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April 2021

## Lesson Plan: Bird Biodiversity Data Collection (Day 3)

Center for Urban Resilience

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### Repository Citation

Center for Urban Resilience, "Lesson Plan: Bird Biodiversity Data Collection (Day 3)" (2021). *Module 06: Urban Biodiversity*. 5.

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## **LESSON 10: BIRD BIODIVERSITY DATA COLLECTION (DAY 3)**

### **OVERVIEW:**

*This is the last lesson where students go outside to collect bird biodiversity data for their field study. In this lesson, students are asked to consider the fragmentation of their study site and the migration patterns of the birds in their site. Again, the goal is to connect to the in-class activities and encourage students to apply the science concepts covered in the classroom to their field study.*

### **Ways of Knowing Urban Ecology:**



*Students will...*

#### **Understand**

1. Recognize the fragmentation and edge effect conditions which may impact the presence of birds. (*ecosystem change, ecosystem state and structure, forces and drivers, human impact*)

#### **Talk**

- Justify claims made about the impact of fragmentation and edge effect conditions with observable evidence.

#### **Do**

- Compare orthophotographic images with observations of details in the field made with the students' senses.
- Conduct methodical observations of birds according to a protocol.
- Methodically identify fragmentation and edge effect conditions that may impact the local bird populations.

#### **Act**

*No specific goals connected with acting on urban ecology in this lesson.*

### **SAFETY GUIDELINES:**

While no specific safety hazards are associated with this lesson, there is always a safety concern when taking groups of students outside. Please consult the "Field Site Safety" information for specific information regarding safety in the field.

### **PREPARATION:**

#### **Time:**

1 class period

### **Materials:**

#### **Activity 10.1**

- Binoculars
- Field guides
- Copies of data and field note sheets
- Clipboards or hard-backed books (to use as a writing surface)
- Pencils and pens
- Orthophotograph of the field site for each group
- Computer with Google Earth installed
- Projector

**Teacher Background Knowledge**

An orthophoto is an aerial photograph. An orthophoto of your field site can be obtained using Google Earth (<http://earth.google.com/>). Use an altitude of 0.5 miles. This allows students to see a large stretch of neighborhood while still being able to discern details.

**INSTRUCTIONAL SEQUENCE****Activity 10.1: Preparing to collect Bird Biodiversity Data**

Introducing the lesson:

1. Inform students that today will be their last day collecting bird biodiversity data in their field site.
2. Introduce the Field Journal Question for Day 3 of Bird Data Collection: “How connected is your field site to other bird habitats?”

***Teaching Alternative***

You may pose this question as a “Do Now” activity for students as they enter the classroom.

3. In addition to collecting data, your students will consider habitat fragmentation and edge effects while they are in the field. Ask students what they remember from the fragmentation simulation that they investigated in class.
4. Distribute and/or project the orthophoto of the field site.
5. Examine the orthophoto and ask students if they see any fragmentation or edge effects. Ask them to support their claims with evidence from the orthophoto.

**Activity 10.2: Collecting Bird Biodiversity Data**

1. Take your students outside to collect data.
2. Have your students take out their orthophotos of the field site and have them identify features on the orthophoto that they can easily identify to help them get oriented.
3. Ask your students, “Do you think the birds at your site are residents (they live there) or just visiting the site to access resources?” Lead a short discussion and then have your students write their responses to the question in the field, or inside after collecting data if that is easier.
4. Ask students to recall the research question they developed.
5. Ask your students how any of the fragmentation and edge effects that they may have noticed might impact the data they are collecting to answer their research question.
6. Have students work in their groups to collect bird biodiversity data to inform their particular research question.

**Concluding the Lesson**

1. If students did not get a chance to look at their orthophoto outside, have them examine it back in the classroom and consider the reflection question from the field notes.
2. Ask students to share their responses to the reflection question. You also might want to have them consider how connected it is for other species they may have seen on the field site, such as squirrels, chipmunks, and turtles, which are not able to fly.