

Nature Detectives

SPRING
1986



"Who's been here?" "What were they doing and why were they doing it?" "When did it happen?" Nature Detectives try to answer questions like these by looking for clues and evidence of the activities of creatures in the outdoors.

Have you ever wondered about teeth marks on the trunk of a tree, or strange footprints in the snow or mud? If you have, then you are already a nature detective.

THEME:



Night and Day

Can this be the same place? A stream-side habitat may have quite different animals moving about by day than by night. On a summer day, butterflies, squirrels, magpies, ravens, cottontails, frogs, turtles, and gartersnakes may be feeding or tending young. At night, while this group rests, another group comes out of resting places: moths, foxes, owls, bats, nighthawks, raccoons, mice, deer, coyotes, and skunks, for example. Part of the pattern seems to be that animals are active by day or by night depending on when their food source is active, when they themselves are most efficient at finding food, and when it is safest for them to feed without being eaten by somebody else. Warm turtles sunning on logs during the day snap up more flies and can move out of danger faster than cold turtles. But a furry deer mouse can hunt for seeds on cold nights as well as on warm days, but at night it can avoid being seen by red-tailed hawks, (although owls are another story!). The sum result of the activity patterns of living things which move, or bloom, or sing, or sleep by dawn, or dusk, or day, or night is that something is going on most of the time!



Coyotes

A Special Glow

Some fungi, insects, and marine organisms contain chemicals which give off light energy, a characteristic called luminescence. The honey fungus is a mushroom which grows at the foot of trees and shrubs. The scaly, honey-colored cap covers white spores and a downy, hollow stalk. Below, both the thread-like mycelium or fungal network which invades the wood, and the infected wood itself, glow a faint bluish-green light which can be seen on very dark nights.

Fireflies flash signals to each other on summer evenings. Chemicals located in the abdomen of the insect act like little lanterns which blink on and off -- each species recognizes its own pattern of flashes. In some species the eggs, larvae, and pupae glow as well as the adult. Fireflies live in moist, swampy areas. Though not common in Boulder County, there have been reports of fireflies near Boulder Reservoir and in wetlands near South Boulder Creek. Have you seen them? If you see fireflies or honey fungi, please write to Nature Detectives giving the date, location, and your observations.



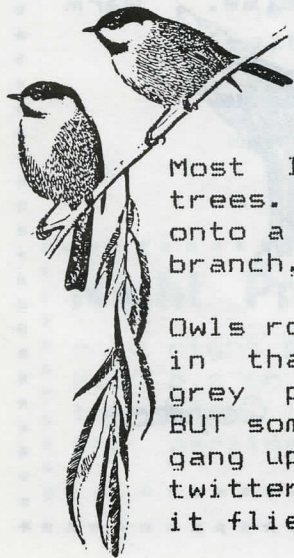
* What is life? It is the flash of a firefly in the night. It is the breath *
* of a buffalo in the winter time. It is the little shadow which runs across *
* the grass and loses itself in the Sunset. *
* *

words of Crowfoot Spokesman of
the Blackfoot tribe. April 1890

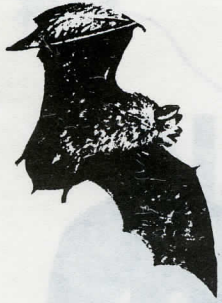
What about Sleeping?

Most little birds roost at night in the shelter of dense brush or trees. Claws are designed so that as a bird 'relaxes' and sinks down onto a branch, the claws automatically become more curved around the branch, preventing the bird from falling off its roost while asleep!

Owls roost all day, often looking so like the tree they are perching in that they are almost impossible to see. Their mottled brown grey plumage can look just like the bark of a cottonwood or pine. BUT sometimes the little daytime birds will see the roosting owl, and gang up together to MOB it. All the tiny birds will fly at the owl, twittering and calling and generally harassing the sleepy-head until it flies away to find a quieter bed for the day.



Blind as a Bat?



Bats are night time hunters, catching their meal of insects as they skim through the sky at dusk. They are not blind, but they don't see well like the owls do. They use ecolocation instead to find their prey. As they fly they emit high pitched squeaks which bounce back again when they hit a solid object in the way. By listening to the echo - the bats not only avoid bumping into things as they fly, but also catch enough moths and beetles for a good meal.

Most amazing of all---some moths squeak like bats to try and confuse the bats while the moths themselves can escape!



Day and Night Adaptations

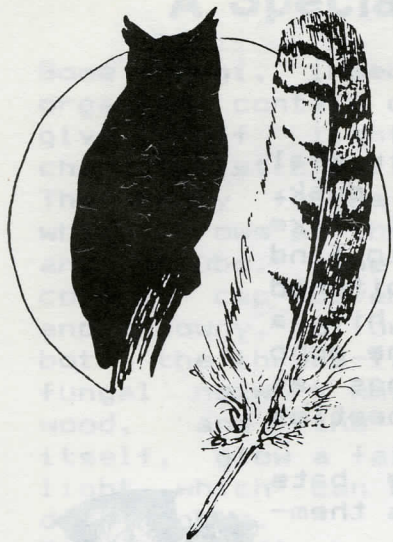
Hawks and owls are both predators, catching small birds and rodents. Hawks, hunting by day, can see movement in the grass as they circle high in the air, their sharp eyes picking out the shape and color of the vole as it scuttles along its run. But what of owls? There is hardly any light to see with when they do their hunting. Do they hunt by sight, or do they rely instead on their acute sense of hearing?

The back layer of an eye, called a retina, is the part of the eye that does the seeing. The retina is made of two different kinds of cells, RODS and CONES. Rod cells are much more sensitive to light and movement than cone cells. Owls have mostly rod cells, so get a good look even when it appears to us to be too dark to see. But their view is in shades of grey. It is the cone cells of the hawks that are needed to see colors.

Those great round eyes of an owl - that make him look so "wise" - are both set to look forward. The large pupils (the middle part of the eye that lets the light in) are good light gatherers in the gloom. But owls can't turn their eyes from side to side, the eyes are fixed. Instead, the owl has to turn its whole head around.

As for hearing, some owls have their ears set not quite symmetrically, so that the owl can better hear the direction of the scuttling mouse. Owls' ears are tiny openings hidden under the feathers on the side of the head - not the large, sticking-up feathers that LOOK like ears on the top of the head.





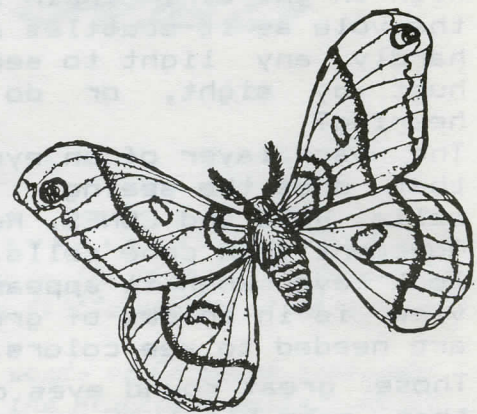
Barf Balls!

You don't often see owls catch their prey, they are so quick in the night - a few gulps and their prey is swallowed up! One way to find out more about an owl's diet is to study the 'pellets' coughed up. These pellets are the indigestible remains - bones and fur - of the prey. Very often there will be several of these 'barf-balls' or pellets underneath a favorite perch. Pick apart the pellets and reveal tiny bones of voles and mice - a way of telling what the owl had for supper!



Moth Trap

It is easy to see butterflies, especially if you have colorful and nectar-full flowers in your garden. Butterflies are active in the warmth of daylight. Moths take more looking for. They fly at night, finding moth-mates by scent - the female moths have special chemicals, called pheromones, to attract the males. They find nectar in night blooming flowers. But moths are attracted to bright lights, and this is a good way to make a moth trap. Pin an old white sheet against the side of your house or on a fence, and shine a strong flash light at it. This will attract moths which you will be able to study against the white background. Look for the feathery antennae, the furry bodies, the colorful hind wings, when the moth alights with both pairs of wings spread.



 * **Night Prowl!** Nature Detectives bring your parents
 * on a night prowling at Walden Ponds Wildlife Habitat. Be there from 7 -
 * 8.30 p.m on Thursday, May 15, to see and hear the busy night life of
 * the marsh. Dress warmly and bring red-covered flashlights. Meet at
 * the parking area near the second pond.
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