

## Lab#22: OWL PELLET STUDY KIT Student Worksheet and Guide

Owls are birds of prey (raptors) who are physically adapted to be effective consumers of large numbers of rats, mice, and other rodents. Because they feed on large numbers of these animals, they should be considered beneficial to farmers.

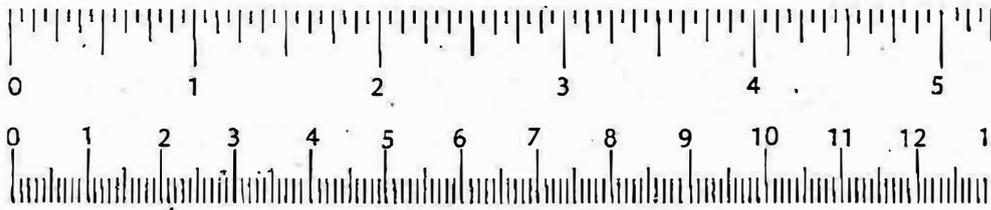
Owls bolt or swallow their food without chewing. The softer parts of the prey animal are easily digested. The bones are not digested and are usually not crushed because the owl's stomach muscles are weak. These bones and other hard-to-digest materials such as beaks, feathers, claws, insect casings and hair are blocked from entering the owl's intestines because of a narrow pyloric opening. The bolus formed by this undigested material is known as an owl pellet. It is soft and moist and expelled through the mouth by the owl in a "cough-like" reflex. This takes approximately 8 hours.

The owl pellets included in this LAB-AIDS® kit are hard and dry as a result of processing. You will be able to observe and identify a variety of prey that the owl has eaten by teasing the pellet apart.

### PROCEDURE

1. Place owl pellet on a paper towel.
2. Observe your owl pellet and record its color and size.

COLOR \_\_\_\_\_ LENGTH \_\_\_\_\_ WIDTH \_\_\_\_\_



3. Gently squeeze pellet. Insert teasing probe and separate the bones from the fur and or feathers. (If the pellet is very hard and does not yield to this gentle squeeze, you may want to soak the pellet in a dish of warm water.) Clean the bones of all debris and sort them according to shape. The skulls should be cleaned very gently as they are the best clues to identification of prey animals. Many smaller pellets will contain the remains of only one animal. Some pellets will contain the bones of many prey.

### 4. IDENTIFYING PREY FOUND IN OWL PELLETS

Use the following information and illustrations to help identify common prey animals.

**SHREW (*Sorex*)** The shrew is a very small fierce mammal with a long pointed snout. Its length will vary from 3.5-6 inches. It has 32 very sharp pointed teeth which may be brown to reddish-brown in color on the tips. These teeth are called "insectivorous teeth." These teeth are for piercing and crushing the hard shells of insects. Shrews eat berries, earthworms, snails and mice as well. Its skull is very small.



**MOLE (*Scapanus*)** The mole is a burrowing mammal that ranges in size from 4-7 inches in length. It is active at night and feeds on insects, earthworms, sowbugs, tubers, and some roots. It has a long flexible snout with teeth similar to a shrew. This animal has 44 teeth and 5 toes on each foot. The teeth are white in color in contrast to the shrew.



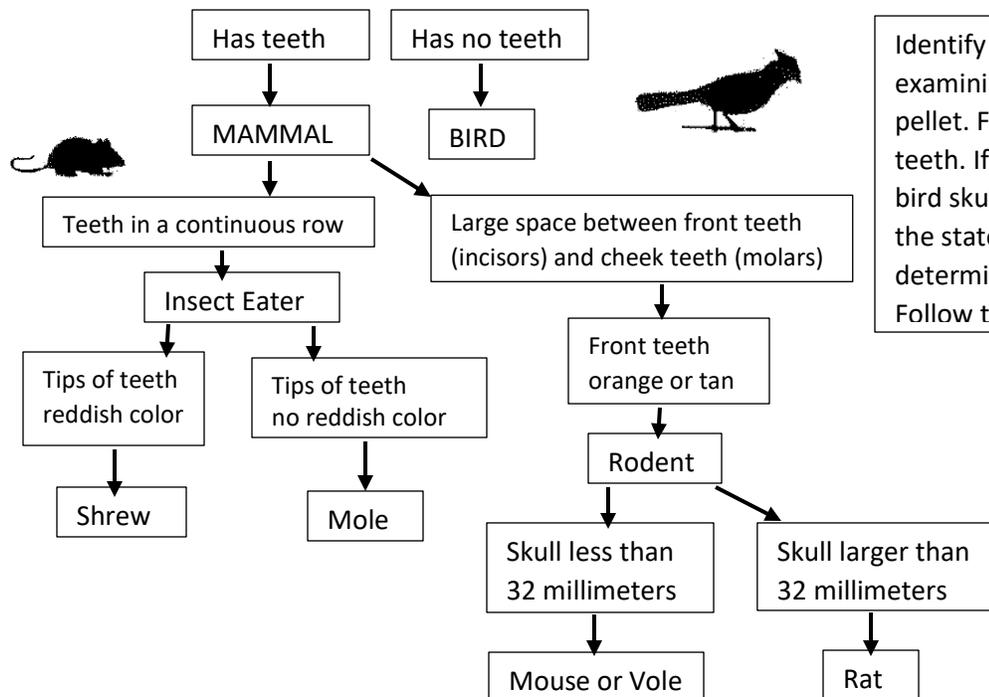
**Overview:** Owl pellets are masses of bones, teeth, hair, feathers, scales, insect, and skeletons. They are regurgitated (Coughed up) by owls, hawks, eagles, and other raptors which swallow their prey whole or in large pieces. The rodent bones inside are usually preserved, unbroken. The pellets are collected by people, sterilized in ovens, wrapped in foil, and sold to science teachers. Students dissect the pellets, identify the bones, and reconstruct the skeleton of the rodent(s) eaten by the owl.

**Materials:**

- Owl Pellet
- White paper
- Dissection tools

**Instructions:**

1. Place the pellet on a sheet of white paper inside a dissection pan.
2. Measure the length and width of your pellet (Record on data section)
3. Using dissecting needles and forceps, gently pull apart the pellet, separating the bones of the animals from the fur and/or feathers. **(5 points)**
4. Throw away the fur and/or feathers.
5. Group similar skull(s) and bones together into piles and classify them using information from the skeletal diagram, Bones-Sorting Guide & Classroom posters (if available)
6. Use the skull to identify key below to help identify the prey.



Identify the prey consumed by examining the skulls found in your pellet. First determine if the skull has teeth. If there are no teeth, then it is a bird skull. If skull has teeth, then read the statements on the key to determine which is more correct. Follow the arrows to the answer.

7. Record the kinds and numbers of prey you find in your pellet on your Individual data sheet (Attached). **(5 points)**

# BONE-SORTING GUIDE

Name: \_\_\_\_\_

OWL PELLET LAB (30 Points)

Period: \_\_\_\_\_

**MOLE** *Scapanus orarius*

Skull Top  
Mandible  
Clavicle  
Humerus  
Scapula  
Pelvis  
Femur  
Fibula  
Tibia

**SHREW** *Sorex vagrans*

Skull Top  
Mandible  
Clavicle  
Humerus  
Scapula  
Pelvis  
Femur  
Fibula  
Tibia  
Radius  
Ulna

**VOLE** *Microtus*

Skull Top  
Mandible  
Sternum  
Humerus  
Scapula  
Pelvis  
Femur  
Fibula  
Tibia  
Radius  
Ulna  
Clavicle  
Ribs

**BIRD**

Skull Top

**Other Prey**

- **Insects:** Grasshoppers, Beetles, Moths
- **Crayfish**

Name: \_\_\_\_\_

OWL PELLET LAB (30 Points)

Period: \_\_\_\_\_

## Common Objects found in Pellets



Upper Palate

VOLE SKULL



Side view w/lower mandible



Upper Palate

MOUSE SKULL



Side view w/o lower mandible

SHREW SKULL



Side view w/lower mandible



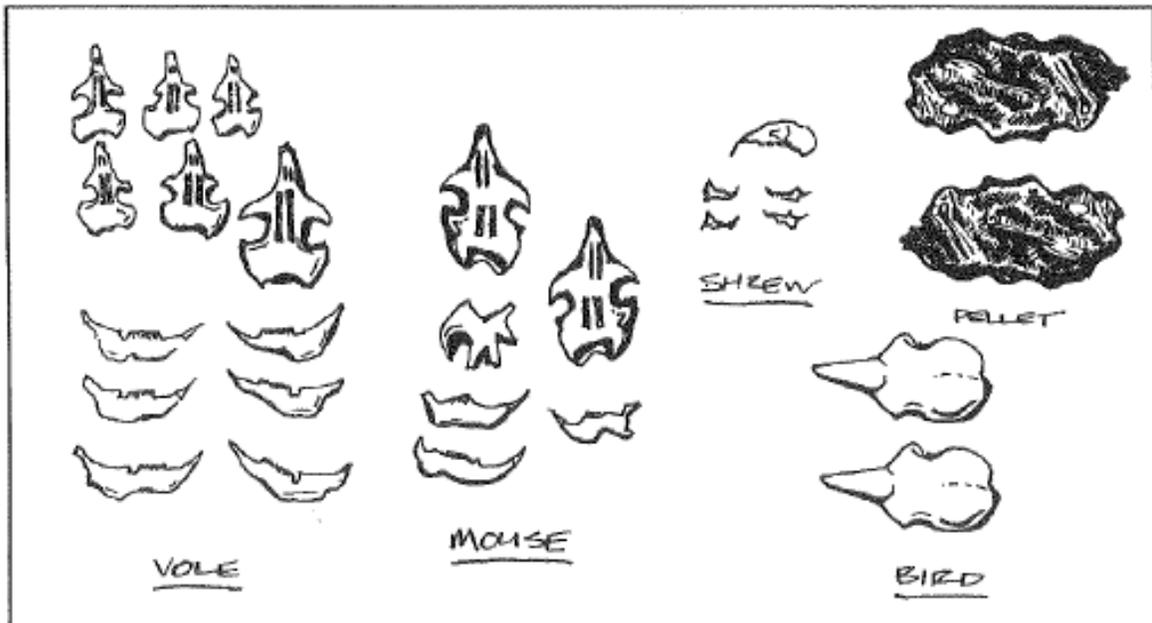
Femur



Hind Leg



Scapula



Organizational Layout of Bones

Name: \_\_\_\_\_

OWL PELLET LAB (30 Points)

Period: \_\_\_\_\_

**Animal identification from Owl Pellet  
DATA SHEET**

Individual data:

1. What size is your owl pellet?: Length \_\_\_\_\_ Width \_\_\_\_\_
2. Number of skulls (or pairs of jaw bones) found in your owl pellet: \_\_\_\_\_
3. How many other kinds of bones did you find?: Ribs \_\_\_\_\_ Jaws \_\_\_\_\_ Pelvis \_\_\_\_\_  
Scapula \_\_\_\_\_ Humerus \_\_\_\_\_ Vertebrae \_\_\_\_\_ Other \_\_\_\_\_
4. Species and number of prey animals found in your pellet: \_\_\_\_\_

Species	Number of individuals

**Extension questions Owl Pellet Lab**

1. Did you find a complete skeleton?                      Yes                      No
2. List 3 reasons why you think you did not find a whole skeleton?
  1. \_\_\_\_\_  
\_\_\_\_\_
  2. \_\_\_\_\_  
\_\_\_\_\_
  3. \_\_\_\_\_  
\_\_\_\_\_
3. What was the diet of the animals whose skulls you found in the pellet? Did you find any evidence of this?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Where does this prey animal live? Describe its habitat.  
\_\_\_\_\_  
\_\_\_\_\_

Name: \_\_\_\_\_

OWL PELLET LAB (30 Points)

Period: \_\_\_\_\_

5. Assume that an owl forms one pellet each day. How many animals would an owl eat?

In week \_\_\_\_\_

In a month \_\_\_\_\_

In a year \_\_\_\_\_

6. What can you say about mammal population in the area where your pellet was found? Is your answer a good guess, or would you need more pellets to be sure? Why?

---

---

---

7. Why do you think farmers and ranchers want owls in their barn?

---

---