

# Exploring Bird Habitat



## Lesson Overview

In the 7 Steps of this lesson, students will investigate the birds in their neighborhood and explore how climate change may impact bird habitat in the future. Students will also think about how they can help the birds and their habitats in the face of a changing climate.

### Step 1:

- Today, we are going to practice making observations, making connections, and researching something that interests us. That means we will practice being scientists!
- First, think back to a time when you have seen birds in the outdoors. Write or draw your memory. Think about where you were, what kinds of birds you remember, what the birds were doing. Why was that moment or event memorable to you?



A Clark's nutcracker finding seeds from a Ponderosa Pine. Photo courtesy of AllAboutBirds from Cornell Ornithology lab.

## Notes for Parents/Teachers

### Performance Targets:

- Students will be able to identify species and their habitats in their own place through outdoor investigation and online resources.
- Given website tools, students will be able to identify how climate change will impact Clark's nutcrackers and five-needle pines.
- In a journaling activity, students will be able to identify their role in conservation efforts of species in their place.

### Age Group:

- Upper elementary/lower middle school (5<sup>th</sup> & 6<sup>th</sup> grade)

### Total Time Needed:

- One 2-hour session, or split into 2 or 3 shorter sessions

### Materials Needed

- Notebook or paper
- Pencil
- Clipboard
- Access to the internet
- Curiosity and excitement!

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## Step 2:

### Activity!

Grab a piece of paper or notebook, a pencil, and something to write on like a clipboard. You will also need a timer. If you have them, you can take a bird field guide outside with you to identify birds you will be observing, and use binoculars to better see things that are far away. Go outside near your house and choose a spot you think you might see some birds. You will perform a 10-minute observation in one spot, so be sure to pick somewhere you'll be comfortable sitting or standing for that amount of time. For ten minutes you will observe the space around you. Don't forget to start your timer!

- Draw a symbol on your paper that represents any birds you see or hear.
- Note what the birds are doing. Are they flying away? Are they eating? Where are they hanging out? Are they paying attention to you? Make at least one observation of "actions" for each bird you observe.
- If you don't notice any birds, choose a different animal you might see during your observation. What animal is it, and what is that animal doing?
- Can you make any generalizations about what the birds you saw were doing?
- Why do you think they were doing those things? For example, if a bird was pecking at the bark of a tree, what might it be looking for, and why?

## Step 3:

### Activity!

Birds, just like humans, need food, water, and shelter to survive. This is called the bird's habitat. Some birds are specialized to live in certain places, and rely on really specific food sources to survive. You'll think about the birds that you saw and find out more about what they need to survive in a little while, but first, watch this video by a researcher named Taza Schaming. She is researching a bird called the Clark's nutcracker, that lives high in the mountains and relies on a really specific food source.

Video Link: ["Clark's Nutcrackers and the Trees they Depend On"](#)



## Optional Activity!

If you would like to add to a global birding database, add your bird observations to [EBird!](#)

## Think about:

While you are watching the video, take notes on the following questions:

- What are the Clark's nutcrackers main source of food?
- Why does that food source matter?
- What parts of the Clark's nutcrackers' habitat are special, and why?
- What does "mutualism" mean?

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## Step 4:

### Activity!

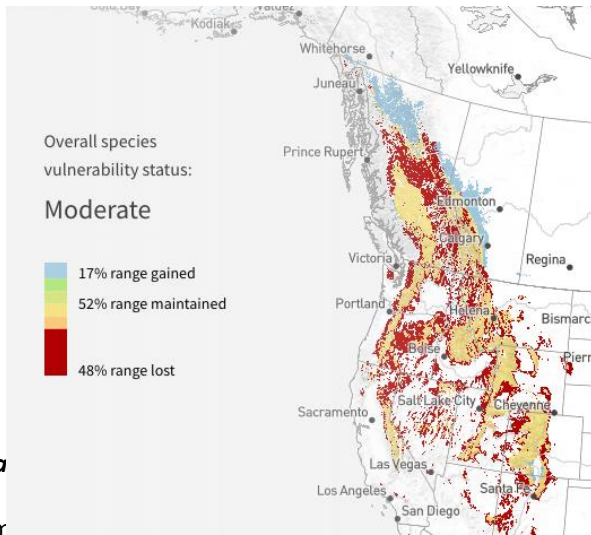
Let's find out more about the Clark's nutcracker!

- Check out the [website for the North American Bird Guide from the Audubon Society](#).
- Click the "Search" icon and type "Clark's nutcracker." Here you can find out more about the birds that Taza Schaming is researching.
- Now, scroll down to the section called "Climate Vulnerability." Click on the red button that says "current" to see where those birds currently live. Then, click the buttons labelled 1.5°C and 3.0°C. What happens to the birds' habitat when you click on those buttons? Keep in mind that red and yellow means it will probably lose that habitat (food, water shelter), and blue means that it will be able to live there even though it doesn't right now.



### Think about....

Think back to the birds you observed during your observation time. Choose one bird that caught your eye. If you did not observe any birds during this time, you can go back outside and conduct another 10-minute observation, or use the example of another animal you observed. Before, you inferred what you thought the animal was doing based on its behavior.



### For your informa

- Climate change, like warmer winters or more intense hurricanes. The impacts are different for every region, but the birds and other animals that live in those areas will be impacted just like we will as humans. The 1.5°C and 3.0°C buttons are what scientists who study birds in depth project will happen to birds' habitats if global temperature increases by this much.
- You can scroll down to see what types of climate change effects will impact the Clark's nutcracker's habitat.
- Why do you think Spring heat waves and increased fire weather would affect the Clark's nutcracker's habitat?
- What would Taza Schaming say we can do to help?

- What other parts of the environment are being impacted by the bird and their actions? For example, what effects do these actions have on the food the birds were eating? Or, what does poking holes in bark do to the trees?
- Then, think about how those other parts of the ecosystem might be responding to the birds' actions. How are they able to get what they need to survive (think about food, water shelter)?

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## Step 5:

Now, you can learn more about birds in your area, and perhaps one of the ones you saw during your investigation! Go to back to the [Field Guide Home Page](#).

- In the “region” tab, you can choose the region of your home. I live in Idaho, so I chose “Northwest.” There are A LOT of birds in the Northwest, and the list might look a little too long to find the bird you want, so you can also search by “taxonomic family,” such as jays or ducks, or you can search for a specific bird.
- Choose a bird that lives in your area that seems exciting to you that you want to learn more about, and click on the bird to learn more. What is the bird’s habitat (what does it eat, where does it like to live, and does it migrate?)? Did you see any of those things outside during your observation?
- What is the current range (habitat extent) of your bird, and what might happen to that habitat under 1.5°C and 3.0°C global temperature increase? Will the bird gain habitat somewhere new (blue)? Will it lose its current habitat (red)?

## Step 6:

### **Activity!**

Time to go back outside! Take all of the items you took outside with you before, and conduct another ten-minute bird observation! During this session, observe all of the things you did before, but this time also think about how the bird’s habitat (or what it is interacting with) might change based on what the Audubon Society’s researchers predict under a global temperature increase.

1. Draw a symbol on your paper that represents any birds you see or hear.
2. Note what the birds are doing. Are they flying away? Are they eating? Where are they hanging out? Are they paying attention to you? Make at least one observation of “actions” for each bird you observe.
3. If you don’t notice any birds, choose a different animal you might see during your observation. What animal is it, and what is that animal doing?
4. What might happen to the bird’s shelter due to climate change?
5. What might happen to the food the birds are collecting and eating with climate change?



## Think about....

- Why is it important to think about a bird’s habitat and what might happen during climate change?
- Which birds do you think are the most important to help conserve/save?

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## Step 7:

### Reflect:

As members of our ecological community, we have the ability to make the world a better place for the plants and animals that live here! Even with climate change increasing the world's temperature and affecting the things that live here, we can help because we have big brains and big hearts.

- Now that you have a personal connection to the birds you observed, what are some ways you can help make sure the birds in your area have what they need to survive here? What actions can we take to protect the animals we care about? Draw or write a couple of ways you want to help the birds you observed so they can survive here or in their future habitats.

