

## SCB115 Ecology Lab

### The Food of the Barn Owl (*Tyto alba*)

The Barn Owl (*Tyto alba*) is widely distributed nocturnal bird species that feeds on animal prey of suitable size, primarily small mammals. Owls regurgitate undigested food items (bones, fur, etc.) in the form of 'owl pellets' which accumulate on the ground beneath owl roosting sites. An analysis of these pellets provides biologists with information about the prey species eaten by owls.

#### Examining the Owl Pellet

Carefully remove the foil wrapping and place the pellet on a spread paper towel. Measure (in millimeters) and record the length and breadth of the pellet. Weigh the pellet and record its weight (in grams). Make a note of the appearance of the pellet and any special features.

Length \_\_\_\_\_ Breadth \_\_\_\_\_ Weight \_\_\_\_\_

Notes \_\_\_\_\_

Place the unwrapped owl pellet in a bowl of warm water and let it soak for a few minutes. Using mounted needles or forceps carefully separate the bones and other items in the pellet. Place all the separated items on a spread paper towel to dry.

#### Identifying Prey Species (see diagrams)

Locate any skulls and jaw bones among the items you separated. You can recognize skulls by their relatively large size, cranium (rounded portion at the back which houses the brain) and presence of teeth at the front. Jaw bones will have teeth and are usually disarticulated into right and left halves. Each skull and its corresponding jaw bones represent an individual animal eaten by the owl. Consult the diagrams in the 'Owl Pellet Bone Chart' to make an initial identification of each prey animal based on features of the skull and other bones.

Vertebrate animals predated by Barn Owls are most likely to be small mammals belonging to the orders **Rodentia** (rodents such as mice, rats and voles) and **Soricomorpha** (shrews and moles). Rodents have a characteristic dentition (teeth pattern): a pair of large incisors at the front followed by a gap (diastema) and then several pairs of cheek teeth. Shrews and moles do not have enlarged incisors and lack the diastema and have many sharp teeth along the length of the jaws.

In order to make specific identification of small mammal skulls examine the teeth under the dissecting microscope and compare them with the diagrams of the teeth pattern (Figures 2, 3 and 4).

Previous observations indicate that the most frequent small mammal in Barn Owl pellets is the Meadow Vole (*Microtus pennsylvanicus*), a small rodent abundant in grassy areas. However, you should not assume that is also the case for your owl pellet.

Complete the following table when you have identified all the prey species in the owl pellet.

Name of Prey Species	Number of Individuals

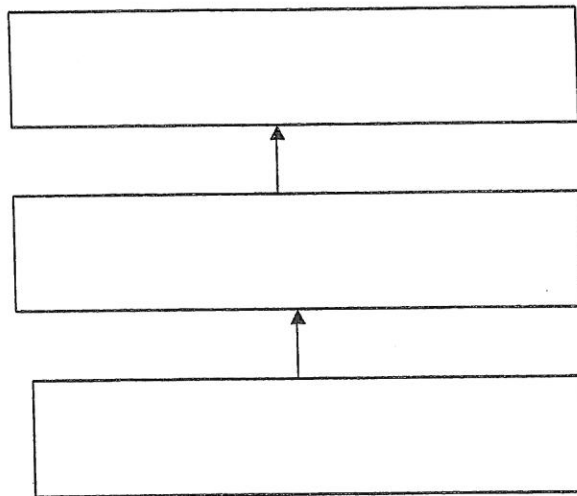
Pool the class data on the board and determine the prey species most frequently eaten by Barn Owls.

### A Food Chain

What is the most frequent prey species of Barn Owls?

What does that prey species eat? Is it a carnivore or herbivore? Use the books available in the lab to find out the food of the prey species of the Barn Owl.

Use this information to construct a simple food chain (the Barn Owl should be in the top box).



What predictions could you make about the relative amount of biomass at each trophic level of your food chain? Which will be the largest? Which will be the smallest? Use terms such as Producer, Primary Consumer (Herbivore), Secondary Consumer (Carnivore) to describe each species in your food chain.

Is there a relationship between pellet size and the number of prey individuals?