



OWLS

and THEIR PREY



by Jim Cornish

The hoot of an owl is as symbolic of the wild as the howl of a wolf or the sight of a brown bear. Getting close to these animals is neither easy nor wise. Wolves and bears can be dangerous and with their nocturnal habits, owls are elusive. But in the case of owls at least, we can learn something about them by studying something they leave behind — their pellets!

Fun and Fascination

For educators (and Scout leaders), owl pellets help teach the basics of anatomy, physiology, and rudimentary ecological concepts such as food webs and bio-diversity. For students (and Scouts), owl pellets combine the intrigue of an unopened gift and the challenge and joy of solving a puzzle by constructing a model. When I cover the human skeletal system in my fifth grade Science class, I use owl pellets to teach my students about anatomy; gleefully watching disgusted faces quickly change to fascinated ones as the contents of a pellet are carefully revealed and the skeleton of the animal it ate slowly takes shape.

Owls and Owl Pellets

Like eagles, hawks, osprey and falcons, owls belong to a group of birds called raptors — birds of prey. They hunt small animals and since they lack teeth and cannot chew their food, they either eat their prey whole (head first in one single gulp as in the

case of owls) or use their strong, sharp beaks to tear it into bite-size pieces for easy swallowing.

An owl's prey is partially digested in a stomach with two parts: the glan-

often contain multiple skeletons. Because their digestive juices are not as strong as those of other raptors, owl pellets leave the bones in a better state for study. Collecting the pellets is fairly easy, because some owls roost in structures built by humans.

Nicholas takes a break from trying to piece together a skeleton found in his owl pellet.



Obtaining Owl Pellets

Because they are being handled by youth, sterilized owl pellets such as the ones available from science supply stores should be used. In Canada, Boreal/Northwest (www.boreal.com) supplies individually wrapped, sterilized, Pacific Northwest Barn Owl pellets and identification resources (sorting charts, food chains and food webs) at reasonable prices. Budget about four dollars per pellet for quantities of fifteen or less.

ACTIVITIES

Dissecting an Owl Pellet

Allow about an hour to complete the task using the following materials and the steps listed below. Leave the pellets dry throughout the examination. It is less messy than using pellets that have soaked for a while.

Materials: tweezers, toothpicks, paper/styrofoam plate, bone sorting chart, large index cards, magnifying glass, glue, latex gloves, dust masks, compound microscope (optional).

What to do:

1. Distribute the owl pellets.
2. Using fingers, carefully pry the owl pellet apart and lay the pieces on a plate.
3. With tweezers and toothpicks, carefully separate the bones from the fur and whatever else is binding the pellet together.

Photos: Jim Cornish

4. Separate any larvae exoskeletons found.
5. Organize the bones into a skeleton displayed on an index card, using a sorting chart (available as part of a kit or on-line).
6. Determine the prey species (use jaw bones and skulls for easiest identification).
7. Determine if the pellet contained one or more whole or parts of a prey.
8. Create a permanent skeletal display by gluing the bones in place.

Optional: Use the magnifying glass/compound microscope for closer examination of the teeth and bones.

Create a Food Chain

Materials: chart paper, pictures of owls and their prey (do an on-line image search) and markers.

What to do:

A food chain is a simple graphical way of showing the food relationships between organisms — who eats what and in what order. It is a pathway that links different species of plants, animals and insects sharing a common habitat. Energy and nutrients are passed from one organism to another along the chain.

Food chains rarely contain more than four steps. Each species occupies a certain position, called a trophic level, in the chain. The same species may occupy different trophic levels in different food chains. After the sun, food chains usually start with a producer (autotroph), usually some kind of plant. It makes the food that supports the other species in the chain. Consumers (heterotrophs), or living things that cannot make food for themselves, occupy the remaining parts of the chain. The size of the population decreases going up the trophic levels.

Create a Food Web

In nature, feeding relationships are rarely as simple as a single food chain. A community of living organisms may contain hundreds or even thousands of different species involved in several different food chains. These chains are often interconnected forming a large network called a food web. Creating a web including an owl is a great way of demonstrating the interdependency of life.

The following web sites have some excellent diagrams illustrating this interconnectedness.

Feeding Relationships: <http://www.bbc.co.uk/schools/gcsebitesize/biology/livingthingsenvironment/1feedingrelationshipsrev1.shtml>

Food Chains and Food Webs (Diagrams)

<http://www.sciencebob.com/lab/webchainpics.html>

Why Study Owl Pellets?

For ornithologists, studying pellets is a way of monitoring the health of the owl and its environment. Identifying the rodent species in a pellet is an easy way to create food chains, to examine the hunting habits of owls and to monitor population changes in rodents or the appearance of new prey into an owl's habitat. These changes could, for example, indicate a need for conservation measures to protect a prey and its environment. Studying the skeletons in the pellets allows researchers to monitor prey without having to track, capture and possibly kill them. For youth, studying owl pellets introduces them to some of the basic concepts of biology, archeology, comparative anatomy, and forensic science. Who knows,

it may just lead to a career one day! X

– Jim Cornish is a writer, amateur naturalist and teacher living in Gander, Newfoundland.

Program Links

Cubs: Black Star A#2; Black Star B#1; World Conservation Badge; Specialty Badge

Scouts: World Conservation Award; Science Badge; Fish and Wildlife Badge; Naturalist Badge; Specialty Badge

Venturers: Personal Interest Award; Exploration Award – Conservation

Owl Book: *Eyewitness Eagle And Birds Of Prey* by Kindersley Dorling
ISBN: 978-0789458605

Award of Excellence in Teaching

Early this year, Jim Cornish was honoured to be one of fifty 2006 Recipients of the Prime Minister's Awards for Teaching Excellence - Certificate of Achievement. This award meant a lot to Jim as recipients are nominated by their peers – the teachers. In the nomination, Jim's writing for the *Leader Magazine* was mentioned. The award included a certificate for Jim and his school as well as a \$1000 cheque to be used to purchase educational materials for his school.

This article is the fourth one Jim has done for *The Leader*, and we're proud to say "Congratulations" on his achievement. We look forward to receiving many more articles from Jim in the future.

On-line Resources on Owls and Owl Pellets

Owl Pellet Identification Resources

<http://www.pelletsinc.com/resources.html>

Owl Pellet Dissection

http://www.scienceman.com/pgs/archive21_owlpellet.html

Owl Pellets

<http://www.rspb.org.uk/youth/makeanddo/do/pellet/index.asp>

Owl Pellets: Student Record Sheets and Sorting Sheet

http://www.cdli.ca/CITE/pellet_activity.pdf

Owl Pellets: How to Study Their Contents

http://www.rspb.org.uk/Images/OwlPellets_tcm5-48807.pdf

Owl Pellets

<http://www.eagle-bluff.org/Owl%20Pellets.pdf>