



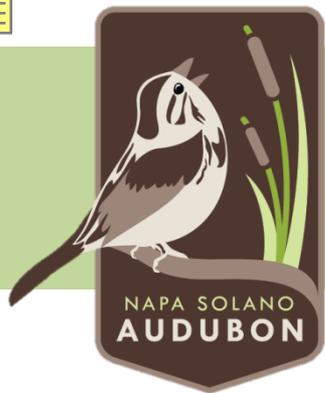
How Citizen Science Is Helping Us Understand Climate Change



What I Hope to do today

Empower you to bring this message to your chapters

- Help you understand the science
- Give you a toolkit
 - Powerpoint for programs
 - Copy of Climate Movie
 - Copy of the Research paper
 - Example table/classroom activity



National Audubon Video

BIRDING — EDUCATION — CITIZEN SCIENCE — HABITAT CONSERVATION





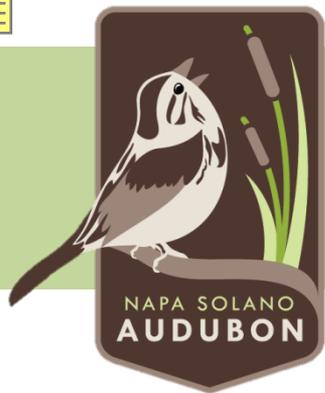
National Audubon Society

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National Audubon Society | →

www.audubon.org



Citizen Science: Audubon's Christmas Bird Count

BIRDING — EDUCATION — CITIZEN SCIENCE — HABITAT CONSERVATION

December 14 2012 – January 5 2013

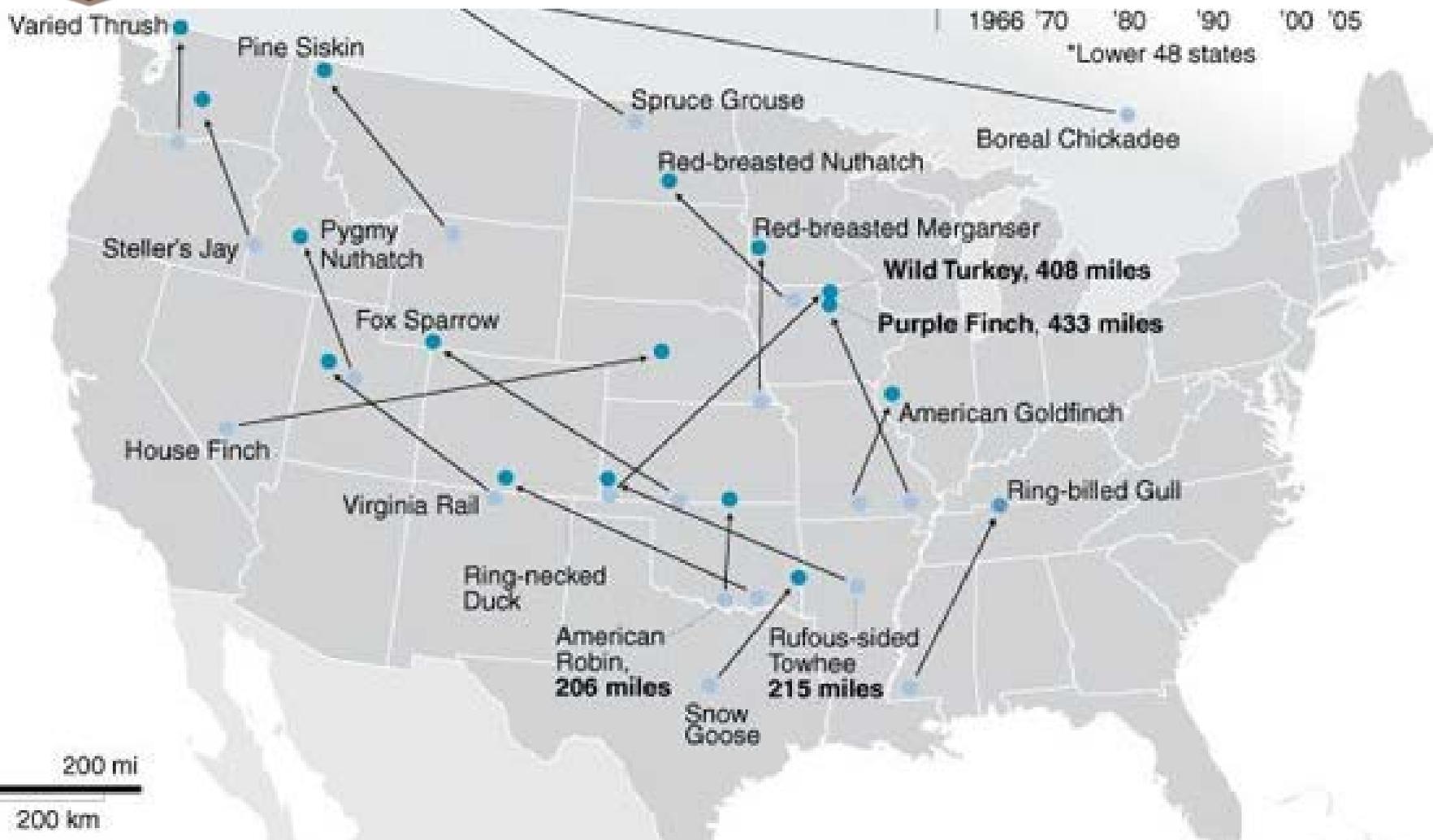
Christmas Bird Count





Citizen Science: CBC Using the data

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Citizen Science: Breeding Bird Surveys

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Winter and spring data working together

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climate.audubon.org

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Audubon The Climate Report

[Find a Bird Near You](#)

[All Species](#)

[About the Study](#)

[Donate](#)

[Take Action](#)

Audubon's Birds and Climate Change Report

314 Species on the Brink

Shrinking and shifting ranges could imperil nearly half of U.S. birds within this century



Burrowing Owl

By 2080, this diurnal owl species could lose 77 percent of its breeding range.

[See the climate forecast map »](#)



Erik Walker



Habitat conservation: Using BBS and CBC data

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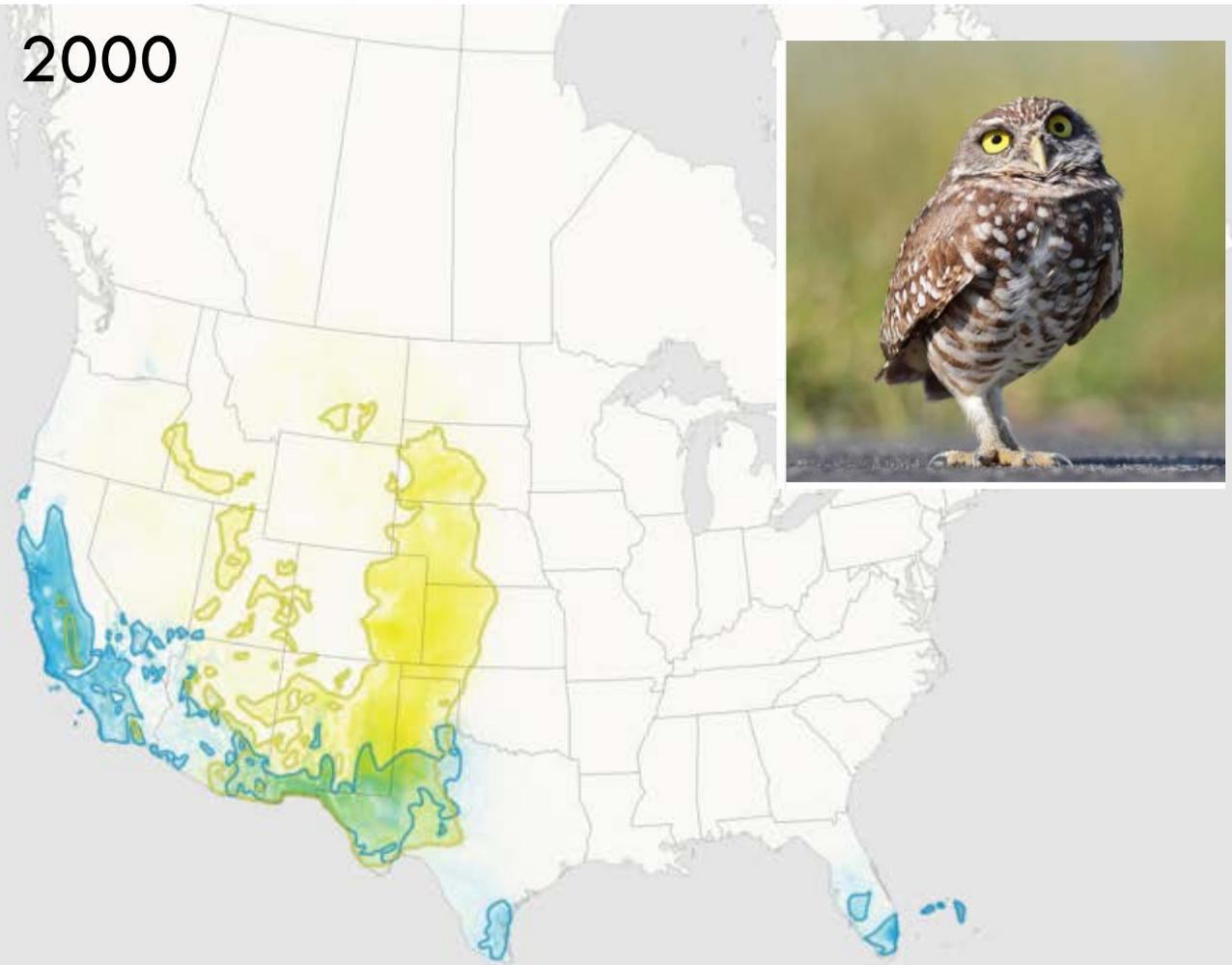
Burrowing Owl - 2000

The darker the color, the more favorable the climate conditions are for survival. The outlined areas represent approximate current range for each season.
[More on reading these maps.](#)

-  Winter
-  Summer
-  Winter Range
-  Summer Range
-  Both Seasons

 2000 2020 2050 2080

 Zoom In





Habitat conservation: Using BBS and CBC data

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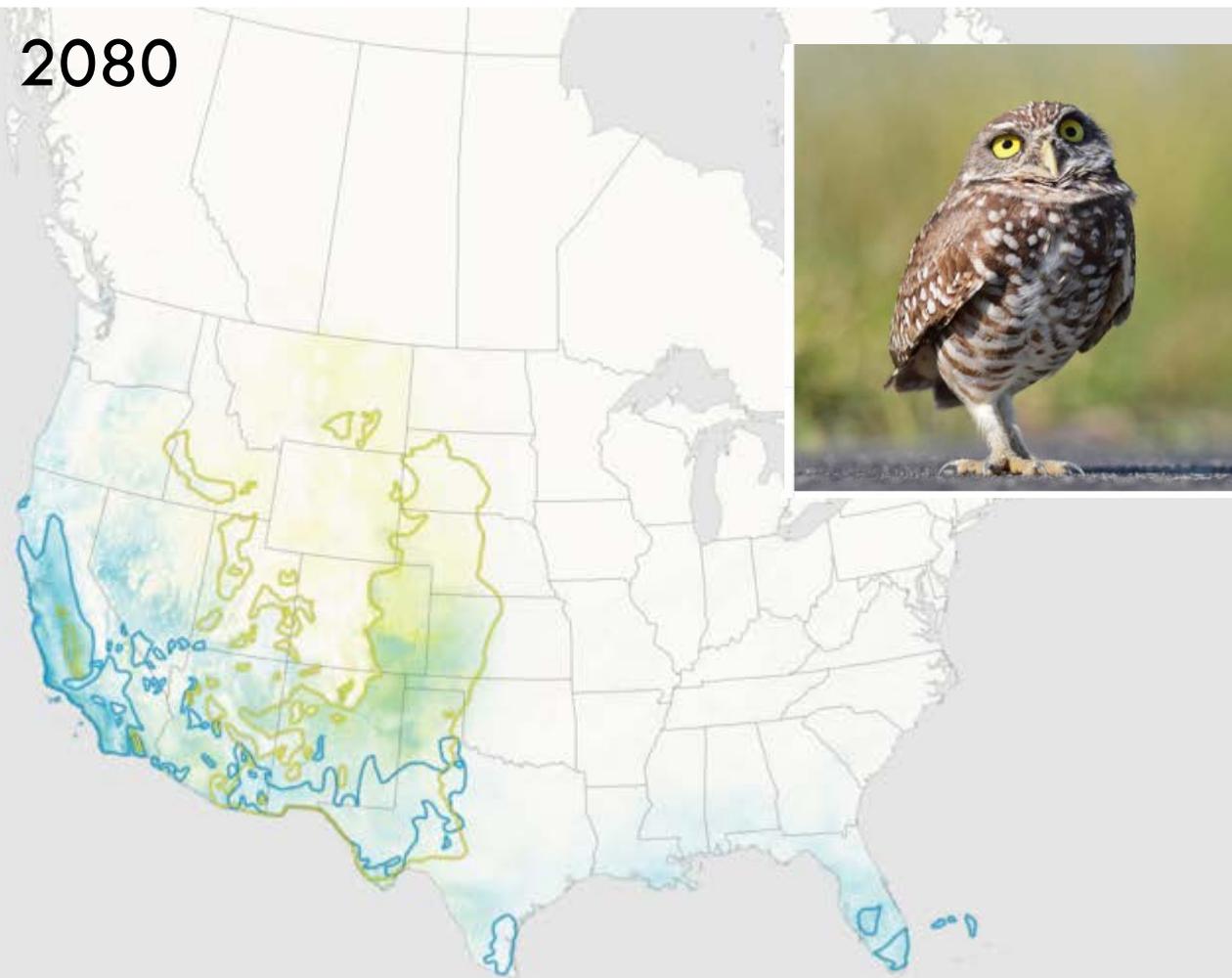
Burrowing Owl - 2080

The darker the color, the more favorable the climate conditions are for survival. The outlined areas represent approximate current range for each season.
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-  Winter
-  Summer
-  Winter Range
-  Summer Range
-  Both Seasons

 2000 2020 2050 2080

 Zoom In





Habitat conservation: Using BBS and CBC data

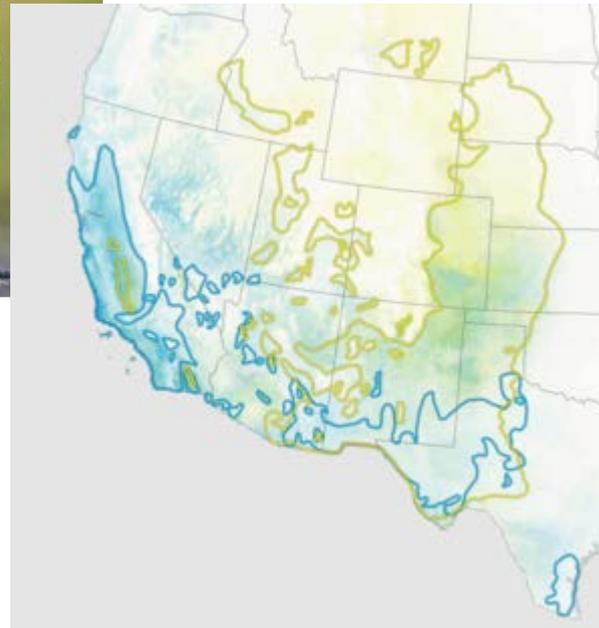
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2000

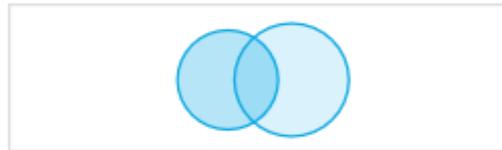
2080



- Winter
 - Summer
 - Winter Range
 - Summer Range
 - Both Seasons
- 2000 2020 2050 2080
- Zoom In



23% of summer 2000 range is stable
63% decrease in summer 2080 from 2000 range



33% of winter 2000 range is stable
29% increase in winter 2080 from 2000 range



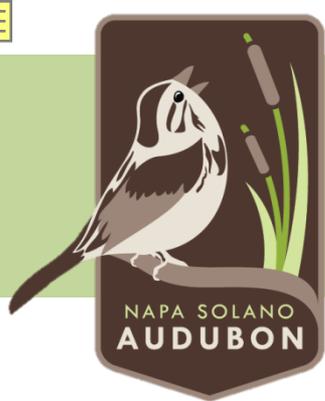
Habitat conservation: Using BBS and CBC data

Species	Audubon Climate Status	BBS Sensitivity	CBC Sensitivity
American Avocet	ENDANGERED_2	ENDANGERED	ENDANGERED
California Gull	ENDANGERED_2	ENDANGERED	ENDANGERED
Dunlin	ENDANGERED_2	ENDANGERED	ENDANGERED
Merlin	ENDANGERED_2	ENDANGERED	ENDANGERED
Yellow-billed Magpie	ENDANGERED_2	ENDANGERED	ENDANGERED
American Bittern	ENDANGERED_1	THREATENED	ENDANGERED
American White Pelican	ENDANGERED_1	ENDANGERED	STABLE
American Wigeon	ENDANGERED_1	ENDANGERED	STABLE
Bell's Sparrow / Sage Sparrow	ENDANGERED_1	ENDANGERED	STABLE
Black-crowned Night-Heron	ENDANGERED_1	ENDANGERED	STABLE
Brown Creeper	ENDANGERED_1	ENDANGERED	STABLE
Bufflehead	ENDANGERED_1	ENDANGERED	STABLE
Burrowing Owl	ENDANGERED_1	ENDANGERED	THREATENED
Cinnamon Teal	ENDANGERED_1	ENDANGERED	STABLE
Clark's Grebe	ENDANGERED_1	ENDANGERED	THREATENED
Eared Grebe	ENDANGERED_1	ENDANGERED	STABLE
Ferruginous Hawk	ENDANGERED_1	ENDANGERED	STABLE
Gadwall	ENDANGERED_1	ENDANGERED	STABLE
Golden Eagle	ENDANGERED_1	ENDANGERED	STABLE



8 focus birds

- Yellow-billed Magpie
- Long-billed Curlew
- Snowy Plover
- Western & Clark's Grebe
- Black Oystercatcher
- Allen's Hummingbird
- Tricolored Blackbird



Allen's Hummingbird

BIRDING

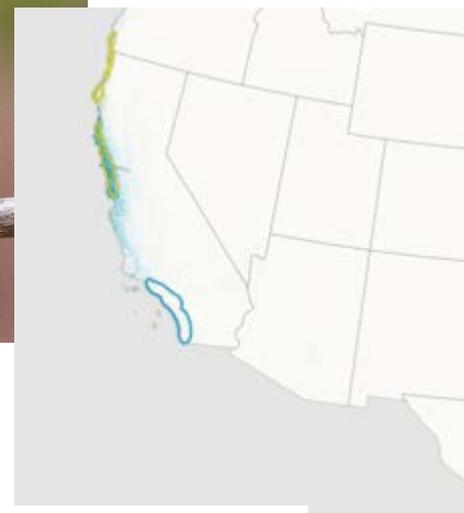
EDUCATION

CITIZEN SCIENCE

HABITAT CONSERVATION

2000

2080



Species Range Change from 2000 to 2080 ?



7% of summer 2000 range is stable
90% decrease in summer 2080 from 2000 range



0% of winter 2000 range is stable
20% decrease in winter 2080 from 2000 range



How can you Help?

BIRDING — EDUCATION — CITIZEN SCIENCE — HABITAT CONSERVATION

- Become a Citizen Scientist and collect data
- Create Habitat for Allen's Hummingbird in your own yard
- Contact your representatives and express your support of reducing pollution



Citizen Science : Hummingbirds@Home

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Audubon

GET THE APP

ABOUT LEARN MORE **Hummingbirds HOME** ENTER DATA EXPLORE DATA



TOGETHER, WE CAN HELP HUMMINGBIRDS

WATCH THE VIDEO LOGIN



TEAM UP WITH US TO HELP HUMMINGBIRDS

Create an account or login and help us learn more about hummingbirds today.

SIGN UP



EXPLORE WHAT WE'VE LEARNED TOGETHER

Explore data in your area & beyond, collected by citizen scientists like you.

EXPLORE DATA



CONNECT TO OUR COMMUNITY

Find out more about the Audubon community.

CONNECT



Step 1: Find Your “Patch”

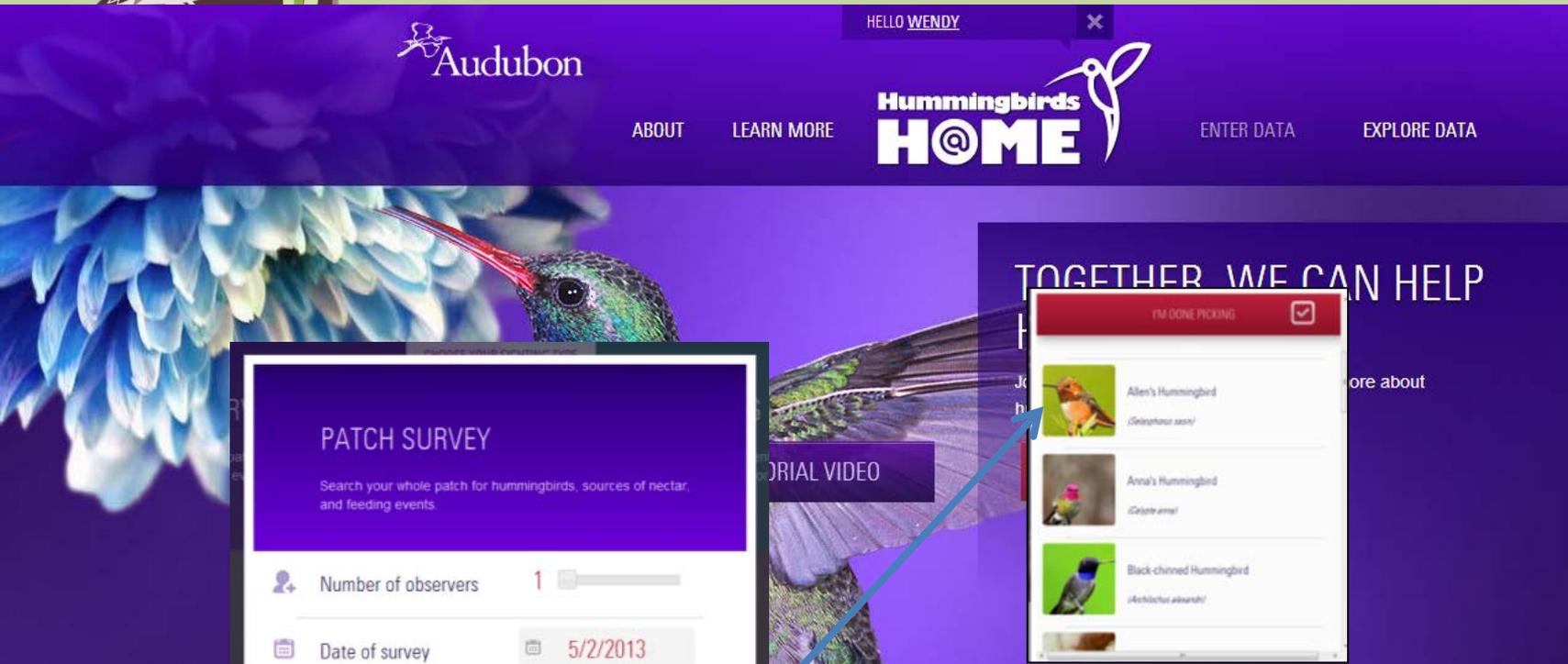
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- Somewhere near you
 - Your yard
 - A park
 - Your school
- No habitat? Create one
 - Plant flowers
 - Put up a feeder





Step 2: Collect data



PATCH SURVEY

Search your whole patch for hummingbirds, sources of nectar, and feeding events.

Number of observers: 1

Date of survey: 5/2/2013

Start/end of survey: [Start] [End]

Hummingbirds seen?

Nectar sources

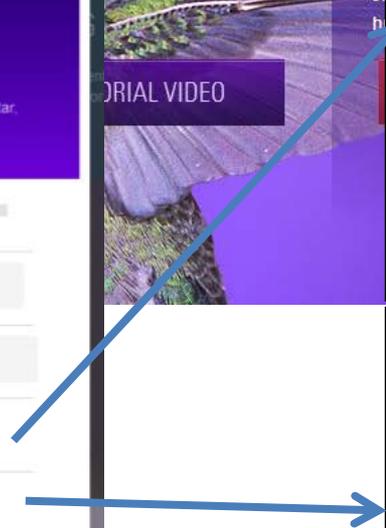
SUBMIT DATA

I'M DONE PICKING

- Allen's Hummingbird (Selasphorus selenis)
- Anna's Hummingbird (Calypte anna)
- Black-chinned Hummingbird (Archiope alexandri)

I'M DONE PICKING

- Feeder (Feeder) Not seen?
- Bigflower tellima (Tellima grandiflora) Not seen?
- Black sage (Salvia mellifera) Not seen?





Creating A Native Habitat For Hummingbirds





Shelter



ATION — CITIZEN S





Water



©Nick Athanas



Food: Encourage Bugs!

ENCE — HABITAT CONSERVATION





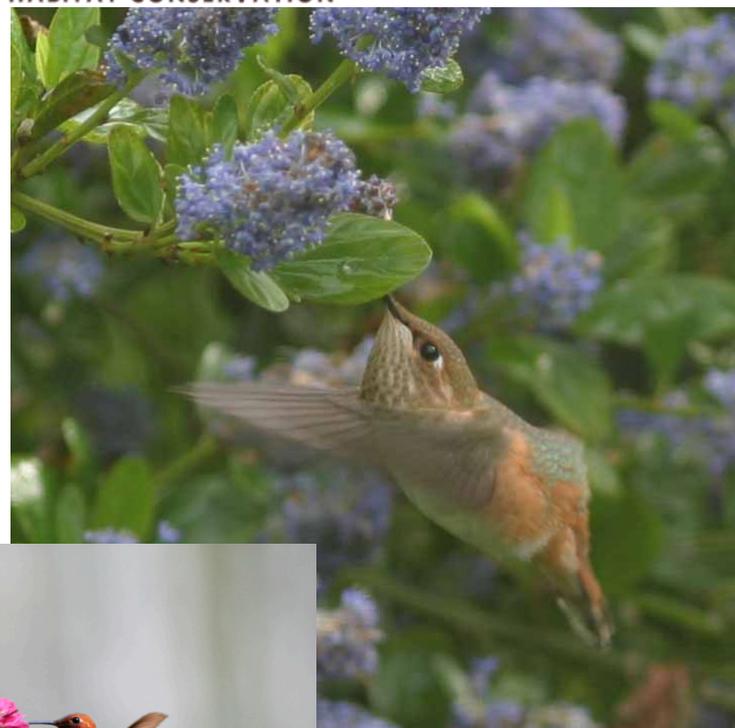
Food: Plants for Spring

BIRDING

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Food: Plants for Spring/Summer



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Food: Plants for Fall

CITIZEN SCIENCE

HABITAT CONSERVATION



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Food: Plants for Winter

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Hummingbirds@Home and School programs

