

PROTOCOL

Title: Point Counts

Author/Adapted from: Jornada Basin LTER and Chihuahuan Desert Nature Park's Schoolyard Desert Discovery Project

Background: There are more than 9,300 species of birds distributed over the earth. The highest concentration of species diversity is in the tropical areas, while species diversity is lower at the poles. Temperate areas in North America, Europe, and Australia are relatively equal in the disbursement of bird species.

“Point counts” are often used by ornithologists and ecologists to study bird populations. The observer stands at a set point or observation post and records the number and type of birds seen within a given area. The data are used to estimate relative abundance and population trends of particular bird species. By conducting this study once a month for the entire school year, you will notice fluctuations in the number and species of birds observed.

The fluctuations in numbers and species of birds being observed might be attributed to migration. It is theorized that a reduction in food is the main reason for migration (regular, seasonal journeys). For example, of all the insectivores in higher latitudes in North America, the only species that over winter are a few woodpeckers and nuthatches that can extract their prey from the trunks of leafless trees. Migration occurs both during the day and at night. While most birds travel alone, some migrate in flocks of single or multiple species. Migrating in flocks aids in protection against predators and aids the younger migrants. Birds are also known to migrate as a result of seasonal weather patterns, for breeding, or in search of more suitable habitat.

Materials:

Metric measuring tapes

Binoculars

Bird identification books and identification sources

Colored pencils

Procedures:

1. Have students learn to identify common bird species in your schoolyard. The Bird Identification Activity is good preparation for this study.
2. Have students select two to five observation post locations in your schoolyard. Use the same posts for the entire study. These can be posts that you install or features that are already present, such as a fence post or a basketball hoop.
3. Measure a 20-meter radius circle around each observation post. The circle extends as a vertical column into the air, incorporating any flyovers by birds. Marking the observation area with posts and flagging tape or using existing landmarks will help students identify the observation area boundaries. There should be at least 10 meters between observation boundaries.

4. Have students sit in the center of the observation circle and observe 1/2 of the circle with another student facing the opposite direction and observing the other half.
5. On each observation day, students make observations for 10 minutes. Observations are taken once a month at the same time each day. Remind students that they must be very quiet while doing their observations so that they do not affect the birds' behaviors.
6. During observations, students record the observation post number and the number and type of bird observed at that post on the Bird Diversity Data Sheet. If there are species that students do not recognize, have them write as many details as possible on the chart so they can later try to identify the bird using books and other resource materials (see sample chart).
7. After the observation period, total the number of different species observed at each post and record these values on the Class Diversity Data Sheet. Average the number of species observed each month across all observation posts and plot this number on the graph.
8. Choose three to five of the most common species on your schoolyard. Have students total the number of each of these species seen each month on the Class Population Data Sheet. Graph these values.