

November, 1986



News from...

Hudsonia

Bard College
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a non-profit institute

THE POND

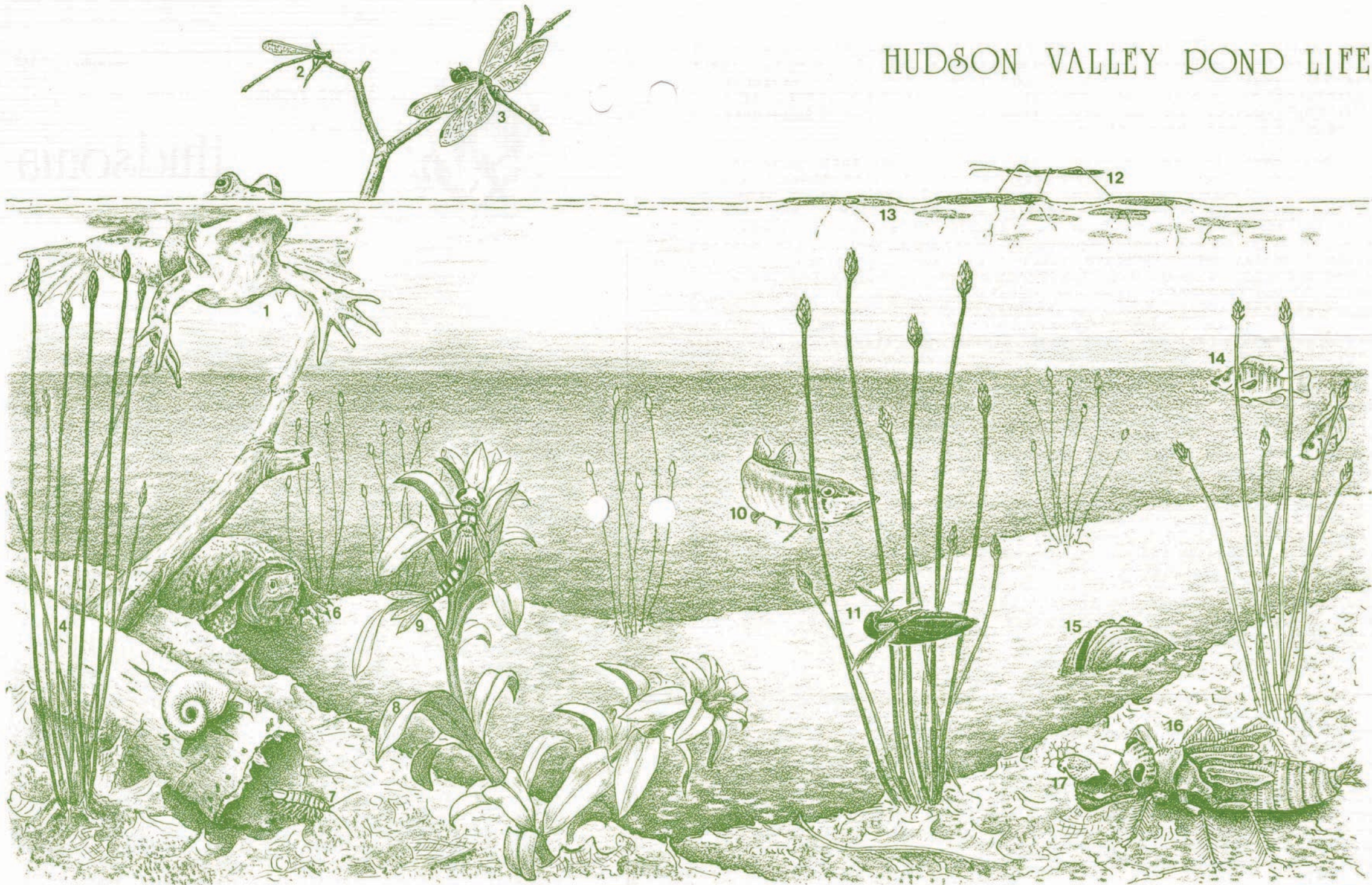
We've chosen to illustrate the biological community of a pond for our first habitat centerfold. The animals and plants of a pond are often the first concerted acquaintance with nature made by a child, a teacher, or a budding naturalist. A pond is still intimate, conceptually convenient, with obvious boundaries. Its organisms are adapted to a life at least partly in the water and often have specialized ways of moving, breathing, and reproducing.

The centerfold shows a few of the animals and plants likely to be found in a Hudson Valley pond. I'll discuss three of them: the duckweed, the dragonfly, and the bullfrog. Common duckweed (#13) is a tiny free-floating plant with roots that simply hang down in the water. The usual form of reproduction is by budding off a daughter plant from the body of the parent. Duckweed typically occurs in large masses composed of many, many individual plants, where the water is warm, calm, and fertile. It reproduces rapidly in a favorable situation, accumulating nutrients, and is a rich food for many animals. Turtles, muskrats, hogs, and ducks eat duckweed and often end up transporting it from pond to pond accidentally when it sticks to their shells, legs, or fur. Often large mats of duckweed will be blown across ponds to new locations and perhaps die (due to cold or shade) and rapidly rot, effecting a transfer of nutrients from one place to another. If you watch a mass of duckweed carefully, you may see not only a turtle or a muskrat gulping down the little green things, but also a variety of insects skittering about on top of the plants.

Whereas the duckweed must be in the water almost all the time to survive, the dragonfly spends part of its life in the water and part in the air. It starts as an egg deposited into the water, which then hatches out a nymph or immature stage (#16). The nymph crawls about on the pond bottom. When young it will eat tiny animals, such as the water flea (#17), and when older it will consume other insects and even fish. If it is threatened it can expel water rapidly from its body and jet away from the aggressor. The nymph periodically sheds its skin and each time grows larger. Eventually it crawls up the stem of a plant into the air, sheds its last skin (which you may find dried out but still attached to the stem), perches for a while as its wings unfold and dry, and then flies off as an adult dragonfly (#3).



HUDSON VALLEY POND LIFE

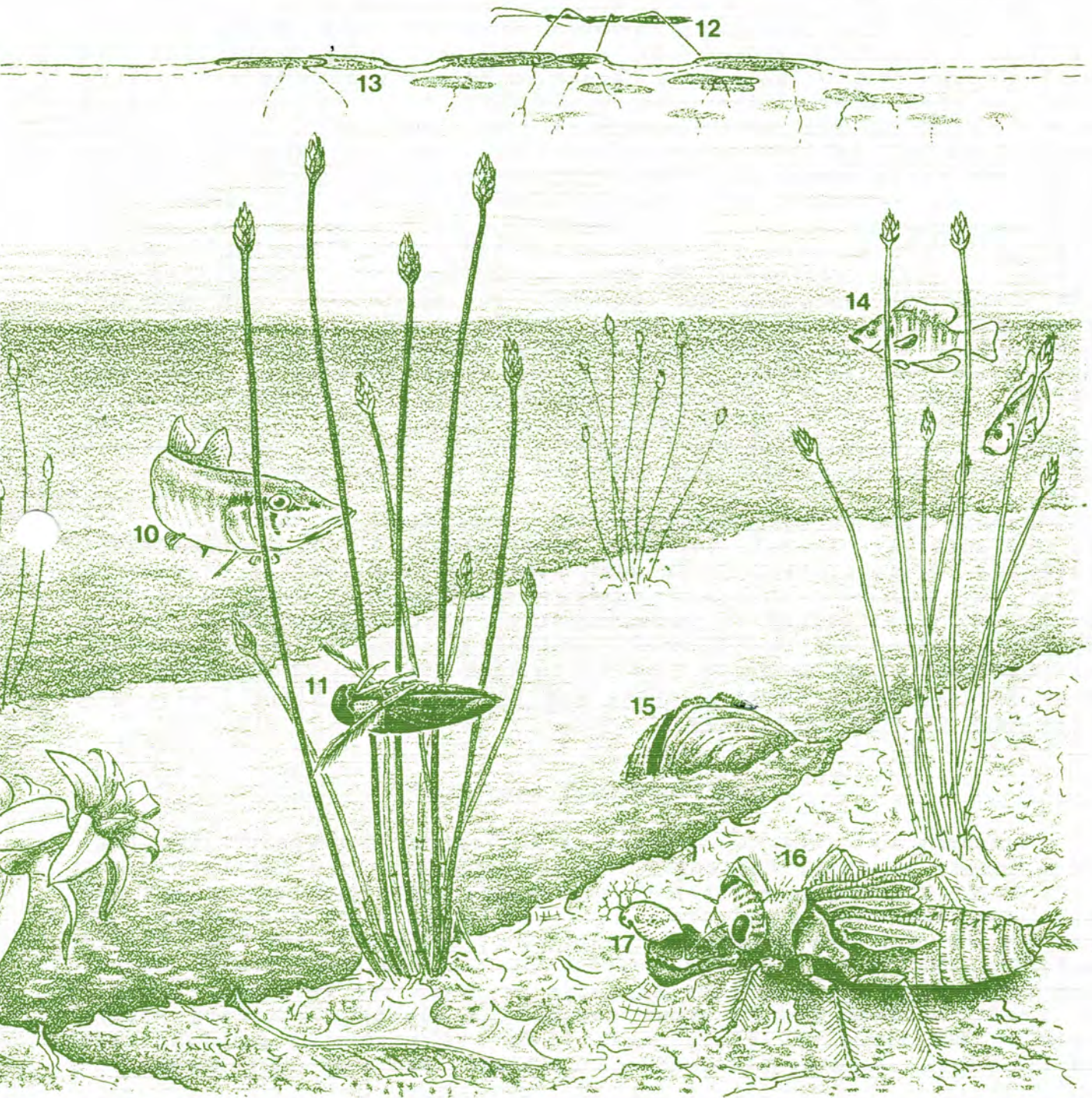


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|--------------------------------------|-----------------------------------|--------------------------------------|--------------------------------------|
| 1. Bullfrog (Amphibian: ±20 cm) | 6. Musk Turtle (Reptile: 11 cm) | 11. Backswimmer (Insect: 1.6 cm) | 16. Dragonfly Nymph (Insect: 2.5 cm) |
| 2. Damselfly (Insect: 3.5 cm) | 7. Water Sowbug (Crustacean: 1) | 12. Water Measurer (Insect: 1.8 cm) | 17. Water Flea (Cladoceran: .1 cm) |
| 3. Dragonfly (Insect: ±4.5 cm) | 8. Waterweed (Plant: 20+ cm) | 13. Duckweed (Plant: .2 cm/plantlet) | |
| 4. Eel grass (Plant: 15+ cm) | 9. Damselfly Nymph (Insect: 3 cm) | 14. Bluegill (Fish: ±20 cm) | 2.54 centimeters = 1 inch |
| 5. Ram's Horn Snail (Gastropod: 1.6) | 10. Grass Pickerel (Fish: ±25 cm) | 15. Freshwater Mussel (Bivalve: ±11) | Turn over for more info about ponds! |



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Adult dragonflies catch their prey in flight by forming their hairy legs into a basket and scooping insects out of the air. Their eyes are large and their eyesight excellent. The social behavior of dragonflies is complex and includes defending territories against other individuals. You may watch these battles if you sit quietly by the edge of a pond. Dragonflies do not sting.

Bullfrogs (#1) are in most Hudson Valley ponds that contains water all year. They are greenish-brown above and white beneath and do not have a distinct ridge down each side of their backs like the smaller green frog. The male's throat is bright yellow in the spring. Bullfrogs spend most of the time in the water or at its edge, snapping up any moving animal small enough to cram down their large mouths--mostly insects, but sometimes other frogs and even mice. In late spring and early summer, male bullfrogs defend their territories while making loud, resonant, drawn-out croaks ("Jug-o-rum"). This sound symbolizes the still, hot June nights to some people, and for the bullfrog serves to warn off other males and attract females. When a receptive female arrives, the male clasps her from above with his front legs. She extrudes her eggs into the water while the male releases his sperm to fertilize them. The eggs are small black spheres enveloped in a mass of protective jelly. They hatch into tadpoles, which spend two or three years in the water feeding on algae and debris. When a bullfrog tadpole develops legs and resorbs its tail, it is in danger of being eaten by larger frogs. The large bullfrogs are prized by humans for their muscular hind legs, and State Conservation Law stipulates when and how they may be taken for food.

People like to have ponds nearby. Some ponds in the Hudson Valley are entirely natural, but most have been built or enlarged artificially. Historically, ponds were built for ice cutting or running mills, but nowadays they are managed for scenery, water supplies, sports or firefighting. Paradoxically, their construction is an important factor in the loss of wetland acreage in the Northeast. More information on ponds is in William Amos The Life of the Pond; Ann Haven Morgan, Field Book of Ponds and Streams; and Elsie Klots, New Field Book of Freshwater Life.


OTHER HUDSONIA PROJECTS

Hudsonia is currently conducting ecological surveys of five Dutchess County streams, wetland surveys in Poughkeepsie and La Grange, environmental planning related to residential developments, mines, and landfills, and studies of purple loosestrife and fish food habits. We are now in our newly-expanded Bard College Field Station, busily equipping the facilities and gearing up for the 1987 field season. Your tax-deductible donations of goods or funds are welcome. Some of the items we need are aluminum canoes, an electric outboard motor, tools of all kinds, file cabinets, books and journals, refrigerators and freezers, computer hardware and software, and a field vehicle.

This newsletter was sponsored by donations from the following area businesses: The Bookery, Rhinebeck Health Center, and Rhinebeck Health Foods. We encourage you to lend them your support. This issue was designed and illustrated by Kathleen A. Schmidt, written by Erik Kiviat, and produced by Kathy Anne Schmidt.



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 *Erratum: Ref. Nov. 1986 issue, the illustration of species #4 was erroneously captioned "eel grass." It should have been "spikerush". Although the flowers of spikerush are normally above water, they may be submerged by a sudden rise in water level.*