

Story Trail

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Book News

Over & Under the Pond

Author's Note

Ponds and other wetlands provide homes for plants and animals around the world.

A pond is one kind of *ecosystem*—an interconnected community of organisms that interact with one another and with their environment. If you look back through the story, you'll find many examples of those interactions—from the blackbird gathering grass for her nest to the many animals eating plants and other animals as part of the food chain.

In a pond ecosystem, producers like plants and plankton make their own food using sunlight, water, carbon dioxide from the air, and nutrients from the soil or water. Herbivores like the fish, birds, beavers, and moose in this story get their energy from eating plants. Carnivores—like the great blue heron, otter, and raccoon—eat both plants and animals. At the bottom of the pond are decomposers—bacteria and fungi that break down dead and decayed plants and animals to return nutrients to the soil so the cycle can start all over again.

Sometimes, ecosystems are threatened by pollution or loss of habitat, but when things are going well, every organism has a job to do, and together, they keep their pond healthy.

This story was inspired by a canoe trip on Barnum Pond at the Paul Smith's College Visitor Interpretive Center in the Adirondack Mountains.

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About the Animals



Whirligig beetles are so well-known for speeding in wild circles over the water that *Kaufman Field Guide to Insects of North America* (by Eric R. Eaton and Kenn Kaufman) calls them the “bumper cars of the beetle world.” Whirligig beetles swim by rowing with their middle and hind legs. Their eyes are split so that half is above the water line and half is below, so these beetles can see well both over and under the pond.



Brook trout, also known as speckled trout, live in ponds, streams, creeks, and small rivers and lakes. They eat not only dragonfly larvae but also a variety of other insects, other fish, crayfish, frogs, and even small aquatic mammals such as voles. Brook trout are both predator and prey in a pond ecosystem. They’re hunted by larger fish, mink, otters, raccoons, and birds such as the kingfisher and great blue heron.



Painted turtles, named for the bright red and yellow markings on their bodies and shells, love to bask in the sun on logs. They eat insects, crayfish, mollusks, and aquatic plants. In the winter-time, painted turtles burrow into the mud at the bottom of the pond to hibernate.



Red-winged blackbirds often build their nests near ponds and other wetlands, and you’ll see them perched on cattails, the males calling *cuck-la-ree, cuck-la-ree!* Only the males have red wings. Females are brown and look more like sparrows. A red-winged blackbird’s diet depends on the season. They eat lots of insects in summer and feed mostly on seeds in the winter.

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Caddisfly larvae are architects of the insect world. As the larvae develop, they use silk glands near their mouths to make nets for catching bits of plant matter for food and to build cases for themselves, which they piece together using sand, tiny pebbles, and plant material. These cases help to camouflage the larvae and protect them from predators, but many larvae still end up being a meal for fish or birds. The caddisfly larvae that survive develop into adult caddisflies, which look like small moths, live near water, and are attracted to lights at night.



Moose are herbivores, which means they eat only plants. Aquatic vegetation such as water lilies are among their favorite summertime meals. Moose are the largest members of the deer family. They can be 6 feet (2 metres) tall, and the males' antlers can grow up to 6 feet wide. You wouldn't think such a huge animal would feel at home in the water, but moose are good swimmers and have been known to swim several miles at a time.



Beavers form the building crews of the wetland world. When they can't find a suitable home in a river, lake, or pond, they'll make one! Beavers use their powerful jaws to take down trees. They block streams with tree trunks, branches, and mud to create the ponds they love. Beavers also use sticks and mud to build their lodges—homes with secret underwater entrances.



The **American Goldfinch** nests in shrubs and saplings and breeds later than many other birds. Finches wait until June or July to build their nests so that seeds from plants like milkweed and thistle are available to feed their young.

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Tadpoles and **bullfrogs** are common in ponds. Even when it's hiding, it's hard to miss the male bullfrog's loud, growly croak. Female bullfrogs can lay up to 20,000 eggs. Many of those eggs don't survive, but those that do hatch into tadpoles, which then take up to three years to lose their gills and tails, fatten up, and grow legs to become frogs. You can tell a male bullfrog from a female by looking at the tympanum, or eardrum, near the eye. In males, it's much bigger than the frog's eye, while in females, it's about the same size or smaller.



When a **great blue heron** is hunting, it wades slowly or stands still as still as can be, eyes on the water. Then, in a flash, it thrusts its head into the water and uses its bill to stab a fish or a frog. Great blue herons have special photoreceptors in their eyes that help them to see better in the dark, so they can hunt day or night.



Pileated woodpeckers hammer away at trees in the forest, searching for insects. Carpenter ants are their primary food source. The woodpeckers dig long, deep, rectangular holes in dead or dying trees, right into the ants' tunnels. These birds have powerful beaks and long, barbed tongues for pulling out beetle larvae and termites from the wood.



River otters live in burrows on the shores of lakes, ponds, rivers, and marshes and come into the water to hunt for fish, freshwater mussels (which they crack open on rocks), crayfish, frogs, and turtles. They're excellent swimmers, with powerful tails, webbed feet, and ears and nostrils that close in the water. River otters can hold their breath underwater for up to eight minutes.

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Dragonflies love ponds and other wetlands because there are so many insects to eat. Dragonflies have four wings that can move independently, allowing this insect not only to fly but also to hover like a helicopter over the pond. The blue dasher dragonfly, also known as the blue pirate, catches bugs in the air and may devour hundreds in a single day. **Dragonfly larvae** are just as fierce while they're developing underwater. They eat mostly aquatic insects and other larvae but have even been known to catch small tadpoles and tiny fish in their powerful jaws.



Ospreys are master anglers that fly over lakes, ponds, and rivers watching for prey. When they spot a fish, they dive feet first, clutch the unlucky fish in their talons, and carry it back to their perch or nest to eat or to feed their young. Some ospreys are seasoned travelers as well—some may travel more than a hundred thousand miles migrating over a lifetime.



Raccoons are omnivores, which means they eat both plants and animals. They'll gobble fruits and greens, raid nests for eggs, and hunt for crayfish and frogs. Raccoons have super-fast paws and fingers that are good for grabbing their prey. In northern climates, they eat a lot in the warmer months because they sleep a lot during the winter, using up the stored fat.



Mink live in burrows in the banks of ponds, rivers, and lakes. They're champion swimmers that can dive up to 16 feet (5 metres) deep in search of prey. Mink eat a wide variety of pond creatures, including crayfish, frogs, fish, and small mammals. They don't have many natural predators other than bobcats and coyotes. Their biggest threat is humans, who trap them for their fur.

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It should be no surprise that freshwater **crayfish** and lobsters are related: crayfish look like miniature models of their salt-water cousins, complete with claws that can pack quite a pinch. Crayfish eat aquatic plants, worms, and bits of decaying matter in the water. When they're threatened, they rear up with their claws held high, then flick their tails to propel themselves backward to take cover under a log or rock.



Catfish are named for the "barbels" around their mouths, which resemble a cat's whiskers. Most catfish are bottom-feeders that prowl the bottoms of ponds and lakes and use their feelers to search out food and find their way in dark, deep water. The bull-head, one kind of catfish that lives in North America, has a varied diet that includes insects (dead or alive), other fish, crayfish, and fruits or grains that drop into the water.