

Owl Pellets and Ecology Lab
Pre-Lab Exercise

Name _____

1. What do barn owls eat?
2. How does a barn owl locate prey?
3. How does a barn owl make a pellet?
4. What is the difference between prairie and chaparral ecosystems?
5. How are pellets used to study ecology?

Owl Pellets and Ecology Lab

In class, we have discussed how predator-prey dynamics affect the populations of each group, as well as the ecosystem in which they live. In this lab, we will be gathering information about two separate ecosystems based on prey remains of the common **barn owl**.

Barn owls are predators found throughout the world. In North America, they typically prey on mice, shrews, voles, and rats, but will also feed on crayfish, insects, rabbits, and birds. Owls hunt at night. Although they have excellent vision, owls will use their hearing to locate prey, especially when it is very dark. Two ear holes are located beneath feathers shaped like satellite dishes. These feathers give owls their unique appearances, but more importantly, function to amplify and direct sound to the ear holes. This allows the owls to calculate distances and direction of moving prey, even in complete darkness. These feathers also serve to concentrate light into the eyes during low light conditions.

An adult owl eats several prey a night. If it is raising young owls, it may catch up to 15 prey per offspring. Clutch sizes are typically five to eight, but may be up to thirteen! For this reason, humans are very happy to have owls nesting on their property to control rodent populations. After a barn owl makes a catch, it swallows its prey whole, or in very large pieces. In the stomach, the prey is partially digested and nutrients are passed into the intestine. The hair, feathers, exoskeleton, and bones of the prey cannot be digested and are much too large to pass through the intestines. Therefore, the owl must regurgitate the undigested material. The owl first passes the undigested material to a secondary stomach called the **gizzard** (or muscular stomach) where the mass is packed into a **pellet**. The pellet is then spit back out. Sharp objects, such as bones and claws are packed into the middle of the pellet, while softer structures, such as hair are on the outside. This helps protect the gastrointestinal tract from being damaged during regurgitation. Pellets are usually expelled at the nest, so they can be easily collected around the nest site.

In this lab, you will be dissecting pellets to find what the owls have been eating. Pellets have been collected from two nest sites, one from owls living in rural Nebraska, and another from my father's house in San Jose's Almaden Valley! These ecosystems are quite different. The Nebraska site is **prairie**, while the San Jose site is **chaparral**. By dissecting the pellets we will be learning what prey populations exist in each of these types of ecosystems. All pellets have been wrapped in foil and sterilized for your safety!



Summary of Activities

1. Watch video on barn owls
2. Dissect an owl pellet and determine type and number of prey in pellet.
3. Tabulate class data
4. Compare prey populations in each ecosystem

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Materials:

- 1 owl pellet per person
- Dissection needles/forceps
- Paper
- Prey identification keys

Procedure

1. Record ecosystem in Table 1. Unwrap your sterilized pellet.
2. Gently pull apart entire pellet and attempt to identify number and type of prey in your pellet.
3. Record your data in Table 1.
4. Collect class data and record in Table 2



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Data Tables and Report

Name _____

Table 1: Individual Data

	Ecosystem	Total # of Prey	List Type of Prey and # of Each
Your Pellet			

Table 2: Class Data

	Rat	Vole	Mouse	Gopher	Shrew	Bird	Lizard	Insect	Other
Prairie									
Chaparral									

Lab Report

1. Discuss how the prey populations from prairie and chaparral communities compare.
2. Which community favors the preferred foods of barn owls?
3. How do farmers encourage nesting of owls on their property?
4. What was your favorite lab this semester? Why?