



Introduction to Birding: Interpreting Bird Behavior

Essential Questions: How can we make sense of our bird behavior observations?
Why watch birds?

Introduction/Background:

In animals, behaviors can be inborn (genetic), learned or a combination of both. Whatever their source, behaviors are important adaptations for survival of the individual and the species. It is often easy and informative to observe and record behaviors in birds.

In this activity, students observe and interpret bird behavior. The data collected by the observer will provide insight into the “habitat” and “niche” of the bird species that were viewed. Refer to the suggested field guides for additional information on the bird species that you are observing.

National Science Education Standards

Content Standard A: As a result of their activities in grades 5-8, all students should develop:

- Understandings about scientific inquiry.

Content Standard C: As a result of their activities in grades 5-8, all students should develop an understanding of:

- Diversity and adaptations of organisms.

Student Learning Objectives

As a result of these activities, students will:

- complete a scientific inquiry.
- cite characteristics about animal behaviors and characteristics of organisms.
- use binoculars effectively.

Materials List:

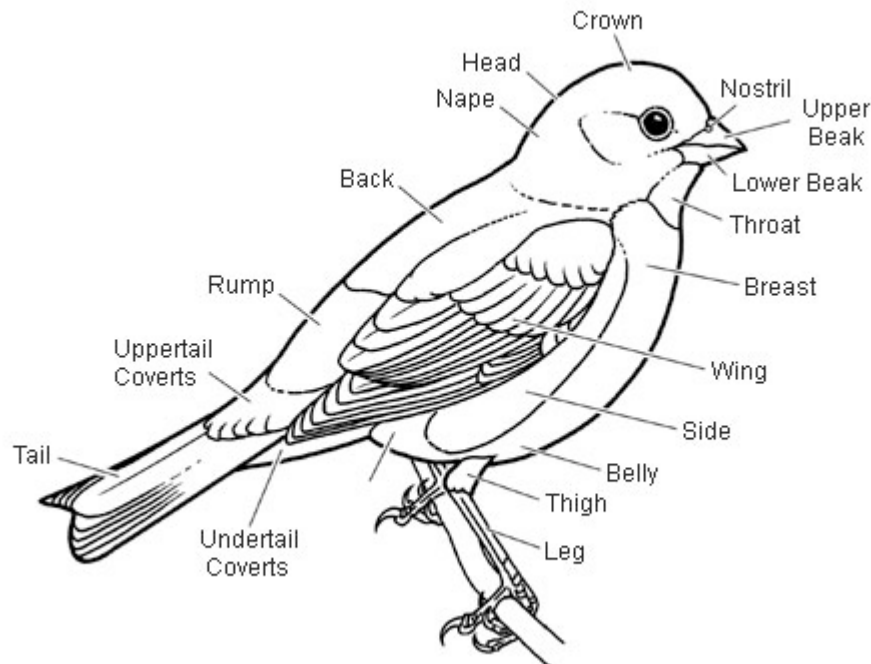
- Copies of the Bird Behavior Data Sheets (below)
- Field Guides to Birds (see Resources/References)
- Clip board and pencil
- Binoculars (optional but recommended)



Procedures

Part I:

Develop a “species key” of birds that commonly appear at your site. (example; Chickadee = A; American Robin = B, etc.). Identifying birds is challenging! Consult your local field guide and use the following to help you identify key field marks for the birds you observe:



The diagram above can help you interpret the key features mentioned in your guide.

Part II:

Place an “x” in the appropriate boxes below the keyed letter for that bird species of all the behaviors you have observed while watching it. The collected field data will allow you to interpret the ecology and natural history of the birds observed.



Observations / Data Sheet -- Bird Habitat and Behavior

Name: _____ Date: _____

Locations: _____

Weather Conditions: _____

Species or Code Letter

Time of Day

Coloration

Dull / Bright

Solitary (S) / Flocking (F)

TERRITORIAL BEHAVIOR

-calling

-chasing

-displaying

AUDITORY COMMUNICATION

-flocking calls

-warning-alert

-fussing

-pair antiphonal singing

FEEDING BEHAVIORS

-hawking insects

-gleaning foliage

-gleaning trunks

-eating fruits

-nectar from flowers

-following ant movements

-seed harvesting

-ground feeding

Courtship

Nest Construction

Incubation

Feeding Young

Feeding Dependent

Fledgling Young

Soaring

Flying

Perching

Tree Hopping

Dusting

Bathing

Observed in

Association with

Species' name or letter



Observations and Inferences

- a. Is a particular species found only in a particular forest strata?
- b. What type of habitat and where is this bird found in the habitat (forest understory, ground?) and niche (what is the bird eating?) of that species?
- c. Is it usually found: in a mixed species flock? as a single species flock? solitary?
- d. Does it seem to have a territory? Does it overlap other species' territories? Why/Why not?
- e. Other notes regarding observations

Conclusions

What evolutionary value do the behaviors you've observed have? Birds are genetically descendents of some of the dinosaur groups. Are there any behaviors that might have contributed to their success, or that are reminiscent of reptile behaviors? Are there any behaviors that are good for the species but not for individuals? What questions cannot be answered by observations of single birds alone, but would require long term population studies?

Evaluation

Students often see behavioral observations as strictly qualitative activities. Quantitative measures can be added in two ways: First, adding time as a criterion (e.g.; tree hopping activities per hour), or second, evaluating the consistency of multiple observers. (Average the data tables of all observers, then determine the degree to which a single observer or group has seen what all observers saw.)

Adaptations/Elaboration

Students may research the significance of their observations in a number of ways. Here are some general notes that illustrate the type of information they might find:

General Notes on the Structure and Function of Bird Ecology

Distribution and Density

1. 220 acres of Tropical Rain Forests may have 250 species of breeding birds (this is five times greater than temperate forests). At the Brandwein Nature Learning Preserve, 68 species of breeding birds have been recorded. Among the 68 species are neotropical migratory birds that are also in tropical forests.



Brandwein Nature Learning Preserve

Outdoor Learning Activities

2. Mixed neotropical flocks defend 10-12 acres of understory territories while mixed flocks located in the canopy defend 40-50 acres. Individual species show an extraordinary fidelity to a specific territory year after year. This is true for neotropical migrants as well, returning to the same Northern territory. The implications for conservation are enormous.
3. What supports this diversity of birds found at your home site and/or Rutgers Creek?
4. Bird species are sensitive to distribution of vegetation and physical land-form features

Examples:	<u>Microhabitat</u>	<u>Species</u>
	edge / shrubs	Cat Bird, Yellow-billed Cuckoo
	field	Turkey, Blue Bird, Robin
	floodplain	Yellow Warbler
	upland mature forest	most species; insect eaters

Resources/References:

Binocular Basics: <http://brandwein.org/preserve/activities/binoculars>

Any bird field guide for your region (Peterson, Golden Guide, Sibley series)

The Birder's Handbook; Ehrlick, Dobkin, & Wheye (Simon and Schuster)

All About Birds: <http://www.allaboutbirds.org/NetCommunity/Page.aspx?pid=1189>

Cornell Ornithological Lab on Birds

<http://www.allaboutbirds.org/netcommunity/page.aspx?pid=1058>