmelman

Costa Rica is very popular destination covering a variety of habitats. Explore virgin rainforest, virgin montane forest, tropical alpine, and highland cloudforest. Observe the likes of Chestnut-mandibled Toucans to Banded Anteaters! Contact Connecticut Audubon Ecotravel at (800)996-8747.

### **Trinidad & Tobago 2000! Birds, Butterflies, & Natural History**

October 1-9, 2000

Join MAS members John Himmelman and Bill Yule as they return to these rich and diverse islands. In addition to the incredible array of flora and fauna, nearly all the bird families of South America are represented here as well as over 620 species of butterflies. For more information, contact John at (860)663-3225.

## Microhabitat

(Continued from Page 3.)

out much hope for reproductive success within the aquarium. Either finngernail clams have a very short lifespan, or the tank was not the perfect re-creation of the habitat they needed. Still, we found them very interesting to observe.

Several years we watched a whitish growth, usually on leaf litter, once on the tank glass, form in the aquarium. Fresh-water sponge! Now how did that get in there? The *Pond Life* guide says sponges are colonial animals and "feed on floating or swimming microscopic animals and plants that are trapped in their pores as water circulates through." The colony dies in the winter, but not before the sponge drops gemmules to the pond bottom. In spring each gemmule becomes a new sponge colony. We must have scooped up a gemmule from our water garden.

Isopods, crustaceans related to land-dwelling pill bugs, helped to break down the leaf litter and other decaying matter in the tank. They thrived, providing necessary food for larger predators in the tank.

Moving through the water were many minute creatures that required a hand lens to observe. The aquarium was teeming with tiny crustaceans, such as copepods, ostracods and water fleas. One group of copepods with a terrific name, Cyclops, inhabited our tank. Yes, they have one eye in the middle of the head. The females carry eggs in a pair of sacs, like saddlebags. Ostracods, also known as seed shrimp, actually look like microscopic clams that zip through the water. Within the bivalve is a shrimplike creature with legs and antennae that protrude from between the shells, aiding in its propulsion

through the water. The ostracods are never visible in the aquarium when we first add the pond water in April. But within a couple days the tank is swimming with them. Do they hibernate in the winter as mature adults, emerging when the water warms? We'll need to look into that. We've also observed that they disappear from the tank, and natural bodies of water, by early summer. A professional naturalist I spoke with said he has observed this as well.

Water fleas, like the *Daphnia* in our tank, move in a jerking motion through the water. With a hand lens you can observe their internal workings, including the eggs within the female, through their transparent bodies. All these crustaceans feed on algae, bacteria and organic debris. They, in turn, are food for many animals, including hydra. I once saw a red water mite grab an ostracod, eat the creature, then drop the empty shell. Life in the food chain.

I experienced an epiphany of sorts while viewing ostracods through a hand lens. As I was watching their behavior, lost in their world, an enormous creature swam by.

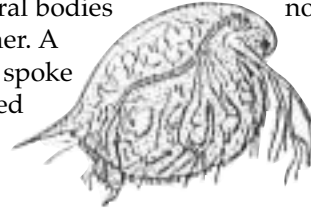
A shark, a whale?! No, a tadpole. It took my breath away. *There is an entire world that lives and survives where tadpoles are the megafauna!* And it hadn't really dawned on me until that moment of clarity. Biodiversity is so much more than lions and tigers and bears. There are worlds of life on this planet that survive in a puddle of water, in a handful of soil, in a decaying log.

How wonderful is that?

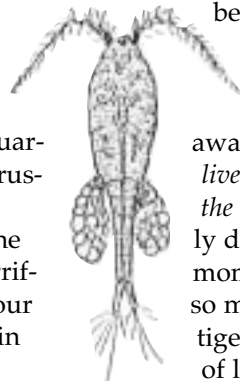
Over the years we have had many larval insects develop in our aquarium. Crane flies and mayflies emerged as adults from our tank, often before we knew the nymphs were in the

water. Caddisfly larvae would crawl along the bottom, living within a protective tube fashioned from bits of leaves, twigs, sand or pine needles. (Each species uses specific materials and construction design and can be identified by them.) We had an adult caddisfly emerge once in June, a fairly drab brown mothlike insect that did not inspire in us the same fascination as the larva. On the other hand, both larval and adult stages of the damselflies and dragonflies were equally captivating.

The damselfly nymph, with its three paddle-shaped gills extending from the tip of its abdomen, looks so delicate, yet it is a voracious predator. Like the dragonfly nymph, it will capture and eat almost anything that moves. Luckily, the damselfly nymphs in our tank were too small to be a threat to the wood frog tadpoles. Not so the tremendous dragonfly nymph that was hiding under the rocks! We did not know it was in the tank until I saw it grab a tadpole and immediately begin to eat it. I realize that this is, once again, life in the food chain, but we wanted to watch the tadpoles' different stages of development. We'd have no tadpoles left within a week if we didn't do something. That was the year that we bought a tank divider to keep the dragonfly nymph in one half of the tank and the tadpoles in the other. We supplemented the nymph's diet with small earthworm pieces and it continued to grow and molt. After thirteen weeks in our tank, it emerged. I came into the living room one morning to find a gorgeous dragonfly perched on one of the protruding branches. It was a darter species, though I didn't keep it long enough to find out which one. When it was ready, I released it. (In later years, we knew there was a dragonfly nymph in the tank by the small dark splatters on the inside of



Daphne



Cyclops

the tank glass in the airspace. You see, the splatters were dragonfly nymph excrement. The nymph will raise the tip of its abdomen and shoot the excrement into the air. More than you wanted to know?)

Gliding along the surface of the water we had small water striders, which are true bugs. True bugs have piercing and sucking mouthparts. The young are smaller versions of the adults. We watched these small striders molt their outer skin several times as they grew larger. One of my favorite things was to feed them by taking the mosquito, or horse fly, that had just bitten me, and drop it into the aquarium. The water striders would converge on it and suck it dry.

Finally, a creature that grows on you, no pun intended. The leech. The first time that I scooped one from our backyard water garden, I was mildly surprised. Of course, it was only a half-inch long. But when a writhing

four-inch monster surfaced with a scoop of leaf litter, I was astonished. How can something so big live in a 3 X 5 foot body of water? I put it in the aquarium. Some leeches are carnivores, some scavengers, and some parasitic bloodsuckers. Wishing to find out what this one was, I asked my husband and a friend to stick their hands into the aquarium water for awhile. They declined. From the illustrations in the *Pond Life* guide, this leech looked like an erpobdella, which feeds on invertebrates, fish, frogs, and occasionally, humans. I won't go into the sorry details of adding a goldfish to the tank as an experiment, but I will say that the leech showed no interest in it whatsoever. It did attach its mouth parts to an earthworm, presumably sucking sustenance from it. Twice we've observed a leech actually consume earthworm when it was offered in small pieces. Minutes after eating, one

of the leeches undulated against the tank glass, a small section of its body constricted by something holding it against the glass. It slipped its body from what was holding it and we saw that it was a clear oval egg sac attached to the glass! The leech then used its mouth to secure the edges of the sac in place. Inside were about eight miniscule white eggs. By the next day the papery egg sac had turned brown. How long does it take for a tiny egg to grow to be a four-inch leech? If anyone has the answer, we'd love to know.

So there you have it, a fascinating alternative to television on spring and summer evenings. I recommend a hand lens and a flashlight for better viewing, and a mind open to the fact that there are countless amazing creatures that we share this wondrous planet with.

Submitted by Cindi Kobak

## Osprey Injured at Hammonasset State Park

On May 28, 1999, at Hammonasset State Park in Madison, an osprey trailing kite string was snagged in the trees on the Cedar Island Trail. Birders from Guilford spotted the bird hanging and contacted the park staff for assistance.

Suspended more than thirty feet between two trees, the bird was rescued by Jim Hannon of the Branford River Raptor Center and Charlie Rafford. Hannon and Rafford climbed a ladder that park staff held securely against a tree. The string entangling the osprey was cut from the tree and a net was used to bring the osprey closer to the rescuers. Once the bird was on the ground, the tightly wrapped kite string was carefully cut free. The bird was brought to the Branford River Raptor Center, a federal and state licensed rehabilitation facility.

It is not known how long the bird was suspended, but it was obvious that blood circulation to the left leg and right wing was affected. The extent of the damage from blood loss to the limbs was unknown and after consulting with veterinarians, it was decided to give the bird time in captivity for healing.

Unfortunately, after nearly two weeks of rehabilitation, the osprey showed no signs of improvement and was euthanized.

As with monofilament fishing line, kite string can also be

deadly and should be disposed of properly in covered trash receptacles. Kites and helium-filled balloons should never be released into the atmosphere. As this story tells, the consequences can be disastrous.



Written by  
Karen L. Hannon,  
Branford River  
Raptor Center, Inc.  
for the DEP's  
*Connecticut  
Wildlife*,  
July/August 1999

**If you spot an injured raptor you can contact the Branford River Raptor Center at 488-2610.**

# Biodiversity 2000

Know your natural neighbors



## Ants Are More than Just a Delicious Meal

### BIO BITS

The strawberry poison frog *Dendrobates pumilio* fends off its enemies with toxins in its skin. Strangely, when the frogs were placed in captivity, they lost their skin toxin. A team of researchers led by John Daly at the National Institute of Diabetes & Digestive & Kidney Diseases' Laboratory investigated. They found evidence that in the wild the frogs eat a type of ant that produces chemicals similar to the toxins found in the frog skin. Thus, the frog's diet appears to play a role in the frog's defense against attack. The study indicates that attempts to reduce the ant populations with insecticides may affect the frog population by making the frogs more vulnerable to attack. This work suggests yet another important, yet subtle, link between different species.

Submitted by Pauline Garber

## Willard's Island Project

(Continued from Page 1.)

students from Daniel Hand High School in Madison will conduct a survey of the number and kind of small mammals present. While we don't know for sure, it seems likely that an increase in abundance of upland grasses will lead to an increase in population of small mammals—animals that are prey of resident and migrating raptors.

Anyone who would like to know more about this project and to lend a hand, especially in the clearing job, can mail in the form below or call Dave Houston (203) 421-3348, Henry Ferris (203) 245-4397, or Dennis Riordan (203) 387-2167.

## Willard's Island Biodiversity Project

- I would like to know more about this project.
- I would like to help with this project.

Please call me. \_\_\_\_\_

Name: \_\_\_\_\_

Street: \_\_\_\_\_

Town: \_\_\_\_\_

Mail to:

Menunkatuck Audubon Society • PO Box 214 • Guilford, CT 06437

# New Haven Bird Club Sponsors BIG SIT!

The New Haven Bird Club's BIG SIT! will be held on October 17, 1999, and will span the usual 24 hours – no one has really done more than 12, though. To participate, you find a spot, draw an imaginary 17' circle, and count how many birds you can see and/or hear during your stay.

This is the seventh year for this event, but this year there is a new twist... a \$500 prize from co-sponsors Swarovski Optiks to the team who gets the "Golden Bird." The money must go to a non-profit environmental-based organization - winner's choice. And, there will be commemorative T-shirts for sale (and for the winning circle).

Just a little history on this event: Since 1993, 27 states, 2 counties in England, and one in British Columbia have participated. Four hundred twenty bird species have been listed by over 60 circles and over 200 people. These people have sat through searing heat, gale force winds, snow, pouring rain, and some bee-utiful weather. But every one of those people at any point during their sit, could imagine a circle of like-minded lunatics doing the same in another part of the world. For more information on claiming your spot in CT (could be your yard) contact John Himmelman at (860)663-3225, or e-mail to [jhimmel@connix.com](mailto:jhimmel@connix.com).

## Menunkatuck Welcomes New Members


Menunkatuck Audubon Society welcomes the following new members:

- Branford:** Fred and Carol Auger
- East Haven:** Louis Coppola, Joyce S Duning Bellis
- Guilford:** Gean Gibbons Unsworth

- Madison:** Carol Altieni, Ned Macomb, Mrs Dorothy C Peterson
- New Haven:** Ms Monica E Perelmuter, Neal Perry, Bruce Wujcik
- West Haven:** Nancy Coppola, Steven Dias, Mrs Anthony Gerarden, Roberta Vine

# Connecticut Rare Bird Alerts

(203)254-3665  
(860)599-5195



**NATIONAL  
AUDUBON  
SOCIETY**

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Chapter Membership Application

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**Yes, I'd like to join.**  
Please enroll me as a member of the National Audubon Society and of my local chapter. Please send AUDUBON magazine and my membership card to the address below.

My check for \$20 is enclosed.  
 As a senior citizen or a student, I am eligible to join for only \$15.

NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
CITY: \_\_\_\_\_  
STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

*Please make all checks payable to the National Audubon Society.*

Send this application and your check to:

National Audubon Society  
Chapter Membership Data Center  
P.O. Box 51005  
Boulder CO 80323-1005

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LOCAL CHAPTER

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Menunkatuck Audubon Society

D63 / 7XCH

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# MENUNKATUCK

September **1999**



**PRINTED ON RECYCLED PAPER**

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## **NEXT MEETING**

### **A BIRDER'S VIEW OF REPTILES AND AMPHIBIANS**

*Wednesday, September 8, 1999*

*7:30 PM*

*Guilford Community Center*

*Route 77*

*Guilford*

*Are you on our mailing list?  
If not, send in this form with \$10.00 to cover  
costs to be sure that you are informed about  
our activities.*

Please add me to your mailing list.  
Enclosed is \$10.00 to cover the costs of the  
newsletter.

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City: \_\_\_\_\_

State: \_\_\_\_\_ ZIP: \_\_\_\_\_

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