

Fourth Annual Educators' Workshop Held at Hammonasset

Menunkatuck Audubon's fourth annual workshop for educators was held at Hammonasset Beach State Park on May 1, a beautiful spring day. Presented in collaboration with the Connecticut Department of Environmental Protection and the Connecticut Sea Grant Extension Program, this daylong workshop attracted twenty-two participants (school teachers and nature center staff) from around the state.

Participants met at the Meigs Point Nature Center at 8:30 A.M. for our customary offerings of shade-grown coffee, fruit, bagels and muffins. And then it was time to begin! After an introduction by Diane Joy of the DEP's Kellogg Environmental Center, we separated into two groups.

The morning sessions were "Salt Marsh Soils," led by Lisa Wahle, and "Salt Marsh Botany," led by Sandy Weiss, both DEP Project Search environmental educators. Lisa provided us with shovels and augers to study soil samples at various locations in the park, including the salt marsh. One good-natured participant momentarily lost her right leg as it sank thigh high into the muck of the marsh. She bravely continued on, muddy and wet, but still smiling.

Sandy took us out into another, drier, part of the salt marsh. She showed us the different zones of the



Lisa Wahle, from the DEP's Project Search, digs into the soil near the Cedar Island Trail at Hammonasset to study the layering, color and texture of the soil.

marsh: the tidal creeks, mud flats, low marsh, high marsh, and the upland edge. In the upland marsh were also pools and pannes. Each zone had plants growing that were specially adapted to their habitat. The session was spent identifying these plants and discussing the special adaptations that allowed them to
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MENUNKATUCK

AUDUBON SOCIETY

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Microhabitat in an Aquarium

Part One

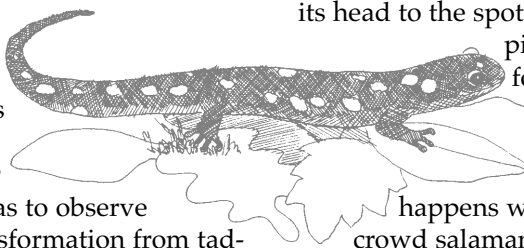
Every spring for the past six years my husband and I have set up a 30-gallon aquarium tank in our living room. No store bought fish or plastic plants for us. Instead, we attempt each year to create as natural a habitat as possible in a tank with just five inches of water and plenty of air space under a screened cover. A microhabitat, if you will. Collecting water from a nearby vernal pool, swamp, or our backyard water garden, we add this to the tank, along with some leaf litter and muck from the bottom. The water is tea-colored - not very pretty, but full of life. We add tap water to fill the aquarium to the five-inch level. Since we have well water that is not treated with chlorine or water softeners, it is safe for aquatic creatures and plants.

The first year our only goal was to observe the magical transformation from tadpole to frog and to watch the behavior of spotted salamander larvae. We soon learned that there was much more going on in that few gallons of pond water than we'd ever imagined.

While scooping up wood frog tadpoles from a vernal pool to add to our aquarium, we collected some spotted salamander larvae as well. Unlike the omnivorous tadpoles, these tiny creatures were carnivores, and algae or bacteria would not interest them. With their pair of external feathery gills sweeping up from behind their heads the salamander larvae had the look of minute aquatic lions, with the appetites to match. Favorite food?

Mosquito larvae. (Now you can see one reason why a screened cover on the aquarium was necessary.) Easy enough to come by - we'd find plenty in almost any standing water, including a puddle in a fold of tarp covering the woodpile.

As spring turned to summer and the salamander larvae grew, we offered small pieces of earthworm in addition to the mosquito larvae, bloodworms and other aquatic prey. Based on our observations, we believe that salamander larvae hunt their prey not only by sight, but by smell as well. We'd often watch a worm piece fall onto a rock in the aquarium, then roll to the bottom. Later, a salamander walking along the rock would lower its head to the spot where the worm piece had been, then follow the "trail" to its next meal.



That first year we learned what happens when you overcrowd salamander larvae. They fight. With well over a dozen in our first tank, a small 10-gallon one, they fought over the worm pieces, often playing tug-of-war when two salamanders tried to eat the same piece. Each of the salamander larvae had bite-sized chunks missing from their tails. A free meal for a sibling or just aggressive behavior? Don't know, but for awhile we could tell individuals apart by the patterns gouged into their tails. One even had a missing foreleg. Amphibians have amazing regenerative abilities and by the time we released the salamander larvae back into their vernal pool, all tails were restored and one had a new, albeit

Menunkatuck on the Web:
www.audubon.org/chapter/ct/mas/index.html

tiny, foreleg.

The wood frog tadpoles developed much more quickly than the salamander larvae, and were ready to be released as froglets in early June. After hatching from an egg mass, a wood frog tadpole has tiny, but visible, external gills. These disappear within a day or two and the tadpole changes from a small elongate shape to the round body with a tail, the pollywog, or "wiggling head," that we are all familiar with. A tadpole grazes on algae, as well as bacteria and small creatures that cling to the surface of underwater plants, rocks and leaf litter. Every few days we'd need to replenish the aquarium's supply of algae. Hind legs appeared first, then usually the left foreleg before the right one. (The left foreleg pushes through a pore from the gill chamber while the right foreleg pushes through the skin.) Soon the tadpole's eyes appear more froglike, now on the top of its head, facing front. The mouth is changing from that of a benign algae feeder to that of a predatory carnivore. The digestive system changes as well. During this time the tadpole stops eating. The tail is being absorbed as its body transforms. We knew a tadpole/froglet was ready for release when we'd find it sitting on a rock or piece of moss at the surface of the water in the tank. We'd release it along the edge of the body of water where we'd originally collected it.

It was fascinating to observe the transformations in our aquarium's amphibian residents. Metamorphosis, what a wondrous thing! We were hooked that first year, making plans for a bigger and better microhabitat for the following spring.

In September - Part Two: Discovering the Abundant Life in a Tank of Pond Water

Submitted by Cindi Kobak

1999 Calendar

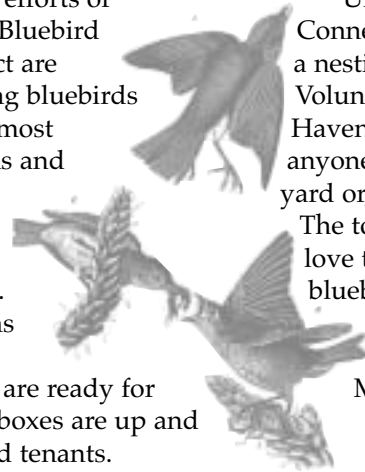
September 26, 1999

"Take Flight!" Teachers' Workshop

Flo McBride

Help the Department of Environmental Protection Solve a Mapping Mystery

The dedicated efforts of volunteers in the Bluebird Restoration Project are paying off. Nesting bluebirds have returned to most Connecticut towns and are often producing two successful nests in a single season. Many of the towns not yet reporting nesting bluebirds are ready for their return; nest boxes are up and awaiting feathered tenants.



Unfortunately, there are a few Connecticut towns that still remain a nesting mystery. Union, Voluntown, New Haven and West Haven, are you out there? Does anyone have bluebird boxes in their yard or, better yet, nesting bluebirds? The towns near you do and we'd love to fill in the "gaps" in our bluebird map.

From the DEP's
Connecticut Wildlife,
March/April 1999

Menunkatuck Members in New Haven and West Haven

Please contact the DEP Wildlife Division's Nonharvested Wildlife Program at the Sessions Woods office at 860-675-8130 if you have bluebird boxes in your yard, or know of any in your town. The Bluebird Restoration Project goal is to expand the nestbox network statewide and to help bluebirds return to every town in Connecticut.

Fourth Workshop

continued from Page 1.)
survive in this salty environment.

After a break for lunch, we again headed out into the park. The afternoon sessions were "Observing Birds," led by Roger Lawson, an environmental educator with the DEP's Kellogg Environmental Center, and "Subtidal Exploration," led by Heather Crawford, coastal resource educator with the CT Sea Grant Extension Program. Roger stressed the importance of teaching students observation skills, rather than just learning the identity of the birds. We spent time noticing size, shape and plumage of birds, as well as their

flight patterns, behavior, and where they were found.

Heather set up her session on the beach. A seine net dragged through the water gathered marine creatures for closer study. Masses of marine copepods, crustaceans no bigger than sesame seeds, teemed in the containers. Small comb and moon jellies undulated through the water. Along the line of wrack, or debris brought onto the beach with the tides, we discovered seaweed as well as the shells of many species. Heather discussed the natural history of some of these species and various ways to collect and study subtidal marine creatures.

Back at the nature center, Diane had set up Dr. Peter Pellegrino's com-

puter program, "The Living Seashore: An Interactive Guide to the Invertebrates of Hammonasset Beach State Park." Underwater video of marine invertebrates is combined with an interactive computer program. This program is available for use at the Meigs Point Nature Center when the center is open in the summer.

As always, time was too short to cover everything we would have liked. Aside from that, participants were enthusiastic in their praise of the workshop and the leaders. Menunkatuck would like to thank the DEP and Sea Grant for helping to make this day a success.



Heather Crawford (right), shares with participants the natural histories of specimens found in the wrack line on shore.



Carl Harvey, science teacher at Baldwin M.S. in Guilford, uses a small handmade net to collect specimens into a jar.



Sandy Weiss (right), from the DEP's Project Search, explains to a group of participants the various zones of the salt marsh.

Birdathon Records 147 Species

The eleventh annual Birdathon recorded only 147 species, well below the average of 182 for the previous ten years. New on the list this

year was a Barn Owl seen by Dan Cinoti.

If you pledged money for this year's Birdathon or if you want to

make a late donation, send your contribution to Menunkatuck Audubon Society, PO Box 214, Guilford, CT 06437.

	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
1 Red-throated Loon	1	1	1	1	1	1	1	1	1	1	1
2 Common Loon	1	1	1	1	1	1	1	1	1	1	1
3 Pied-billed Grebe		1				1	1	1	1	1	1
4 Horned Grebe					1	1	1	1	1	1	1
5 Great Cormorant				1		1	1				
6 Double-crested Cormorant	1	1	1	1	1	1	1	1	1	1	1
7 American Bittern		1			1		1	1	1	1	
8 Least Bittern			1			1				1	
9 Great Blue Heron	1	1	1	1	1	1	1	1	1	1	1
10 Great Egret	1	1	1	1	1	1	1	1	1	1	1
11 Snowy Egret	1	1	1	1	1	1	1	1	1	1	1
12 Little Blue Heron	1	1	1	1	1	1	1	1	1	1	1
13 Tricolored Heron		1		1	1	1			1		
14 Cattle Egret				1	1			1			
15 Green Heron	1	1	1	1	1	1	1	1	1	1	1
16 Black-crowned Night-Heron	1	1	1	1	1	1	1	1	1	1	1
17 Yellow-crowned Night-Heron		1	1	1	1	1	1	1	1		
18 Glossy Ibis	1	1	1	1	1	1	1	1	1	1	1
19 White-faced Ibis		1									
20 Mute Swan	1	1	1	1	1	1	1	1	1	1	1
21 Brant	1	1	1	1	1	1	1	1	1	1	1
22 Canada Goose	1	1	1	1	1	1	1	1	1	1	1
23 Wood Duck	1	1	1	1	1	1	1	1	1	1	1
24 Green-winged Teal	1		1		1	1	1	1	1	1	1
25 American Black Duck	1	1	1	1	1	1	1	1	1	1	1
26 Mallard	1	1	1	1	1	1	1	1	1	1	1
27 Northern Pintail			1					1			
28 Blue-winged Teal			1		1			1	1	1	1
29 Northern Shoveler			1			1		1			1
30 Gadwal		1	1	1	1	1	1	1	1	1	1
31 American Wigeon						1					1
32 Ring-necked Duck			1								
33 Greater Scaup						1	1	1		1	1
34 Oldsquaw										1	
35 Black Scoter	1	1		1		1				1	
36 Surf Scoter	1		1			1		1		1	
37 White-winged Scoter	1		1			1	1	1			1
38 Common Goldeneye			1						1	1	1
39 Bufflehead			1			1			1	1	1
40 Hooded Merganser			1		1	1	1				1
41 Common Merganser	1	1	1	1	1	1	1				
42 Red-breasted Merganser	1	1	1	1	1	1	1	1	1	1	1
43 Black Vulture		1	1	1	1	1			1		
44 Turkey Vulture	1	1	1	1	1	1	1	1	1	1	1
45 Osprey	1	1	1	1	1	1	1	1	1	1	1
46 Bald Eagle		1									
47 Northern Harrier	1	1	1	1	1		1	1	1	1	1
48 Sharp-shinned Hawk	1	1		1	1	1	1	1	1	1	
49 Cooper's Hawk		1			1	1		1	1		
50 Northern Goshawk		1	1		1	1	1				
51 Red-shouldered Hawk	1	1	1	1	1	1	1		1	1	1
52 Broad-winged Hawk	1	1	1	1	1	1	1	1	1	1	1
53 Red-tailed Hawk	1	1	1	1	1	1	1	1	1	1	1
54 American Kestrel		1	1	1	1	1	1	1	1	1	1
55 Merlin				1	1					1	

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	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
56 Peregrine Falcon			1	1		1					1
57 Ring-necked Pheasant		1	1	1	1	1	1	1	1	1	1
58 Ruffed Grouse		1	1	1	1	1	1		1		1
59 Wild Turkey	1	1	1	1	1	1	1	1	1	1	1
60 Northern Bobwhite						1					1
61 Clapper Rail	1	1	1	1	1	1	1	1	1	1	1
62 King Rail			1	1		1	1	1	1	1	1
63 Virginia Rail		1	1	1	1	1	1	1	1	1	1
64 Sora		1	1	1		1	1	1	1	1	1
65 Common Moorhen				1	1	1	1				
66 America Coot		1									
67 Black-bellied Plover	1	1	1	1	1	1	1	1	1	1	1
68 American Golden-Plover				1				1			
69 Semipalmated Plover	1	1	1	1	1	1	1	1	1	1	1
70 Piping Plover		1	1	1	1	1	1	1	1	1	1
71 Killdeer	1	1	1	1	1	1	1	1	1	1	1
72 American Oystercatcher	1	1	1	1	1	1	1	1	1		1
73 Greater Yellowlegs	1	1	1	1	1	1	1	1	1	1	1
74 Lesser Yellowlegs	1	1	1	1	1	1	1	1	1	1	1
75 Solitary Sandpiper	1	1	1	1	1	1	1	1	1	1	1
76 Willet	1	1	1	1	1	1	1	1	1	1	1
77 Spotted Sandpiper	1	1	1	1	1	1	1	1	1	1	1
78 Upland Sandpiper		1	1	1	1			1		1	
79 Wimbrel			1								
80 Ruddy Turnstone	1	1	1	1	1	1	1	1	1	1	1
81 Red Knot				1							
82 Sanderling		1	1	1	1	1	1	1	1	1	1
83 Semipalmated Sandpiper	1	1	1	1	1	1	1	1	1	1	1
84 Least Sandpiper	1	1	1	1	1	1	1	1	1	1	1
85 White-rumped Sandpiper				1	1	1	1				
86 Pectoral Sandpiper	1		1	1	1				1		
87 Purple Sandpiper	1	1	1	1	1	1			1	1	
88 Dunlin		1	1	1	1	1	1	1	1	1	1
89 Short-billed Dowitcher				1		1	1	1	1		1
90 Common Snipe			1			1		1	1	1	1
91 American Woodcock		1	1	1	1	1	1	1	1	1	1
92 Laughing Gull			1	1	1	1	1			1	1
93 Bonaparte's Gull		1				1		1			1
94 Ring-billed Gull	1	1	1	1	1	1	1	1	1	1	1
95 Herring Gull	1	1	1	1	1	1	1	1	1	1	1
96 Iceland Gull		1									1
97 Great Black-backed Gull	1	1	1	1	1	1	1	1	1	1	1
98 Roseate Tern			1			1					1
99 Common Tern	1	1	1	1	1	1	1	1	1	1	1
100 Forster's Tern				1							
101 Least Tern	1	1	1	1	1	1	1	1	1	1	1
102 Rock Dove	1	1	1	1	1	1	1	1	1	1	1
103 Mourning Dove	1	1	1	1	1	1	1	1	1	1	1
104 Monk Parakeet		1	1	1	1	1	1	1	1		1
105 Black-billed Cuckoo			1	1							1
106 Yellow-billed Cuckoo		1		1							
107 Eastern Screech-Owl	1	1	1	1	1	1	1	1	1	1	1
108 Great Horned Owl	1	1	1	1	1	1	1	1	1	1	1
109 Short-eared Owl									1		
110 Barn Owl	1										
111 Barred Owl	1	1	1	1	1	1	1	1		1	
112 Northern Saw-whet Owl	1				1		1				
113 Common Nighthawk				1			1				
114 Whip-poor-will	1	1	1	1	1	1	1	1	1	1	1
115 Chimney Swift	1	1	1	1	1	1	1	1	1	1	1
116 Ruby-throated Hummingbird	1	1	1	1	1	1	1	1	1	1	1
117 Belted Kingfisher	1	1	1	1	1	1	1	1	1	1	1
118 Red-headed Woodpecker		1			1						

	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
119 Red-bellied Woodpecker	1	1	1	1	1	1	1	1	1	1	1
120 Yellow-bellied Sapsucker	1	1	1	1	1	1	1	1	1		
121 Downy Woodpecker	1	1	1	1	1	1	1	1	1	1	1
122 Hairy Woodpecker	1	1	1	1	1	1	1	1	1	1	1
123 Northern Flicker	1	1	1	1	1	1	1	1	1	1	1
124 Pileated Woodpecker	1	1	1	1	1	1	1	1	1	1	1
125 Olive-sided Flycatcher				1							
126 Eastern Wood-Pewee	1	1		1	1	1	1		1		
127 Yellow-bellied Flycatcher		1									
128 Acadia Flycatcher						1					
129 Willow Flycatcher	1	1		1			1				1
130 Least Flycatcher	1	1	1	1	1	1	1	1	1	1	1
131 Eastern Phoebe	1	1	1	1	1	1	1	1	1	1	1
132 Great Crested Flycatcher	1	1	1	1	1	1	1	1		1	1
133 Eastern Kingbird	1	1	1	1	1	1	1	1	1	1	1
134 Horned Lark				1	1	1	1	1	1	1	1
135 Purple Martin	1	1	1	1	1	1	1	1	1	1	1
136 Tree Swallow	1	1	1	1	1	1	1	1	1	1	1
137 N. Rough-winged Swallow	1	1	1	1	1	1	1	1	1	1	1
138 Bank Swallow	1	1	1	1	1	1	1	1	1	1	1
139 Cliff Swallow	1	1	1	1	1	1	1	1	1		1
140 Barn Swallow	1	1	1	1	1	1	1	1	1	1	1
141 Blue Jay	1	1	1	1	1	1	1	1	1	1	1
142 American Crow	1	1	1	1	1	1	1	1	1	1	1
143 Fish Crow	1	1	1	1	1	1	1	1	1	1	1
144 Common Raven		1	1	1	1	1	1	1	1		
145 Black-capped Chickadee	1	1	1	1	1	1	1	1	1	1	1
146 Tufted Titmouse	1	1	1	1	1	1	1	1	1	1	1
147 Red-breasted Nuthatch		1	1	1	1	1	1	1	1		1
148 White-breasted Nuthatch	1	1	1	1	1	1	1	1	1	1	1
149 Brown Creeper		1			1	1	1	1	1	1	1
150 Carolina Wren	1	1	1		1	1	1	1	1	1	1
151 House Wren	1	1	1	1	1	1	1	1	1	1	1
152 Winter Wren		1	1		1	1	1	1	1	1	1
153 Marsh Wren	1	1	1	1	1	1	1	1	1	1	1
154 Golden-crowned Kinglet						1		1	1		
155 Ruby-crowned Kinglet			1	1	1	1	1	1	1	1	1
156 Blue-gray Gnatcatcher	1	1	1	1	1	1	1	1	1	1	1
157 Eastern Bluebird	1	1	1	1	1	1	1	1	1	1	1
158 Veery	1	1	1	1	1	1	1	1	1	1	1
159 Swainsons Thrush		1		1		1	1				1
160 Hermit Thrush	1		1		1	1	1	1	1	1	1
161 Wood Thrush	1	1	1	1	1	1	1	1	1	1	1
162 American Robin	1	1	1	1	1	1	1	1	1	1	1
163 Gray Catbird	1	1	1	1	1	1	1	1	1	1	1
164 Northern Mockingbird	1	1	1	1	1	1	1	1	1	1	1
165 Brown Thrasher	1	1	1	1	1	1	1	1	1	1	1
166 Cedar Waxwing	1	1	1	1	1	1	1	1	1	1	
167 European Starling	1	1	1	1	1	1	1	1	1	1	1
168 White-eyed Vireo	1	1	1	1	1	1	1			1	1
169 Solitary Vireo		1	1	1	1	1	1	1	1	1	1
170 Yellow-throated Vireo	1	1	1	1	1	1	1	1	1	1	1
171 Warbling Vireo	1	1	1	1	1	1	1	1	1	1	1
172 Red-eyed Vireo	1	1	1	1	1	1	1	1	1	1	1
173 Blue-winged Warbler	1	1	1	1	1	1	1	1	1	1	1
174 Golden-winged Warbler		1	1	1	1	1	1	1	1		
175 Tennessee Warbler	1			1			1	1	1	1	1
176 Nashville Warbler		1	1			1	1	1	1	1	1
177 Northern Parula	1	1	1	1	1	1	1	1	1	1	1
178 Yellow Warbler	1	1	1	1	1	1	1	1	1	1	1
179 Chestnut-sided Warbler	1	1	1	1	1	1	1	1	1	1	1
180 Magnolia Warbler	1	1	1	1		1					1
181 Cape May Warbler											1

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	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
182 Black-throated Blue Warbler	1	1	1	1	1	1	1	1	1	1	1
183 Yellow-rumped Warbler	1	1	1	1	1	1	1	1	1	1	1
184 Black-throated Green Warbler	1	1	1	1	1	1	1	1	1	1	1
185 Blackburnian Warbler		1	1	1	1	1	1	1	1	1	1
186 Yellow-throated Warbler		1	1	1	1	1	1	1	1		
187 Pine Warbler	1	1	1	1	1	1	1	1	1	1	1
188 Prairie Warbler	1	1	1	1	1	1	1	1	1	1	1
189 Palm Warbler			1		1			1	1	1	1
190 Bay-breasted Warbler		1		1							
191 Blackpoll Warbler	1	1		1		1	1				1
192 Cerulean Warbler	1	1	1	1	1	1	1	1	1	1	1
193 Black-and-white Warbler	1	1	1	1	1	1	1	1	1	1	1
194 American Redstart	1	1	1	1	1	1	1	1	1	1	1
195 Prothonotary Warbler			1								1
196 Worm-eating Warbler	1	1	1	1	1	1	1	1	1	1	1
197 Ovenbird	1	1	1	1	1	1	1	1	1	1	1
198 Northern Waterthrush	1	1	1	1	1	1	1	1	1	1	1
199 Louisiana Waterthrush	1	1	1	1	1	1	1	1	1	1	1
200 Kentucky Warbler			1								
201 Mourning Warbler				1							
202 Common Yellowthroat	1	1	1	1	1	1	1	1	1	1	1
203 Hooded Warbler		1		1		1	1	1			1
204 Wilson's Warbler	1	1		1				1			1
205 Canada Warbler	1	1	1	1		1	1	1		1	
206 Yellow-breasted Chat			1								
207 Scarlet Tanager	1	1	1	1	1	1	1	1	1	1	1
208 Northern Cardinal	1	1	1	1	1	1	1	1	1	1	1
209 Rose-breasted Grosbeak	1	1	1	1	1	1	1	1	1	1	1
210 Blue Grosbeak					1						
211 Indigo Bunting	1	1	1	1	1	1	1	1		1	1
212 Eastern Towhee	1	1	1	1	1	1	1	1	1	1	1
213 American Tree Sparrow								1	1		1
214 Chipping Sparrow	1	1	1	1	1	1	1	1	1	1	1
215 Field Sparrow		1	1	1	1	1	1	1	1	1	1
216 Savannah Sparrow	1	1	1	1	1	1	1	1	1	1	1
217 Grasshopper Sparrow		1	1	1	1	1	1	1			
218 Sharp-tailed Sparrow	1	1		1	1	1	1			1	1
219 Seaside Sparrow	1	1	1	1	1	1	1	1	1	1	1
220 Song Sparrow	1	1	1	1	1	1	1	1	1	1	1
221 Lincoln's Sparrow						1					1
222 Swamp Sparrow	1	1	1	1	1	1	1	1	1	1	1
223 White-throated Sparrow	1	1	1	1	1	1	1	1	1	1	1
224 White-crowned Sparrow	1		1	1		1		1		1	1
225 Dark-eyed Junco		1		1	1	1	1	1	1		1
226 Bobolink	1	1	1	1	1	1	1	1	1	1	1
227 Red-winged Blackbird	1	1	1	1	1	1	1	1	1	1	1
228 Eastern Meadowlark	1	1	1	1	1	1	1	1	1	1	1
229 Yellow-headed Blackbird									1		
230 Rusty Blackbird		1			1	1					1
231 Boat-tailed Grackle				1							
232 Common Grackle	1	1	1	1	1	1	1	1	1	1	1
233 Brown-headed Cowbird	1	1	1	1	1	1	1	1	1	1	1
234 Orchard Oriole		1	1	1		1			1	1	1
235 Baltimore Oriole	1	1	1	1	1	1	1	1	1	1	1
236 Purple Finch		1	1	1	1	1	1	1	1	1	1
237 House Finch	1	1	1	1	1	1	1	1	1	1	1
238 American Goldfinch	1	1	1	1	1	1	1	1	1	1	1
239 Evening Grosbeak						1		1	1		
240 House Sparrow	1	1	1	1	1	1	1	1	1	1	1
TOTAL	147	183	184	188	178	197	181	182	175	168	182

Katherine Regan Wins MAS Scholarship

Katherine Regan of Madison has won the 1999 Menunkatuck Audubon Society scholarship of \$500. Katie graduated from Daniel Hand High School in June. She will attend Tufts University and major in environmental studies. She was chosen on the basis of her academic credentials, environmental activities, and college plans.

The Scholarship Committee consists of Henry Ferris, Dan Cinotti, Pauline Garber, and Elaine Nye. Graduates of high schools in the Menunkatuck area are eligible for the MAS scholarship. Guidance counselors and science department chairpersons have the necessary forms.

Menunkatuck Audubon Society President Henry Ferris presents the MAS \$500 scholarship to Katie Regan.



Menunkatuck Welcomes New Members

Menunkatuck Audubon Society welcomes the following new members:

Branford: P Roy, Gail P Berardesca, Mr-Mrs Dana Blanchard, Earl French, Maryanne Hall, Dr Ann Hoff, Barbara Linsley, Mr-mrs E A Phipps Jr, Ms Deborah Robin, Mary Louise Scully, Mrs Robert F Rackliff

Guilford: Mr Philip H Beebe, Val Jean Brauchler, Eugene Caprio, Elinor C Carloni, Ms Shannon Clarkson, Mr-Mrs Folkerts, Natalie Heineman, William-Ann Janeway, Betty C Jung, Frank Kottisch, Emma R Proto, Leo Scholl, Joan Shrewsbary, John J Sullivan, Linda Thomas, Helen E Downing

Madison: Charles H Annicelli III, Penelope Jones, Annette Kilbride, Ted O'Neill, Janet Trainer, Linda Von Blon

New Haven: Rose Amaendola, Daphne Benas, Miriam Bloom, Catherine Cole, Carol Enscoe, Syed Huq, Ms Clarice Pollack, Mr Henry Ruggiero, Roy Schiff, Robert Schumacher, Nancy C Schumacher, J Simonds, Robert Szponda, John Tibor, Dr E Vandyke

West Haven: Ralph Amato, David

Badrick, Anne Basilicato, Cynthia Berry, Dorothy Bietsch, Emily Bietsch, Violet Bornemann, Jeanette Brooks, Anne Buchalski, Una Burns, Cynthia Campbell, Lesley Carone, William Carr, Vera Chernovetz, Nancy Ciarleglio, Nancy Clark, Louis Donofrio, Lionel Dunlap, Frances Dwyer, A Fedele, Jo Ann Formichella, Ed Gallio, Denney Gann, Gordon Gauchet, Evamarie Halbbrook, Patricia Hewston, Ruth Hitchcock, Ron Hofrichter, Donna Howard, Alfred Huey, Tri Indraningsih, Gordon

Johnson, Maureen Klein, Elizabeth Kline, Merle Lamb, Lorie Leclair, Jonathan Logue, Sheila Marley, Barbara McGowan, Ruby Melton, Carl Miller, Joan Montesi, Sondra Montesi, Elisa Murillo, Lena Myers, William Passariello, Richard Petersen, Louise Porto, Katherine Potter, Priscilla Puffer, Paul Pynch, Kathleen Pyrdol, J Raccio, Angela Russo, Suzanne Rutter, Marie Schebell, Karen Schnitzer, Carrie Seiden, C Shaw, Petra Stock, Arthur Vavoudis

Audubon TV

All Bird TV
Animal Planet

Mondays: 12:30 pm ET; 4:30 pm ET
Saturdays: 3:30 pm; 6:30 pm ET; 4:30 am ET

Audubon's Animal Adventures!
The Disney Channel
Saturday and Sunday: 9:30am.

Biodiversity 2000

FRESHWATER MUSSELS - HITCHHIKERS ON FISH

Most of us are familiar with the edible blue mussels that cling to rocks in the ocean's intertidal zone, and also, perhaps, with the ribbed horse mussel imbedded in the mud of salt marsh estuaries. But, what about fresh water? Are mussels found in rivers, streams and lakes as well? They certainly are! About 300 species of freshwater mussels are found in North America - the greatest diversity of any continent. Twelve native species occur in Connecticut, six of which are listed as endangered, threatened or special concern in the state.

BIO BITS

Contrary to general perceptions that mussels are about as interesting as dead stones, these animals are truly fascinating. Belonging to the Phylum *Mollusca*, they are related to marine octopus and squid, but only mussels, their bivalve clam cousins, and snails

(*Gastropoda*) possess freshwater species.

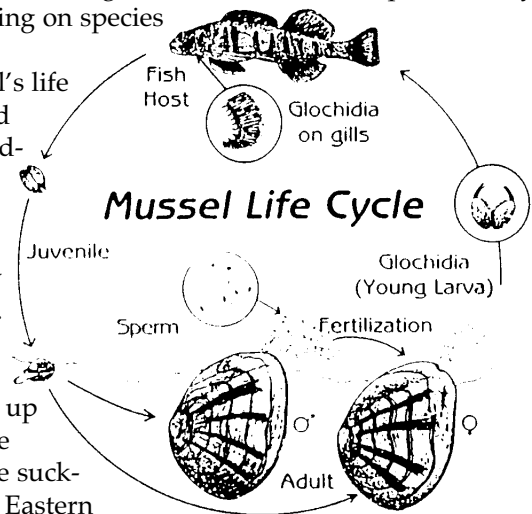
Mussels are filter feeders, pumping up to 40 liters of water per hour through their bodies in their quest for oxygen and food. Mussels may live from a decade to over a century, depending on species and habitat conditions.

Most fascinating is the fact that fish play a critical role in a mussel's life cycle. Life begins when sperm, expelled by male mussels, is siphoned into a female and fertilizes her eggs. After two to ten months of brooding in her gills, the eggs develop into tiny (0.05 to 0.50mm diameter, smaller than a period on this page), strange-looking larvae called glochidia (glah-KID-ee-ah). When mature, hundreds of thousands of glochidia are released into the water, where a few will find their way to the correct host fish and attach themselves to its gills, fins or body. The glochidia soon become grown over, or encased, by fish tissues, forming a cyst.

Some mussel species have one specific host fish, others may have up to three or more. For example, brook and brown trout are hosts to the Eastern Pearl Shell Mussel (swift, cool streams), while carp and white suckers, tolerant of lower quality streams, are host to the equally tolerant Eastern Floater Mussel.

After one to ten weeks in the parasitic cyst stage the juvenile mussel breaks out of its cyst on the host fish, falls to the bottom and burrows in. Thus, the fish host not only provides food and shelter for the developing larvae, it also is its means of dispersal, often moving the mussel larvae upstream where it could not possibly go otherwise. Remember, no fish, no mussels!

Pesticides, fertilizers and other chemicals used on land eventually make their way into our rivers and streams, affecting water quality. Siltation, caused by livestock or development too close to the water's edge, is also a problem. Because adult mussels are essentially sedentary, and continuously filter and "sample" their water environment, scientists are using them to help monitor water and habitat quality. Mussel die-offs can be an indication that the host fish for that species has disappeared from that area, or that pollution has compromised the mussels' ability to survive. Freshwater mussels are considered good "biological indicators" of what is happening in a river system. Connecticut's Dept. of Environmental Protection is currently conducting surveys of these amazing, imperiled creatures in our state's rivers, streams and lakes.



Submitted by David Houston

Field Trips

Saturday, August 7, 1999

Timberlands, Guilford

Bill Yule

Timberlands Field Trip Is Scheduled

One more field trip is on the schedule in conjunction with MAS's Biodiversity 2000 project. The field trip will highlight the interconnectedness of life on earth.

Timberlands Guilford

Saturday, August 7, 1999

10 am

Leader: Bill Yule

Fee: none

Meet at the Guilford Lakes School parking lot, Maupas Road.

We'll be looking for fungi and ferns, including rattlesnake ferns and grape ferns in a lovely ravine, as well as observing the biodiversity of this

town-owned open space forest. No preregistration required. For more information, contact Bill Yule, 457-1326.



Connecticut Rare Bird Alerts

(203)254-3665

(860)599-5195



Chapter Membership Application

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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MENUNKATUCK

July **1999**



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NEXT MEETING

*Wednesday, September 8, 1999
7:30 PM
Guilford Community Center
Route 77
Guilford*

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