

Bird Biology and Citizen Science



OBJECTIVES

- Record clear, standardized field surveys
- Practice identifying local birds
- Understand the importance of citizen science

ROADMAP

Good science requires good data! In this lab, we'll practice our field survey skills by identifying local birds. Whether or not you're a bird ID whiz, this lab should challenge you to observe and record traits that aid in bird identification. You will record your observations in a standardized, repeatable format. Finally, you will contribute your bird observations to the citizen science project, eBird.

Pre-Lab

Read the background information on page 2. Warm up your bird identification skills by downloading and practicing with the Merlin bird ID app. Bring any questions to our lab check-in.



Field Observations

Set aside at least one hour during the day to observe birds in your yard, a local park, etc. and complete the field observation activity. Morning is the best time for birds!



Post-Lab

Submit your observations to eBird. Complete and submit your field observations, proof of submission to eBird, and answers to post-lab questions by the start of lab.

Background

BIRD ID

Identifying wild birds can be a daunting task. To help out, we'll be using a free bird ID app called Merlin. Before going into the field, familiarize yourself with what key characteristics you'll be looking for to identify a bird.

What size?

Birds vary greatly in size. To keep things simple, Merlin asks you to select what size category a bird belongs to: sparrow-sized or smaller, robin-sized (a dove would be more common in SoCal), crow-sized, or goose-sized.

Main colors?

Merlin will ask the main color(s) of the bird you saw. You may also want to take note of major color patterns and markings. Is the breast plain, spotted, or streaked? Are there stripes on the head? Any wing patterns when the bird flies? A picture or sketch can help greatly here!

Where seen?

Finally, Merlin will ask where you saw your bird: on a feeder, swimming, on the ground, etc. Seed-eating birds are more-likely to visit feeders than insectivores. Swallows are often seen flying, while finches forage in trees. Take notes on habitat/behavior to narrow down your ID!

Merlin's strengths are in its simplicity, but experienced birdwatchers can note many additional characteristics to help with tricky IDs. Features such as tail length, beak shape, and overall silhouette can narrow a bird down to a family group. Songs and calls can be the best way to ID birds that are easier to hear than see, especially during the dawn chorus. Such details aren't necessary for this lab, but if you notice them, make note, and it may help you ID skills!

FIELD SURVEYS

A good field survey should follow a standardized protocol with plenty of documentation. This ensures consistency within your own scientific study, and it gives you greater power to compare your results to other studies that used similar methods. When you conduct your bird survey for this lab, you will record the date, start and end time, weather, and distance traveled. While you're in the field, reflect on how each of these factors might affect the birds you see and why it's important to record them.

CITIZEN SCIENCE

eBird

Citizen science harnesses data collection by amateur scientists, providing powerful tools for science education and inquiry at scales that would be impossible for a traditional scientific team. For example, the citizen science project eBird collects observations from birdwatchers around the world, giving us insights into bird distributions and seasonal movements at an unprecedented continental scale. Other citizen science projects you may have heard of include iNaturalist, Budburst, and Bumblebee Watch. The rigor of survey guidelines and data vetting varies greatly across projects depending on their goals for data collection. For this lab, you'll contribute your observations to eBird, which has rigorous survey protocols aimed at creating datasets of high enough quality for scientific publication. Access eBird via the mobile app (recommended) or ebird.org.

Common Birds of Suburban La Verne

SPARROW-SIZED

Anna's Hummingbird



Allen's Hummingbird

Bushtit



Lesser Goldfinch



Oak Titmouse



House Sparrow



House Finch

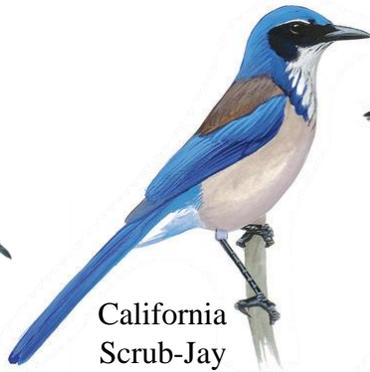


California Towhee

ROBIN-SIZED



Mourning Dove



California Scrub-Jay



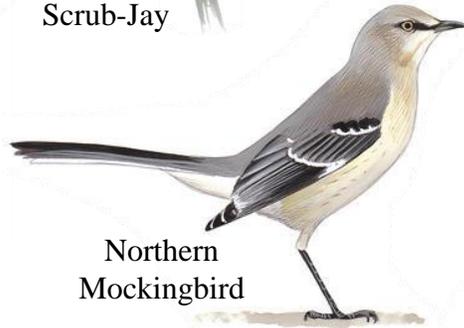
European Starling



Cassin's Kingbird



Acorn Woodpecker



Northern Mockingbird



Rock Dove



Eurasian Collared-Dove



American Kestrel



Red-Shouldered Hawk

CROW-SIZED

American Crow



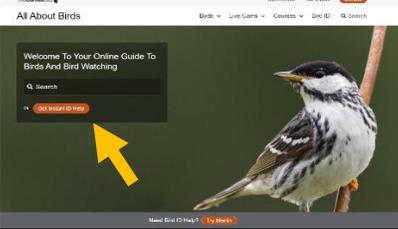
Band-Tailed Pigeon

Pre-Lab

Name: _____

OVERVIEW

Before heading into the field, let's get some practice identifying birds! For this lab, we will use the Merlin app (developed by the Cornell Lab of Ornithology). Start by reading the assigned article with background on Merlin and its partner citizen science program, eBird. Then access the Merlin app.

<p>Option 1 (Preferred) Download the Merlin bird ID app to your phone</p>		<p>Option 2 Visit allaboutbirds.com and click "Get Instant ID Help."</p>	
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ACTIVITY

Go through the steps of identifying a bird in Merlin and record your choices below. For this prelab, you may look for a bird outside or simply choose options and see where you end up!

When did you see the bird?

What size was the bird?

What were the main colors?

What was the bird doing?

List the top five species recommended by the app:

Select one of the species above and search for it on allaboutbirds.org. List two life history traits (behavior, food, habitat, etc.) not covered by Merlin, and explain why each might be important to identifying the species.

Field Observations

Name:

OBJECTIVES

Observe birds in your yard, a local park. Before you go into the field, it's recommended that you download the eBird app onto your phone. When you start a list, the app can record location, start/end time, and distance traveled automatically! Otherwise, you can input your observations after the fact at ebird.org. Pro tip: if you're birdwatching near a park or landmark, look for the associated "hotpot" in eBird and select that for your location, to help consolidate observations.

FOCAL BIRD

Follow an individual bird for 5-10 minutes and identify it using Merlin.

When did you see the bird?

What size was the bird?

What were the main colors?

What was the bird doing?

Include a sketch or photo of the bird:

Note three life history traits (behavior, habitat, food, etc.) during your observation:

Species ID:

Field Observations

Name:

BIRD SURVEY

Spend a minimum of 30 minutes observing all birds at your chosen location. Record your observations below. Try your best to identify them all, but if you can't, write "Unknown."

Location:

Date:

Start time:

Weather:

End time:

Did you stay in one place or move around (if so, how far?):

Species Name	# Individuals Seen	Size	Main Colors	Where Seen?	Other Notes

Post-Lab

Name:

Once you've completed your field observations, submit your sightings to either eBird via either the mobile app or eBird.org. Provide proof of submission (screenshot is fine) when you turn in your assignment.

SUBMIT TO EBIRD

REFLECTION

Complete the following reflection questions.

For any birds you couldn't identify (or were difficult to identify), what additional data might you collect to help the identification process? Provide at least two examples.

During our field surveys, we recorded survey "effort" including start and end time, distance traveled, number of observers, etc. Why is this important? How might it change your observations?

What was the hardest part of your bird survey? What steps could you take to improve your methodology/accuracy?

Citizen science data, when collected with care, can yield powerful scientific insights. Visit ebird.org/science/publications to view a list of scientific papers that used eBird data. Select one of these papers, then in your own words, briefly describe the purpose and key findings.

What is one challenge of using citizen science data to answer biological questions?