

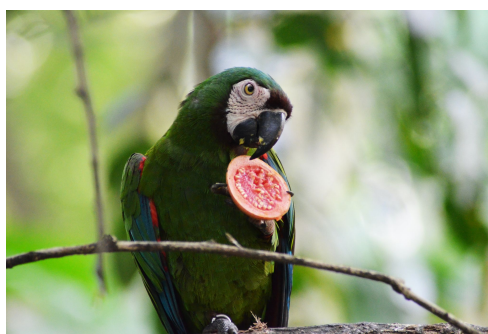


Citizen Science in a Changing World

Grant Foster

About Me

Grant Foster



PhD Student, University of South Carolina
Department of Biological Sciences

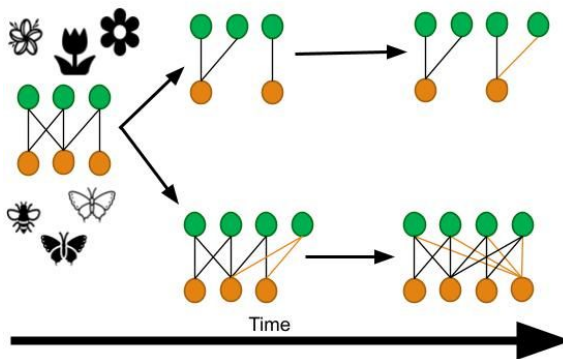
Mentor: Dr. Tad Dallas



Research Interests: Quantitative Ecology; Assembly and Breakdown Dynamics of Species Interaction Networks



Locally involved with **Columbia Audubon** and **Gills Creek Watershed Association**

Self described **Citizen Science Nut!**



@grant226 
@Riverman12 

Citizen Science is Growing

Participation in citizen science is higher now than ever!

1 in 10 Americans have participated in a citizen science project in the last year (Thigpen, and Funk, 2020)

Citizen Science provides an **unique opportunity** to gather data in a **rapidly changing natural environment**, and engage local communities with the natural world



Citizen Science Happening Locally

Richland County

eBird: 34,000+ checklists, 3449 observers

iNaturalist: 73,000+ observations, 3,802 observers

SC Adopt-a-Stream: Dozens of sites across Richland



South Carolina

Litter Journal: 12,800+ observations; 3.25 million pieces of litter collected

Nature's Notebook: 1,105 observations



Change Region ▾

Richland South Carolina, United States

271 Species | 34,059 Checklists | 3449 eBirders

Richland

73,603 OBSERVATIONS | 4,924 SPECIES | 4,778 IDENTIFIERS | 3,802 OBSERVERS

Map | Grid | List | Places of Interest | Redo search in map

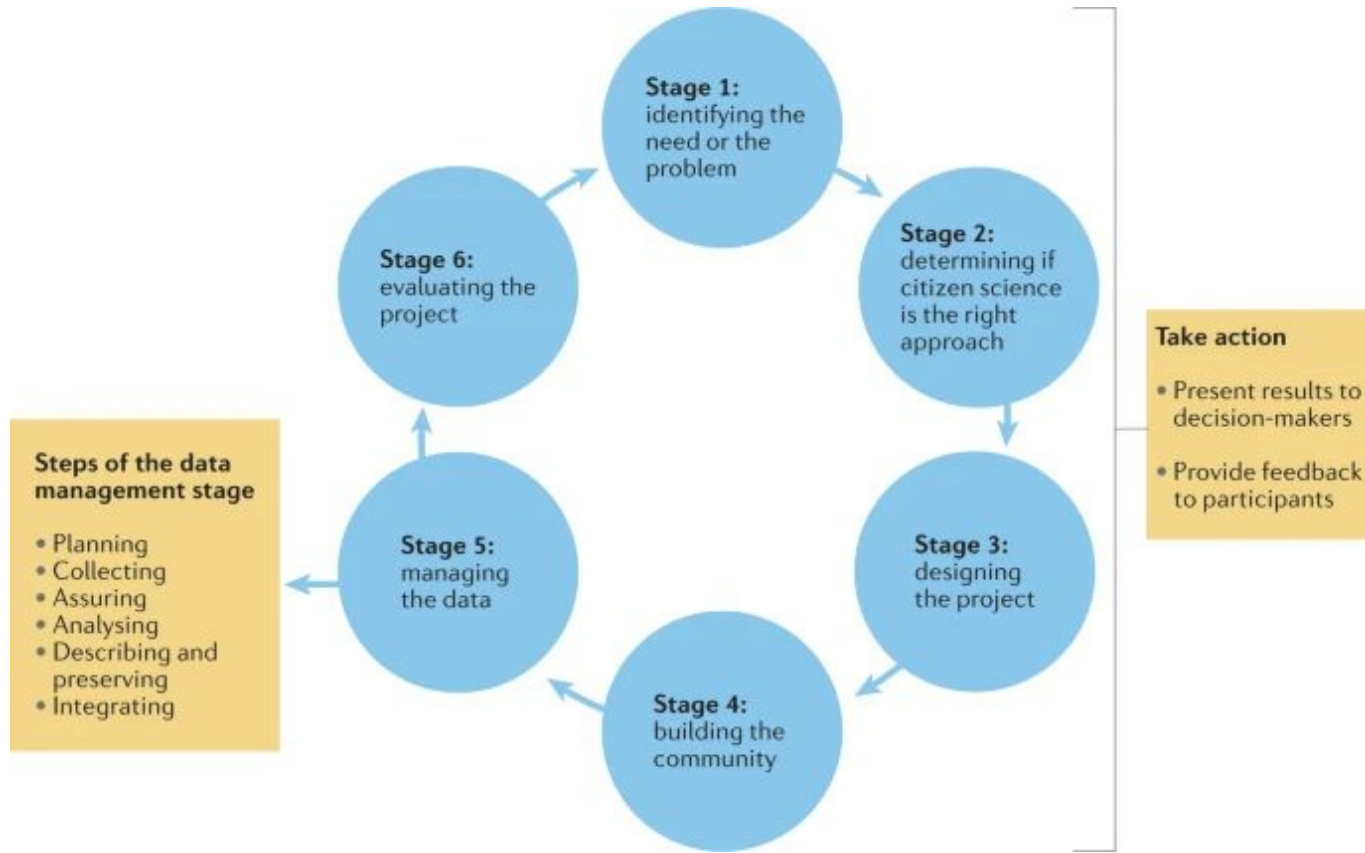
Hammer-jawed Jumping Spider (*Zygoballus rufipes*) South Carolina Onc... • Today 1 1h

Genus *Xylaria* North Area, Winn... • Today 1 2h

Brook Salamanders (Genus *Eurycea*) Bookman Loop, Winn... • Today 1 2h

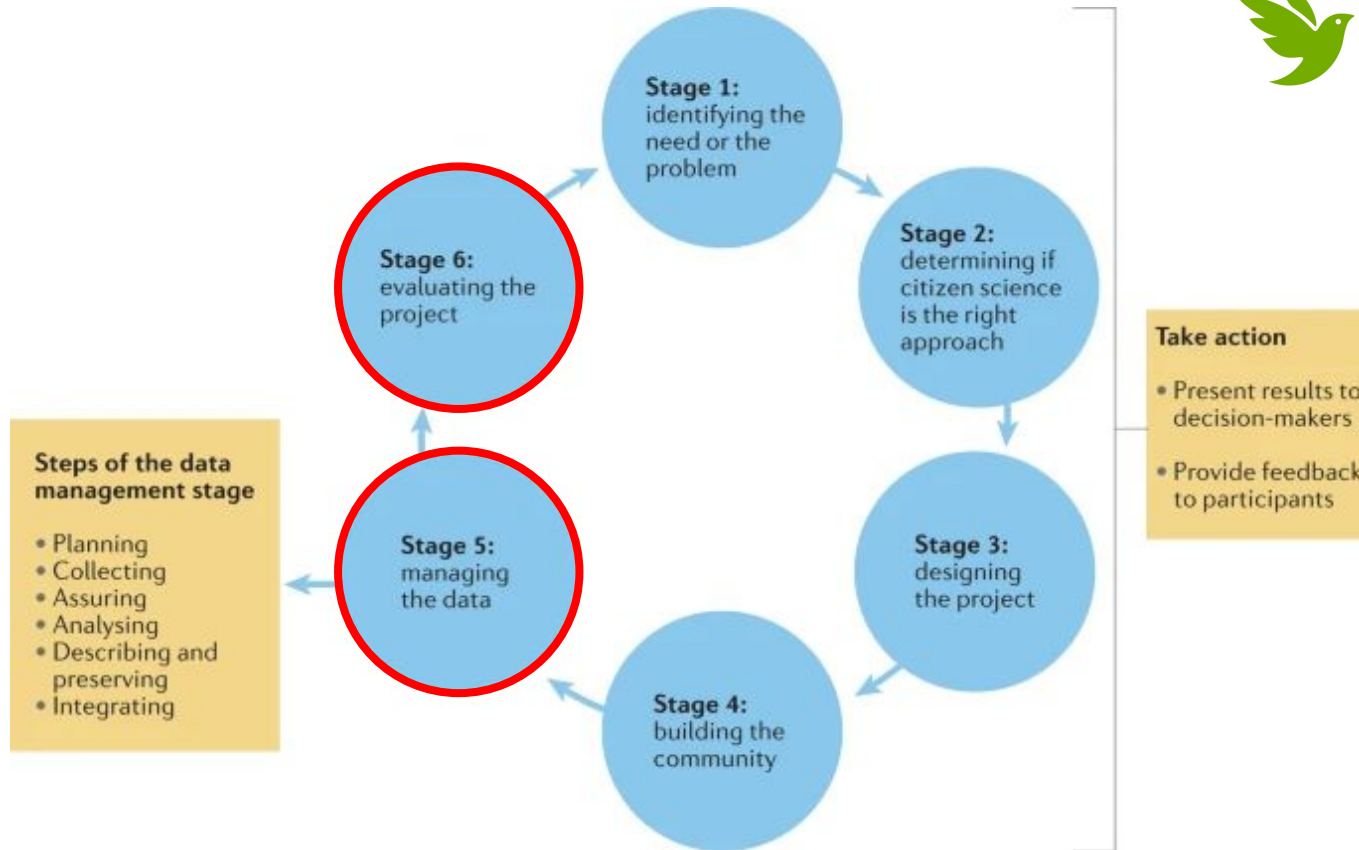
Red Salamander (*Pseudotriton ruber*) North Area, Winn... • Today 2 2h

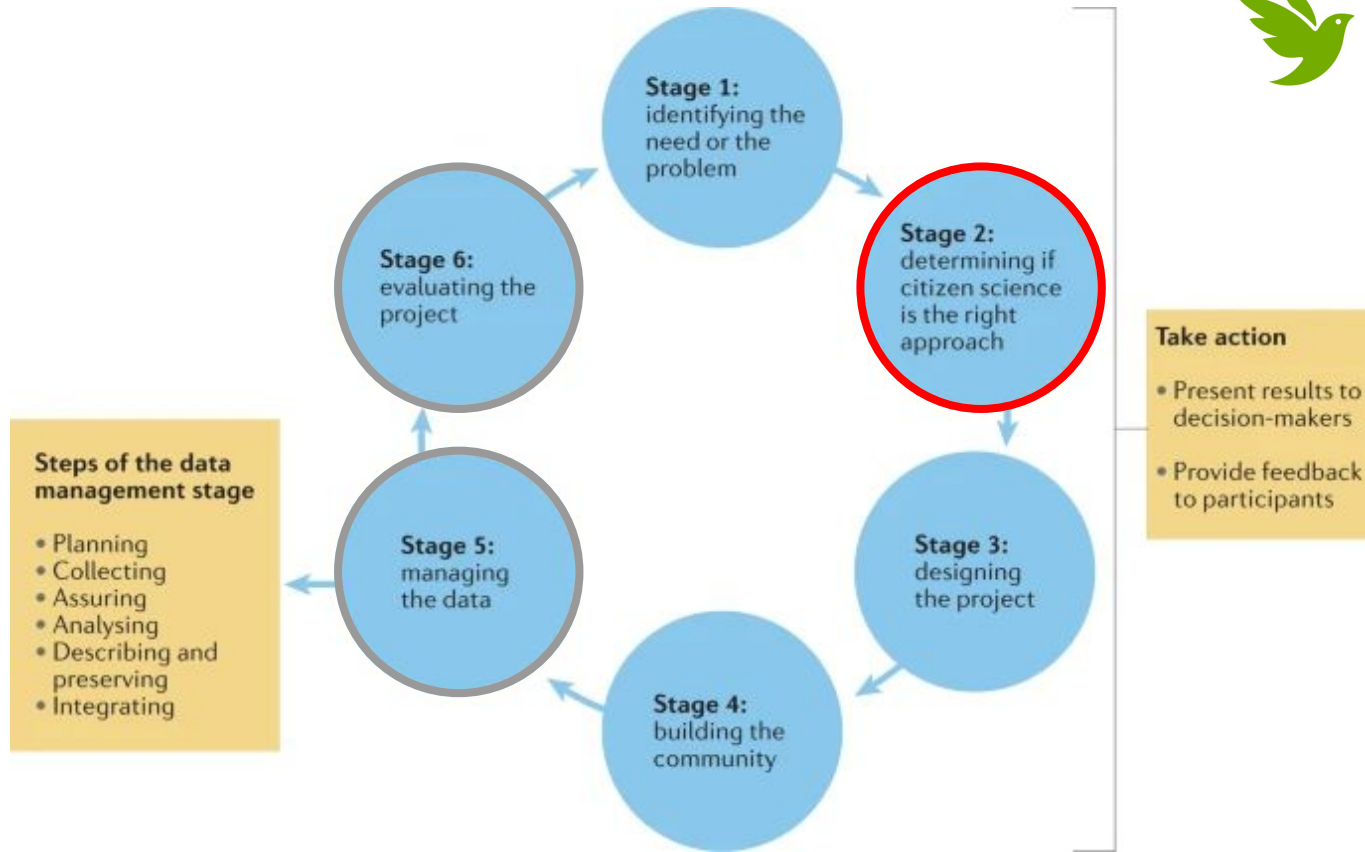
Helmet Skullcap (*Ecoidia sp.*)



From Fraisl et al., 2022

“Citizen science in environmental and ecological sciences”

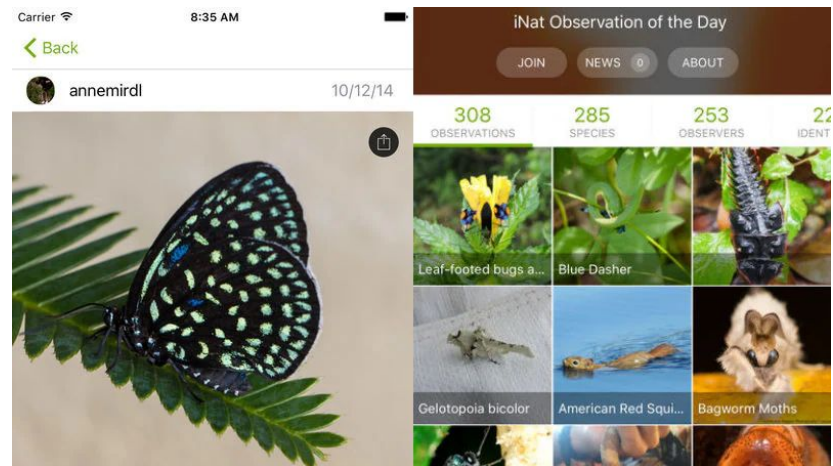




What is iNaturalist?



- Online repository for wildlife observations
- Crowdsourced Species identification tool
- Social network of people sharing biodiversity information
- Started as a Master's project of Ken-ichi Ueda, Nate Agrin, and Jessica Kline at UC Berkeley's School of Information in 2008
- Became an independent non-profit in 2023
- **5.9 million users, 124 million+ observations**



Submitting an observation: iNaturalist

Opportunistic/Incidental observations

An “observation” includes...

Who you are

You'll need to make an **iNaturalist account** and please only post your own personal observations



What you saw

Choose a group of organisms like **butterflies** or better yet a specific organism like the **Monarch butterfly**. If you provide evidence you can leave this blank and the **community can help**

Where you saw it

Record both the coordinates of the encounter as well as their accuracy. You can obscure the location from the public



When you saw it

Record the date of your encounter, not the date you post it to iNaturalist

Evidence of what you saw

By including evidence like a **photo or sound**, the community can help add, improve, or confirm the identification of the organism you encountered. Help the community by taking clear well framed photos, by including multiple photos from different angles



Submitting an observation: iNaturalist

iNaturalist

+ Add ▾

✕ Remove

↗ Combine

📄 Duplicate

Select All

Drag & drop some photos or sounds

or

Choose files 

More Import Options ▾

Submitting an observation: iNaturalist

iNaturalist

+ Add ✕ Remove ↗ Combine Duplicate Select All

Editing 1 observation:

Details

Species name

2024/04/28 4:08 PM

Location

Notes

Location is public

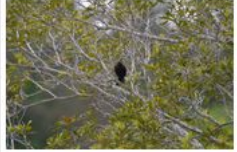
Captive / Cultivated

Tags

Projects

Fields

Offset Time



Species name

2024/04/28 4:08 PM

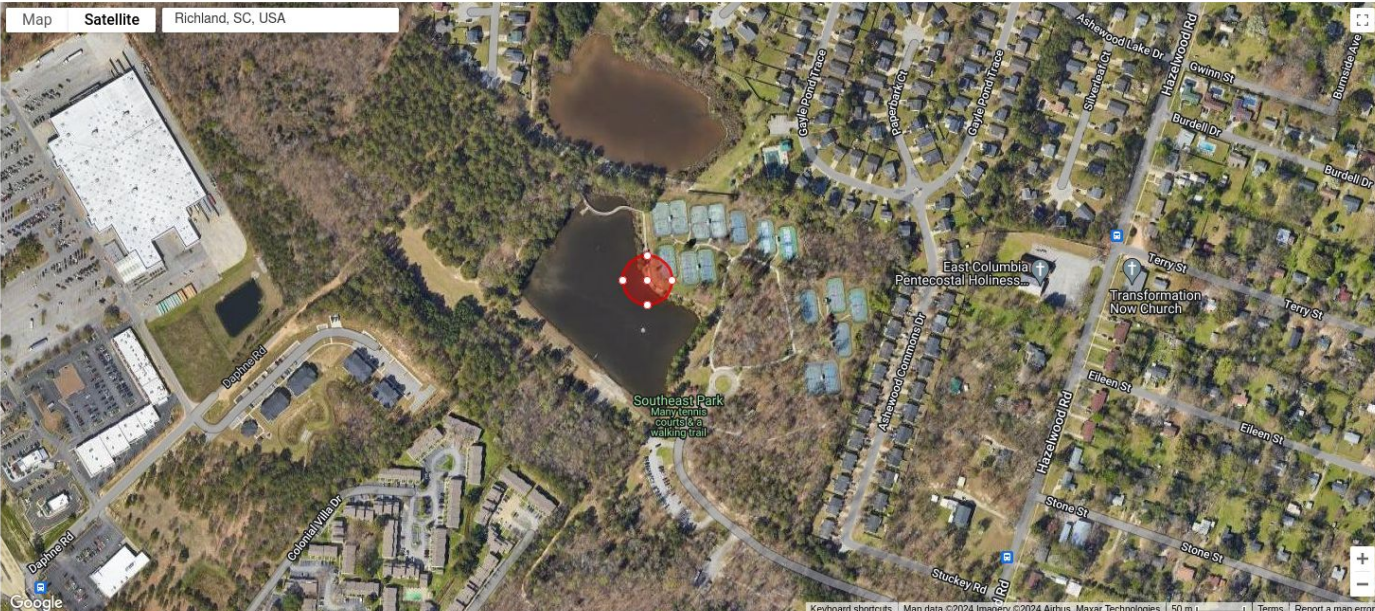
Location

Notes

Submitting an observation: iNaturalist

Richland County, SC, USA

Map Satellite Richland, SC, USA



Latitude:

Longitude:

Acc (m):

Geoprivacy:

Locality notes:

Submitting an observation: iNaturalist

iNaturalist

+ Add - ✕ Remove ↗ Combine Duplicate Select All

Editing 1 observation:

Details

Species name

2024/04/28 4:08 PM

Richland County, SC, USA

Notes

Location is public


Captive / Cultivated

Tags

Projects


Fields

Offset Time





Species name

We're pretty sure this is in the genus:

-  **Cowbirds**
Genus *Molothrus* [View](#)

Here are our top suggestions:

-  **Brown-headed Cowbird**
Molothrus ater
[Visually Similar / Expected Nearby](#) [View](#)
-  **Common Grackle**
Quiscalus quiscula
[Visually Similar / Expected Nearby](#) [View](#)

Include suggestions not expected nearby

iNat has implemented computer-vision based ID suggestions since 2017!




Submitting an observation: iNaturalist


iNaturalist


+ Add - ✕ Remove ↗ Combine Duplicate Select All

Editing 1 observation:

Details

 Brown-headed Cowbird


 2024/04/28 4:08 PM


 Richland County, SC, USA


Notes


Location is public


Captive / Cultivated


 Tags


 Projects


 Fields

 Offset Time



 Brown-headed Cowbird


 2024/04/28 4:08 PM

 Richland County, SC, USA

Notes

Submitting an observation: iNaturalist

Brown-headed Cowbird (*Molothrus ater*) Needs ID Edit

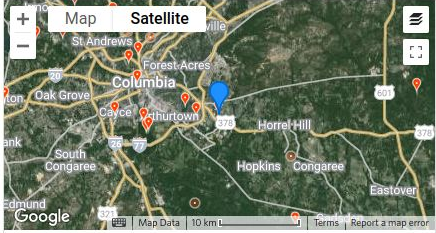


© 🗨 👤

📷 📄 +

grant226
🏠 201 observations ⏪ ⏩


Observed: Apr 28, 2024 · 4:08 PM EDT Submitted: May 13, 2024 · 3:45 PM EDT




Richland County, SC, USA Details

☆ Be the first to love this observation!

Activity

 grant226 suggested an ID 🌱 Leading 👤 1s ⌵

 **Brown-headed Cowbird**
Molothrus ater 👉 Compare

Community Taxon Compare • [What's this?](#)

The Community ID requires at least two identifications.

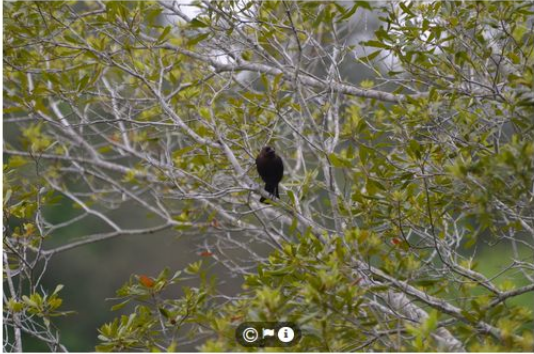
👍 Annotations

iNaturalist Community Identification

Community Driven!


Individuals are encouraged to ID other users observations to the lowest taxonomic level supported

Brown-headed Cowbird (*Molothrus ater*) Research Grade Edit



grant226
200 observations

Observed: Apr 28, 2024 - 4:45 PM EDT
Submitted: Apr 29, 2024 - 1:38 PM EDT




Richland County, SC, USA Details


Be the first to love this observation!

Activity

grant226 suggested an ID Improving 14d


 **Brown-headed Cowbird**
Molothrus ater Compare

concavenator07 suggested an ID 14d

 **Brown-headed Cowbird**
Molothrus ater

Community Taxon What's this?

Brown-headed Cowbird (*Molothrus ater*)
Cumulative IDs: 2 of 2




Agree Compare About

Annotations (2)


iNaturalist Community Identification

Brown-headed Cowbird (*Molothrus ater*) Research Grade Edit



grant226
200 observations

Observed: Apr 28, 2024 · 4:45 PM EDT
Submitted: Apr 29, 2024 · 1:38 PM EDT




Richland County, SC, USA


Be the first to save this observation!

Activity

grant226 suggested an ID Improving 14d

 Brown-headed Cowbird
Molothrus ater Compare


concaenator07 suggested an ID 14d

 Brown-headed Cowbird
Molothrus ater

Community Taxon

What's this?

Brown-headed Cowbird (*Molothrus ater*)
Cumulative IDs: 2 of 2



Agree Compare About

Annotations (2)

“Verifiable”

- Has a date
- Is Georeferenced
- Has Photo or Sound
- Is of a non-captive/cultivated organism

“Research-Grade”

- Verifiable
- Community taxon is at species level or lower, and has at least 2 IDs

iNaturalist Community Identification

Downy Woodpecker (*Dryobates pubescens*)

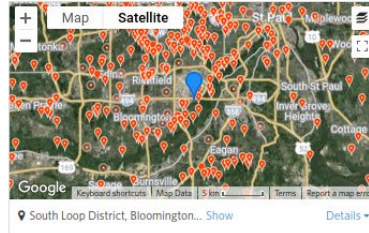
Research Grade

Follow



jonathan_sellman
2,701 observations

Observed: May 12, 2024 - 10:18 AM CDT
Submitted: May 13, 2024 - 1:07 AM EDT



Be the first to favorite this observation!

Activity



jonathan_sellman suggested an ID

Improving

15h



Downy Woodpecker
Dryobates pubescens

Compare



grant226 suggested an ID

1s



Downy Woodpecker
Dryobates pubescens

Community Taxon

What's this?

Downy Woodpecker (*Dryobates pubescens*)

Cumulative IDs: 2 of 2



Agree

Compare

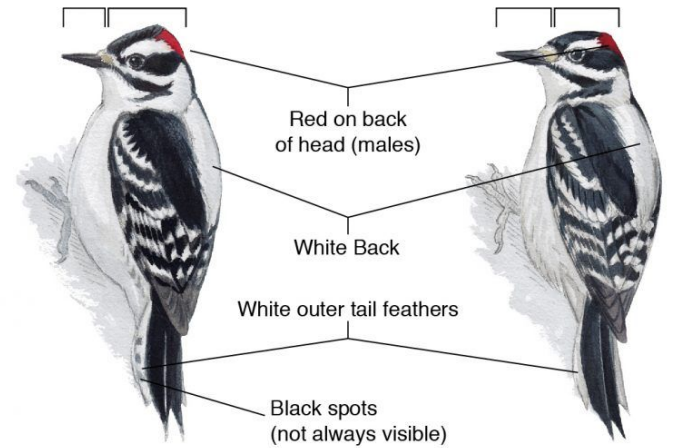
About

Annotations

Cornell Lab of Ornithology | Bird Academy

Bill shorter than head

Bill same length as head



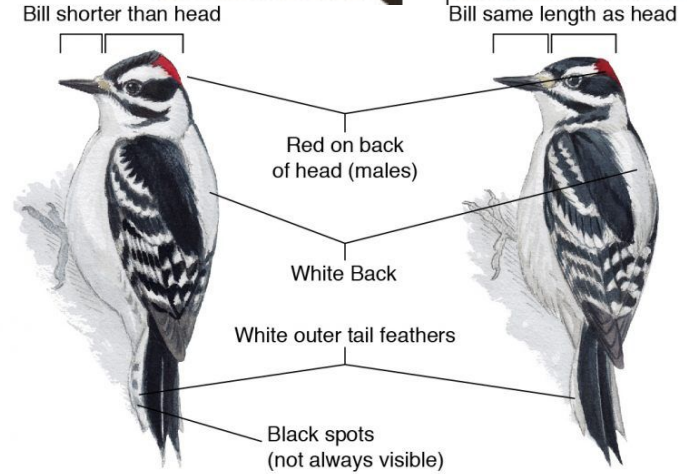
Downy Woodpecker

Hairy Woodpecker

Dryobates pubescens

Dryobates villosus

iNaturalist Community Identification



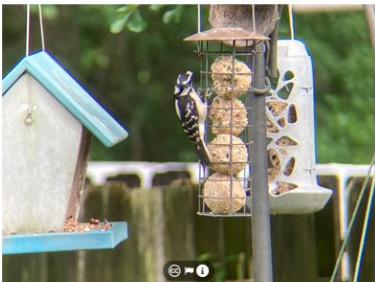
Downy Woodpecker

Dryobates pubescens

Hairy Woodpecker


Dryobates villosus

Dryobates Woodpeckers (Genus *Dryobates*) Needs ID Follow



apalmieri 942 observations

Observed: May 10, 2024 - 3:47 PM EDT Submitted: May 10, 2024 - 3:59 PM EDT



Mitchell Ct, Bluffton, SC, US

Be the first to love this observation!

Notes

It's been awhile since I've seen a hairy woodpecker, but this female's beak seemed quite large for downy. There were also no spots on the white tail feathers and there was a black diving line down the back of the head where the red spot would be on males.

Activity

apalmieri suggested an ID Leading 3d

Hairy Woodpecker
Dryobates villosus Compare Agree

piecofmind suggested an ID* Leading 3d

Downy Woodpecker
Dryobates pubescens Compare Agree

On feeders, usually the easiest way to distinguish downy/hairy is body size. What's the diameter of each ball/disk?

Overall, this one looks more Downy to me. The tail barring is on the outer (bottom) feathers, which are often not visible from side or top views when the tail is folded in. The red spot split by a black line is only reliable for males. In my experience, female downies are less likely to have a thick black line down the back, but there's lots of variation in both species (from none to thick). As for the beak, note that the fluffy tuft at the base is largely missing, which will make the beak look larger. There's also a fair amount of individual variation in beak size. Last, there's no black shoulder spur, which are common in hairies.

Community Taxon What's this?

Dryobates Woodpeckers (Genus *Dryobates*) What's this?

Cumulative IDs: 2 of 2

0 2/3rds 2

Agree Compare About

Annotations

Attribute	Value	Agree	Disagree
Alive or Dead	Select -		
Evidence of Presence	Select -		
Life Stage	Select -		
Sex	Select -		

Projects (2)

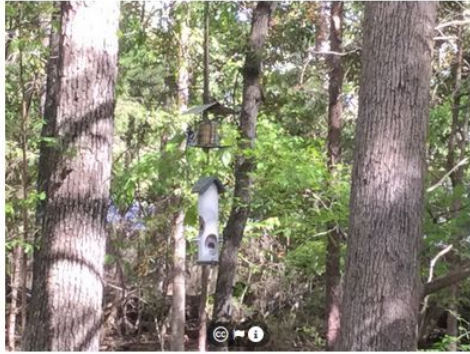
Observation Fields

iNaturalist Community Identification



Downy Woodpecker (*Dryobates pubescens*) Needs ID

Follow



thewoodturner
161 observations



Observed: Apr 12, 2024 - 4:30 PM EDT
Submitted: Apr 12, 2024 - 4:42 PM EDT



Be the first to save this observation!

Activity



thewoodturner suggested an ID

Leading 1mo



Downy Woodpecker
Dryobates pubescens

Compare Agree



grant226 suggested an ID

Improving 1mo



Dryobates Woodpeckers
Genus *Dryobates*

Compare

Community Taxon

What's this?

Dryobates Woodpeckers (Genus *Dryobates*)

Cumulative IDs: 2 of 2

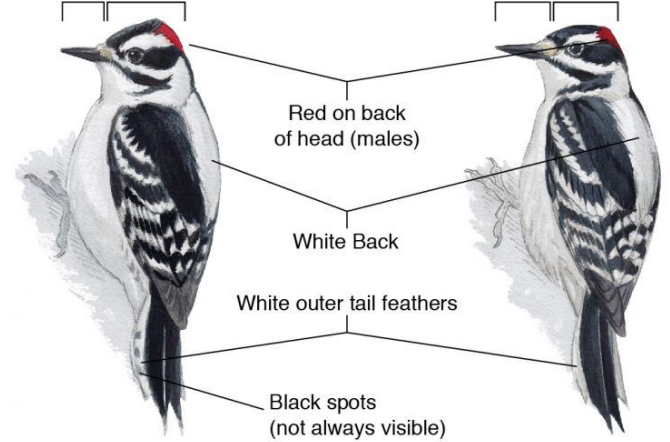


Agree Compare About

Annotations

Bill shorter than head

Bill same length as head



Downy Woodpecker

Hairy Woodpecker

Dryobates pubescens

Dryobates villosus

iNaturalist Community Identification



Downy Woodpecker (*Dryobates pubescens*) Needs ID

Follow



thewoodturner
161 observations



Observed: Apr 12, 2024 - 4:30 PM EDT
Submitted: Apr 12, 2024 - 4:42 PM EDT



Be the first to save this observation!

Activity



thewoodturner suggested an ID

Leading 1mo



Downy Woodpecker
Dryobates pubescens

Compare Agree



grant226 suggested an ID

Improving 1mo



Dryobates Woodpeckers
Genus *Dryobates*

Compare

Community Taxon

What's this?

Dryobates Woodpeckers (Genus *Dryobates*)

Cumulative IDs: 2 of 2

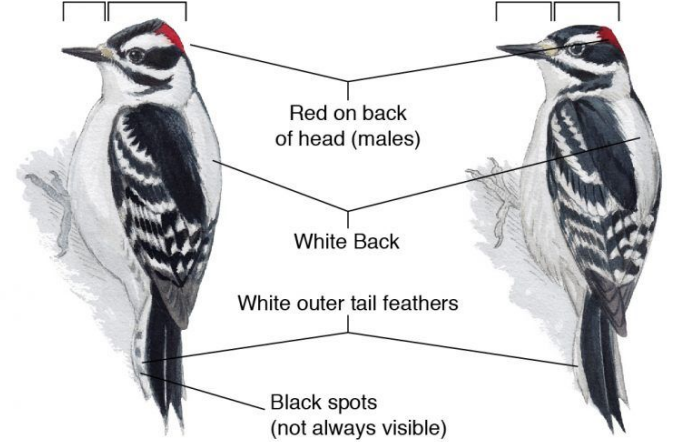


Agree Compare About

Annotations

Bill shorter than head

Bill same length as head



Downy Woodpecker

Hairy Woodpecker

Dryobates pubescens

Dryobates villosus

iNaturalist Community Identification

Activity



choess suggested an ID

Improving 6y



Class Bryopsida
True Mosses

Compare

Agree

I'm pretty sure this is a regular moss-no strobili, etc.



allenratzlaff suggested an ID

6y



Class Bryopsida
True Mosses



eraskin suggested an ID

4y



Class Bryopsida
True Mosses



annkatrinrose suggested an ID

Maverick 7mo



Genus *Polytrichum*
Haircap Mosses

Compare

Probably - I've seen a lot of it up at Craggy Gardens.

Community Taxon

What's this?

Class Bryopsida (True Mosses)

Cumulative IDs: 3 of 4



Agree

Compare

About

Annotations

Attribute	Value	Agree	Disagree
Sex	Select		

Projects

Add to a Project

Observation Fields

Choose a field

Top Identifiers of Bryopsida

How well does this validation model work?

Data Quality Assurance is Community-driven

iNat conducts regular Quality Control Studies

Observation Accuracy Experiment (0.4)

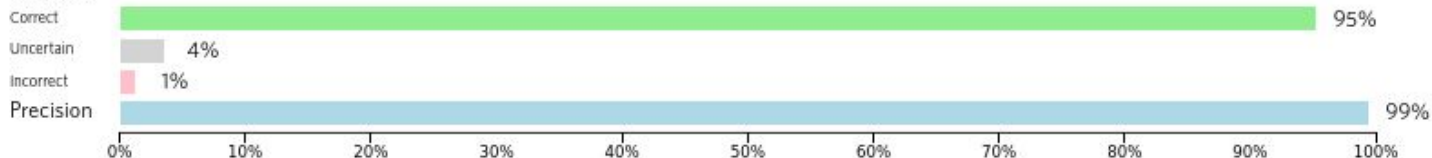
May 13, 2024

Abstract: We generated a sample of observations on May 7, 2024 and coordinated a team of validators to assess their accuracy by May 13, 2024. All results shown below show characteristics of the sample observations at the time the sample was generated (for example Research Grade or not). The accuracy of the sample observations was assessed on May 13, 2024. See the methods tab for more details.

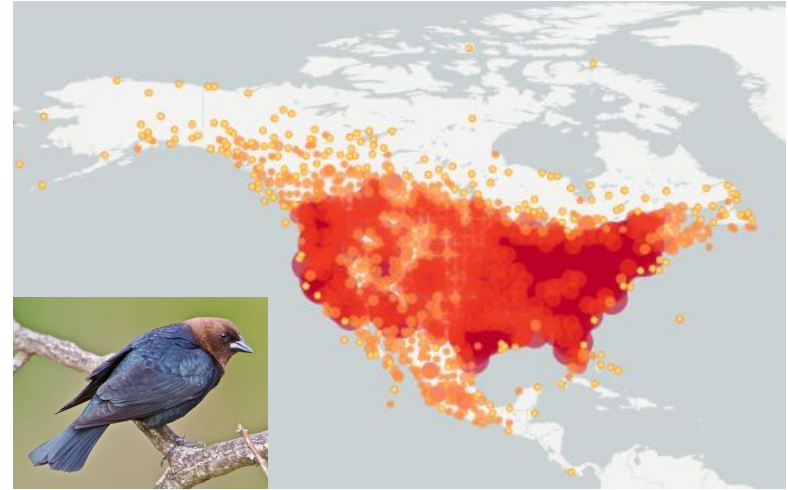
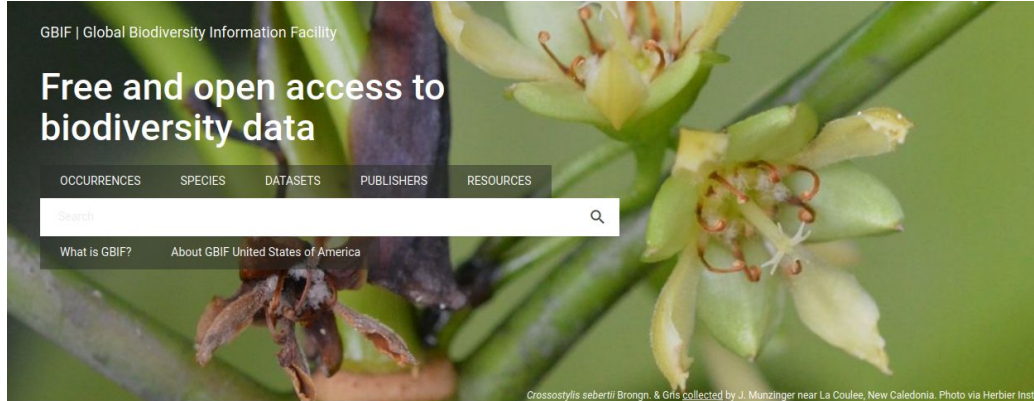


As observations from this sample are validated, the uncertain percentage will decrease and the percentage correct and incorrect will increase.

Accuracy



How is iNat data used?



2,935,996,819

Occurrence records



104,853

Datasets



2,220

Publishing institutions



10,522

Peer-reviewed papers
using data



Observation Fields & Projects



Stats

Totals

79755

Observations »






5644

Species »






5143

People »






Most Observations

-  **la4bonte**
5310 observations
-  **xris**
4870 observations
-  **berzou**
3339 observations
-  **laurasea**
1664 observations
-  **misspt**
1533 observations














Most Species

-  **paul27**
989 species
-  **berzou**
436 species
-  **allandbrice**
248 species
-  **xris**
228 species
-  **laurasea**
226 species

Most Observed Species


-  **Western Honey Bee**
2741 observations
-  **Common Eastern Bumble Bee**
2387 observations
-  **Monarch**
1450 observations
-  **Eastern Carpenter Bee**
999 observations
-  **Gulf Fritillary**
997 observations


Annotations (4)

Attribute	Value	Agree	Disagree
Alive or Dead	 Alive 		
Evidence of Presence	 Organism 		
Evidence of Presence	Select 		
Life Stage	 Adult 		
Sex	 Male 		

2024 USC Gills Creek BioBlitz

APR 13, 2024

About Members 

This project is to keep track of the USC Graduate Association for Biology Student's Bioblitz of the Gills Creek Watershed! We're looking to record observations from as many taxa as possible, so if it's alive feel free to add a record! Mushrooms? Daisies? Salamanders? Moths? All are great additions-just get outside in the watershed and Read More Your Membership 

Edit Project
Project Journal

Overview


89 OBSERVATIONS


60 SPECIES

25 IDENTIFIERS

5 OBSERVERS


Stats

Recent Observations View All 




Lyreleaf Sage
Salvia lyrata

2 1mo




American Water Frogs
Genus *Lithobates*

3 1mo



Cambarid Crayfishes
Family Cambaridae

1 1mo



Bladder Snails
Family Physidae

1 1mo

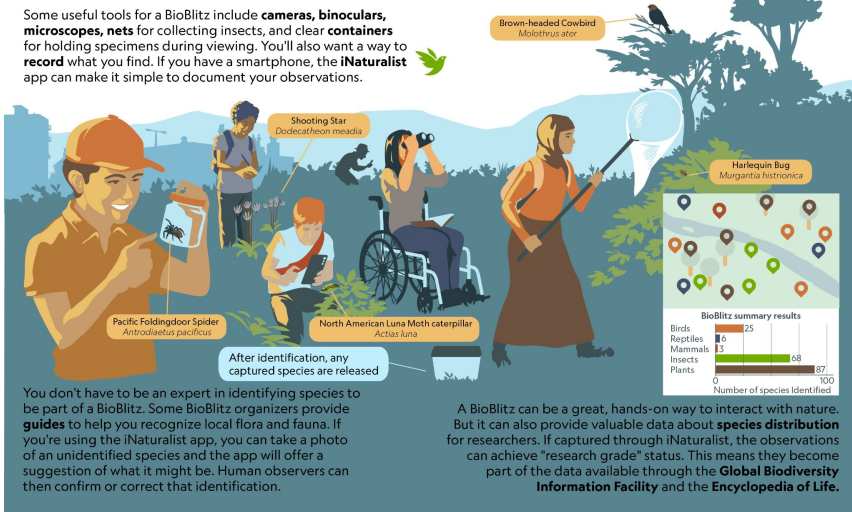
iNat for Engagment

BIOBLITZ!

A **BioBlitz** is an event where members of the community **identify** and **record** as many species as they can in a specific location during a specific time frame. This information can be valuable for researchers monitoring **biodiversity**. The best part is that **anyone** can participate and contribute!



Some useful tools for a BioBlitz include **cameras, binoculars, microscopes, nets** for collecting insects, and clear **containers** for holding specimens during viewing. You'll also want a way to **record** what you find. If you have a smartphone, the **iNaturalist** app can make it simple to document your observations.



City Nature Challenge

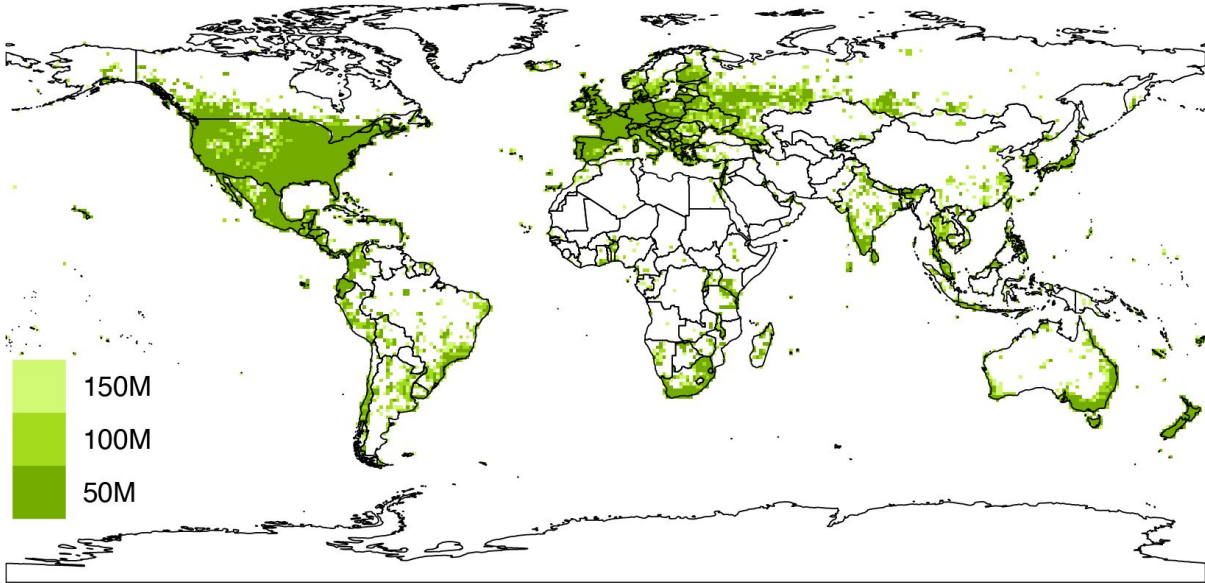
Participating Cities

In 2024, 691 cities in 51 Countries



Biases in iNat Data

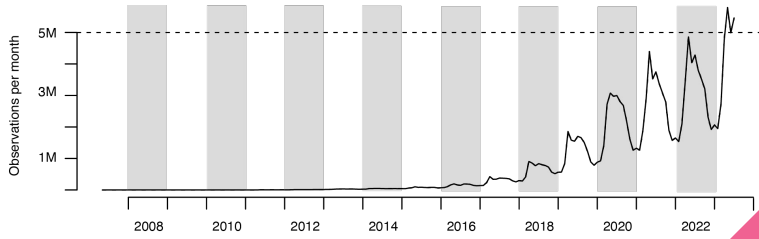
Cells with at least 1,000 Observations



iNat observations are presence-only!

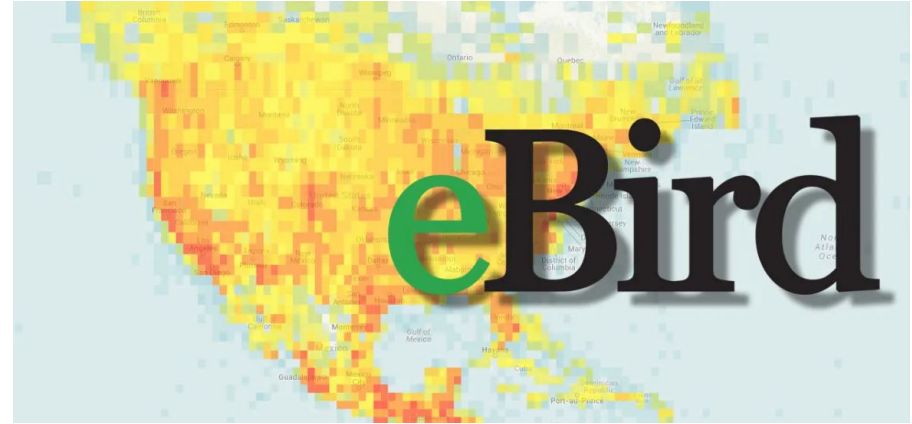
No straightforward way to measure sampling effort

Subject to large spatial, temporal, and taxonomic biases



Another Citizen Science Model: eBird

- Worldwide project of bird checklists
- Developed and managed by Cornell Lab of Ornithology
- **13.3 million** checklists submitted in 2023 alone!
- Data submission styled after effort-controlled surveys
- Tracks data about sampling effort
 - Time spent
 - Number of observers
 - Distance Traveled



Submitting an observation: eBird

Data submitted in the form of checklists!

Most users interact through the phone app

Automatic time, date, location, and distance

The screenshot shows the eBird mobile app interface. At the top, the status bar displays the time 3:20 and 5G signal strength. Below the status bar is the Cornell Lab logo. The form fields are as follows:

- DATE:** 14 May 2024
- START TIME:** 15:20, with minus and plus buttons for adjustment.
- RECORD TRACK:** A toggle switch is turned on.
- Start checklist:** A prominent green button with white text, highlighted by a red rectangular box.
- Bottom navigation bar:** Includes icons for Submit, Checklists (with a red notification badge showing '10'), Explore, and My eBird.



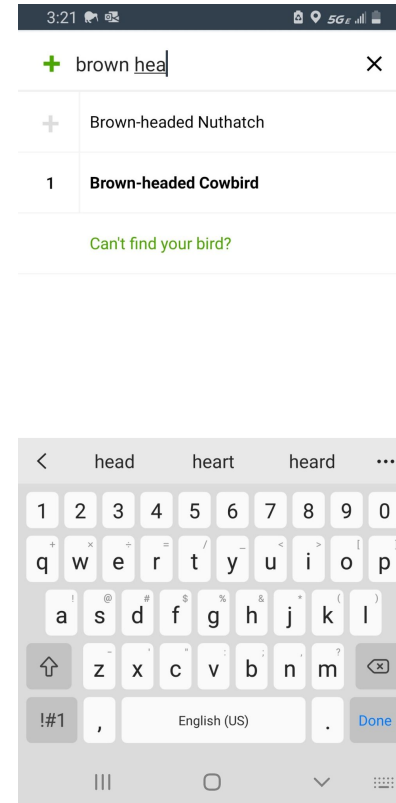
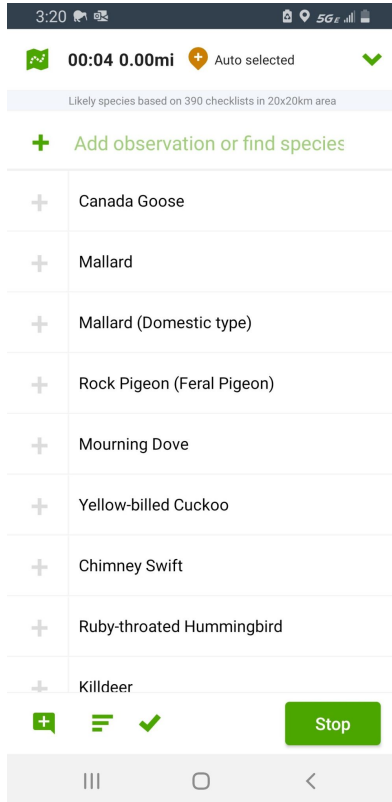
eBird Mobile makes it easy to record the birds you find and seamlessly link observations with eBird—a global online database of bird records used by hundreds of thousands of birders around the world. This free resource helps you keep track of your birding activity, while making your data openly available for scientific research, education, and conservation.

eBird Mobile is the only app that passes information directly from a your mobile device to your eBird account on the web.

Get eBird Mobile




Submitting an observation: eBird




Submitting an observation: eBird

3:36

Brown-headed Cowbird *Molothrus ater* **DONE**

Number Observed: 1 Present Merlin  BIRD ID

Male and female observed together by main pond

BREEDING CODE 

+ Add breeding code

pond ponder pondering ...

1 2 3 4 5 6 7 8 9 0
q w e r t y u i o p
a s d f g h j k l
↑ z x c v b n m ?
!#1 , English (US) . ↵




Observations can include **comments** + **Breeding/Behavior Codes**

Example


S: Singing males **C:** Courtship Display
T: Territory Defense **FY:** Feeding Young

3:38 AT&T

Great Blue Heron *Ardea herodias* **DONE**

Number Observed: 10 Present Merlin  BIRD ID

Multiple nests in known rookery alongside great egrets. Most individuals young; some nest contained both very young and near fledged subadults from separate clutches, presumably from the same parents.

BREEDING CODE 

NY NY Nest with Young

F H S S7 M P
T C N A B PE
CN NB DD UN ON FL
CF FY FS NE NY

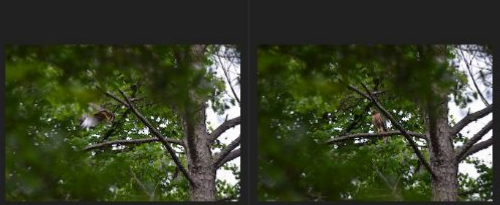
Submitting an observation: eBird

Manage Media

28 Apr 2024 4:11 PM Southeast Park, Richland, South Carolina, US [Send feedback](#) Done

☰ ☱ 📷 14 🔊 0

4	Canada Goose <i>Branta canadensis</i>	▶ Details	<input type="button" value="Change Species"/>	<input type="button" value="Add media"/>
1	Chimney Swift <i>Chaetura pelagica</i>	▶ Details	<input type="button" value="Change Species"/>	<input type="button" value="Add media"/>
1	Turkey Vulture <i>Cathartes aura</i>	▶ Details	<input type="button" value="Change Species"/>	<input type="button" value="Add media"/>
1	Red-shouldered Hawk <i>Buteo lineatus</i>	▶ Details ▼ Media	Select: 📷 2 🔊 0	<input type="button" value="Change Species"/> <input type="button" value="Add media"/>



★★★★★ 🗨️ ☱ 🔄 🗑️ RS_HawkDSC_0315.JPG

★★★★★ 🗨️ ☱ 🔄 🗑️ RS_HawkDSC_0314.JPG

View or select media to make changes.

Upload up to 20 photos and 10 audio file per species.

Drag and drop media from your file system onto the correct species.



Photos







- JPG (preferred) or PNG
- Maximum file size: 20 MB
- High resolution without watermark preferred



Audio


- WAV (preferred), MP3, or M4A
- Maximum file size: 500 MB
- At least 44.1 kHz, at least 16 bits

Submitting an observation: eBird

  [My media](#) POWERED BY MACAULAY LIBRARY AND EBIRD

 120,178  3,481  134 Location ▾ Date ▾ Contributor ▾ More filters ▾    Recently uploaded ▾ [Export](#)

[Clear filters](#)  [Brown-headed Cowbird - Molothrus ater](#) 



Submitting an observation: eBird

CHECKLIST S170831998



Sun 28 Apr 2024 4:11 PM

Edit date and effort

Southeast Park Richland County, South Carolina, United States

Edit location

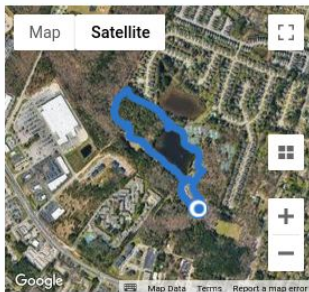
Checklist tools

Grant Foster

Share

Traveling Complete

1 1 hr, 6 min 1.11 mi



eBird Mobile Tracks

Submitted from eBird for Android, version 2.17

Edit comments

SUBMIT ANOTHER FOR...

Same location and date
Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same location
Southeast Park, Richland County, South Carolina, US

Same area and date
Another location near Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same area
Another location near Southeast Park, Richland County, South Carolina, US

Same date
Sun Apr 28, 2024

27

Species Observed
78 individuals

7

Species with Photos

Manage media

Edit species

4 Canada Goose

Remove

1 Chimney Swift

Remove

1 Turkey Vulture

Remove

1 Red-shouldered Hawk

Remove



3 Red-bellied Woodpecker

Remove



2 Great Crested Flycatcher

Remove

1 Eastern Kingbird

Remove



Submitting an observation: eBird

CHECKLIST S170831998

Sun **28 Apr 2024** 4:11 PM [Edit date and effort](#)

Southeast Park [Richland County, South Carolina, United States](#) [Edit location](#)



[Checklist tools](#)

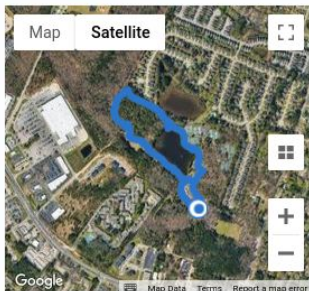
Time + Date

Grant Foster



Traveling Complete

1 1 hr, 6 min 1.11 mi



eBird Mobile Tracks

Submitted from eBird for Android, version 2.17

[Edit comments](#)

SUBMIT ANOTHER FOR...

Same location and date
Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same location
Southeast Park, Richland County, South Carolina, US

Same area and date
Another location near Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same area
Another location near Southeast Park, Richland County, South Carolina, US

Same date
Sun Apr 28, 2024

27

Species Observed
78 individuals

7

Species with Photos

[Manage media](#)

[Edit species](#)

4 Canada Goose

[Remove](#)

1 Chimney Swift

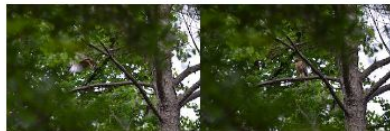
[Remove](#)

1 Turkey Vulture

[Remove](#)

1 Red-shouldered Hawk

[Remove](#)



3 Red-bellied Woodpecker

[Remove](#)



2 Great Crested Flycatcher

[Remove](#)

1 Eastern Kingbird

[Remove](#)



Submitting an observation: eBird

CHECKLIST S170831998

Sun 28 Apr 2024 4:11 PM [Edit date and effort](#)

Southeast Park [Richland County, South Carolina, United States](#) [Edit location](#)



[Checklist tools](#)

Grant Foster [Share](#)

Traveling Complete
1 1 hr, 6 min 1.11 mi

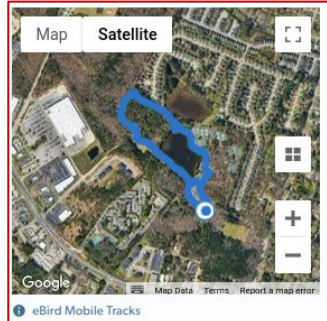
27

Species Observed
78 individuals

7

Species with Photos

[Manage media](#) [Edit species](#)



4 Canada Goose [Remove](#)

1 Chimney Swift [Remove](#)

1 Turkey Vulture [Remove](#)

1 Red-shouldered Hawk [Remove](#)



3 Red-bellied Woodpecker [Remove](#)



2 Great Crested Flycatcher [Remove](#)

1 Eastern Kingbird [Remove](#)



Submitted from eBird for Android, version 2.17

[Edit comments](#)

SUBMIT ANOTHER FOR...

Same location and date
Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same location
Southeast Park, Richland County, South Carolina, US

Same area and date
Another location near Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same area
Another location near Southeast Park, Richland County, South Carolina, US

Same date
Sun Apr 28, 2024

Time + Date

Spatial Extent

Submitting an observation: eBird

CHECKLIST S170831998

Sun 28 Apr 2024 4:11 PM

Edit date and effort

Southeast Park Richland County, South Carolina, United States

Edit location



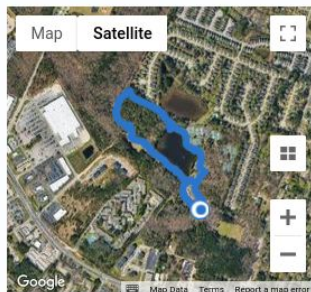
Checklist tools

Grant Foster

Share

Traveling Complete

1 1 hr, 6 min 1.11 mi



eBird Mobile Tracks

Submitted from eBird for Android, version 2.17

Edit comments

SUBMIT ANOTHER FOR...

Same location and date
Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same location
Southeast Park, Richland County, South Carolina, US

Same area and date
Another location near Southeast Park, Richland County, South Carolina, US on Sun Apr 28, 2024

Same area
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Same date
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Species Observed
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7

Species with Photos

Manage media

Edit species

4 Canada Goose

Remove

1 Chimney Swift

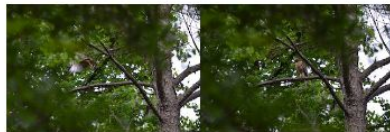
Remove

1 Turkey Vulture

Remove

1 Red-shouldered Hawk

Remove



3 Red-bellied Woodpecker

Remove



2 Great Crested Flycatcher

Remove

1 Eastern Kingbird

Remove



Time + Date


Spatial Extent

Species information + Associated Media

eBird Data Validation

3:52

Red-headed Woodpecker DONE
Melanerpes erythrocephalus
Infrequent

Number Observed Present  BIRD ID

Details

BREEDING CODE i

1 2 3

4 5 6 Next

7 8 9

3:54

+ Add observation or find species

500	Red-headed Woodpecker o i
+	Hairy Woodpecker o
+	Northern Flicker o
+	American Kestrel o
+	Blue-headed Vireo o
+	Loggerhead Shrike o
+	Bank Swallow o
+	Tree Swallow o
+	Purple Martin o
+	White-breasted Nuthatch o
+	House Wren o

eBird Data Validation

3:50 [Icons]

+ woodpecker [X]

+ Red-bellied Woodpecker
+ Downy Woodpecker
+ Pileated Woodpecker
+ Red-headed Woodpecker [O]
+ Hairy Woodpecker [O]
+ woodpecker sp.
+ Red-cockaded Woodpecker [R] [O]

Can't find your bird?

Please fix the items below

Need Details

1 Red Crossbill *Loxia curvirostra* RARE

Change Species

Media:

Add photos and sounds to your checklist by clicking the green **Submit** button and then **Add media** at the top of the bird list on the next page. [Learn more](#)

Details:

*rare; flyover pair giving soft "dip dip, dip dip" calls. Seen well; reddish finches with heavy, crossed bills, eliminating potential confusion with Purple Finches making "dripping faucet" calls.

Add data...

Age & Sex

Breeding Code

Oiled Birds

Media

Details

This bird is rare for this date & location: please add comments, check 'Complete', and add any photos or sounds after submitting and saving the checklist.

Why?

Complete



eBird Data Validation

Who decides?

Network of volunteer data reviewers!

2,700 reviewers active in 2023

Reviewers are assigned to cover specific localities

Example: Richland County records are reviewed by Dr. John Grego!



Review Observations

Filter List...

84 found (showing 1 - 25) Show 25 per page 1 | 2 | 3 | 4

Select and change... Review decision: Reason: Notes: Change

Submission	Species - Tax/Cat	Note	Count	Date	User	Location	County	St/Prov	Review decision	Status	
<input type="checkbox"/>	S86557517 Scaled Antpitta <i>Grallaria guatemalensis</i>		1	Apr 26, 2021	Sergio Pedrero Villanueva	Rancho Vista Hermosa, San Cristóbal de las Casas, Chiapas, MX (16.73, -92.672)	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S86439458 Scaled Antpitta <i>Grallaria guatemalensis</i>		1	Apr 26, 2021	Daniel Garza Tobón	Rancho Vista Hermosa, San Cristóbal de las Casas, Chiapas, MX (16.73, -92.672)	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S86557517 Gray-cheeked Thrush <i>Catharus minimus</i>		1	Apr 26, 2021	Sergio Pedrero Villanueva	Rancho Vista Hermosa, San Cristóbal de las Casas, Chiapas, MX (16.73, -92.672)	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S86439458 Gray-cheeked Thrush <i>Catharus minimus</i>		1	Apr 26, 2021	Daniel Garza Tobón	Rancho Vista Hermosa, San Cristóbal de las Casas, Chiapas, MX (16.73, -92.672)	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S86436951 Blue-winged Teal <i>Spatula discors</i>		20	Apr 25, 2021	Daniel Garza Tobón	Humedales de Montaña La Kisst, Laguna de Chapultepec y Sedem	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Unreviewed	Filter History
<input type="checkbox"/>	S86304473 Green-backed Sparrow <i>Amemonops chloronotus</i>		3	Apr 24, 2021	Daniel Garza Tobón	Parque Educativo Laguna Bélgica	Ocozocoautla de Espinosa	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S86201016 Happy Wren <i>Pheugopedius felix</i>		2	Apr 23, 2021	MIGUEL GARCIA CRUZ	Área de Protección de Flora y Fauna Nahá	Ocosingo	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85910876 Mealy Parrot <i>Amazona farina</i>		1500	Apr 19, 2021	Iris Melgar Martínez	Centro Ecológico Tres Lagunas	Ocosingo	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85910876 Eye-ringed Flatbill <i>Rhynchocyclus brevirostris</i>		15	Apr 19, 2021	Iris Melgar Martínez	Centro Ecológico Tres Lagunas	Ocosingo	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85561130 Bar-winged Oriole <i>Icterus maculialatus</i>		2	Apr 14, 2021	MIGUEL GARCIA CRUZ	Área de Protección de Flora y Fauna Nahá	Ocosingo	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85237147 Sora <i>Porzana carolina</i>		2	Apr 10, 2021	Luz Rodríguez Parga	Humedales de Montaña La Kisst, Laguna de Chapultepec y Sedem	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85438309 Rufous-tailed Hummingbird <i>Amazilia tzacati</i>		1	Apr 10, 2021	José santos zuniga sanchez	Cascadas El Chiflón	Tzimizol	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85247550 Sora <i>Porzana carolina</i>		1	Apr 10, 2021	Karina Andrea Vázquez Morales	423 Boulevard Juan Sabinés, San Cristóbal de las Casas, Chiapas, MX (16.732, -92.645)	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Unreviewed	Filter History
<input type="checkbox"/>	S85278480 Sora <i>Porzana carolina</i>		2	Apr 10, 2021	Atzin Campos	Calle Hermanos Domínguez, San Cristóbal de las Casas MX-CHIS 16.73441, -92.63984	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85775204 Sora <i>Porzana carolina</i>		2	Apr 10, 2021	Luz Rodríguez Parga	Calle Hermanos Domínguez, San Cristóbal de las Casas MX-CHIS 16.73441, -92.63984	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History
<input type="checkbox"/>	S85283429 Sora <i>Porzana carolina</i>		2	Apr 10, 2021	Jessica Thompson	Calle Hermanos Domínguez, San Cristóbal de las Casas MX-CHIS 16.73441, -92.63984	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Unreviewed	Filter History
<input type="checkbox"/>	S85900966 Sora <i>Porzana carolina</i>		2	Apr 10, 2021	DIEGO MANZANO MENDEZ	Calle Hermanos Domínguez, San Cristóbal de las Casas MX-CHIS 16.73441, -92.63984	San Cristóbal de las Casas	CHP (MX)	Unconfirmed	Rereview	Filter History

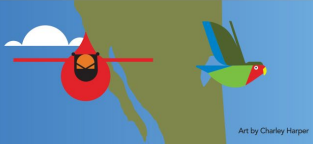
eBird Features for Users

The Cornell Lab

Audubon

BIRDS CANADA
OISEAUX CANADA

The Great Backyard
Bird Count



Art by Charley Harper



LIST: World All years All species

My eBird Download (csv)

World Life List

321 Species Observed Detailed stats

First seen Last seen Updated 13 sec ago. Date: Newest First

	DATE	LOCATION	
NATIVE, NATURALIZED, OR PROVISIONAL			
321. Eastern Whip-poor-will	11 May 2024	Screaming Eagle Rd US-SC	View All
320. Horned Lark	11 May 2024	Orangeburg Sod Farms (Please Stay on Roads) US-SC	View All
319. Pectoral Sandpiper	11 May 2024	Orangeburg Sod Farms (Please Stay on Roads) US-SC	View All

My Trip Reports Previous

Global Big Day 2024

11 May 2024 Link only

South Carolina, United States
Calhoun | Charleston | Colleton | Orangeburg | Richland

Grant Foster Share Edit

Narrative
Owners and editors of a Trip Report may write a narrative.
[Add narrative](#)

130 Species Observed
+1 other taxa

14 Checklists

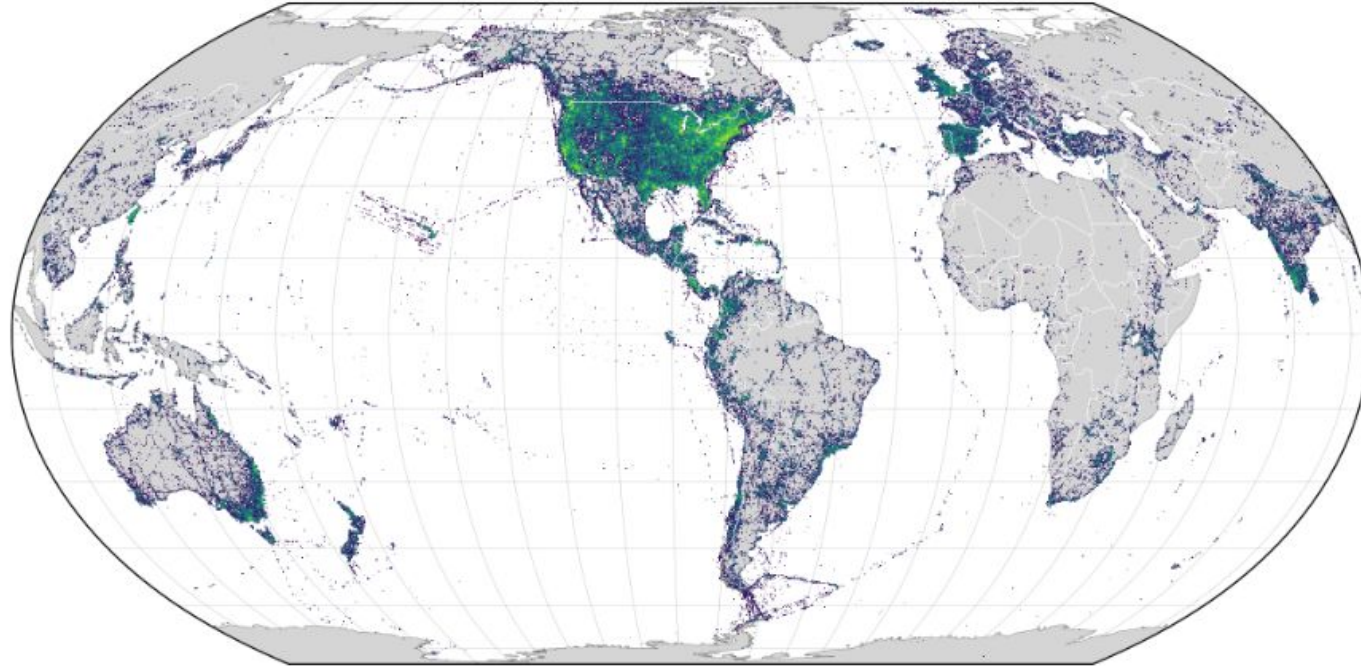
LIFERS 30

Species Observed

Show all details

- 27 Black-bellied Whistling-Duck
- 4 Canada Goose
- 1 Wood Duck
- 5 Blue-winged Teal

eBird Limitations



eBird effort hours per 25 km grid cell (complete checklists)



Figure 1. Cumulative duration of eBird complete checklists aggregated within 25 x 25 km grid cells. These aggregations are from eBird data submitted up to the end of Dec 2018.

Sampling biases

Reliant on
volunteer
network of local
experts

Requires ID skills

AI tools may
increase data
quantity, but may
reduce quality
(without careful
implementation)

Merlin: AI-Powered Avian Audio ID



How are these data being used?

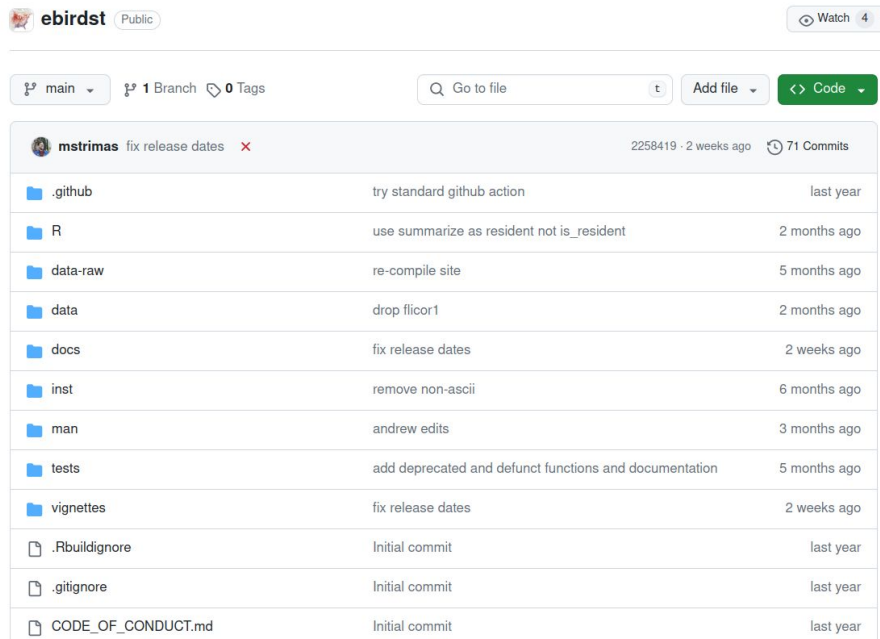
eBird Data has been cited in over 930 peer-reviewed publications

10,000+ peer reviewed papers have been published using GBIF

iNaturalist and eBird are both major data contributors

Both can be downloaded directly

Cornell Lab publishes Status and Trends data products. Accessible through download or API call, including through the R package `ebirdst` available on CRAN



The screenshot shows the GitHub interface for the `ebirdst` repository. The repository is public and has 71 commits. The commit history is as follows:

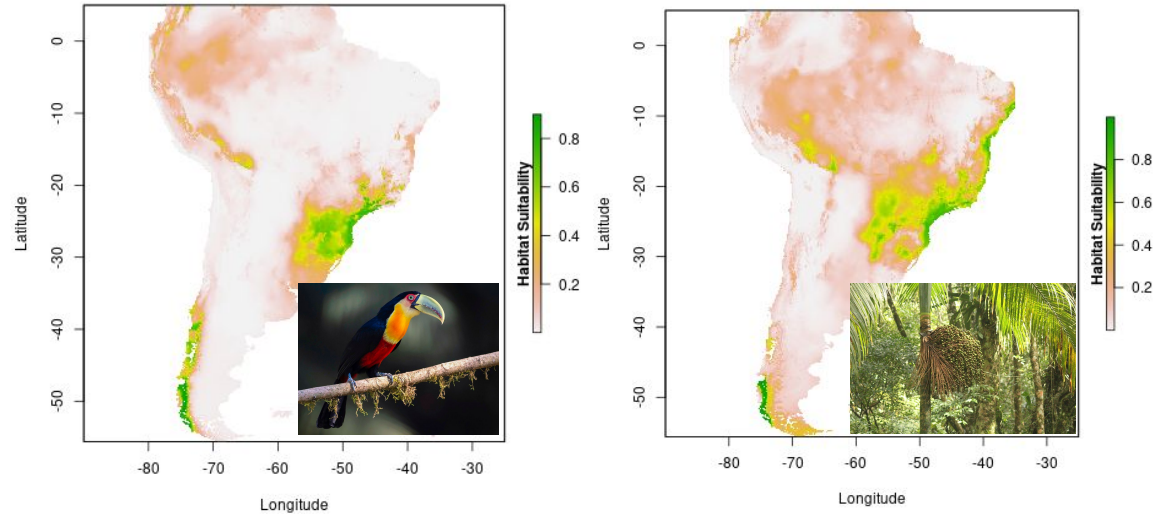
Commit	Message	Time
mstrimas	fix release dates	2 weeks ago
	try standard github action	last year
	use summarize as resident not is_resident	2 months ago
	re-compile site	5 months ago
	drop flicor1	2 months ago
	fix release dates	2 weeks ago
	remove non-ascii	6 months ago
	andrew edits	3 months ago
	add deprecated and defunct functions and documentation	5 months ago
	fix release dates	2 weeks ago
	Initial commit	last year
	Initial commit	last year
	Initial commit	last year

What types of questions are these data useful for?

Both to an extent “use agnostic”
models (Wiersma, 2023)

Volume of data is enormous!

Ex. Incredibly useful for
training Species Distribution
Models



What types of questions are these data useful for?

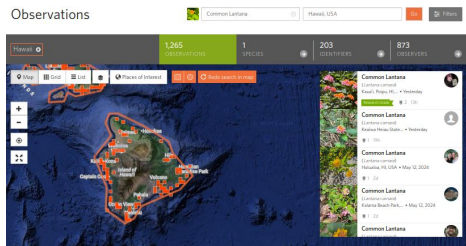
Both to an extent “use agnostic” models (Wiersma, 2023)

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Rapid data collection

Ex. Tracking range shifts/spread of invasive species



Diversity and Distributions
Open Access

A Journal of
Conservation
Biogeography

RESEARCH ARTICLE | [Open Access](#) |

Citizen science can complement professional invasive plant surveys and improve estimates of suitable habitat

Monica Dimson Lucas Berio Fortini, Morgan W. Tingley, Thomas W. Gillespie

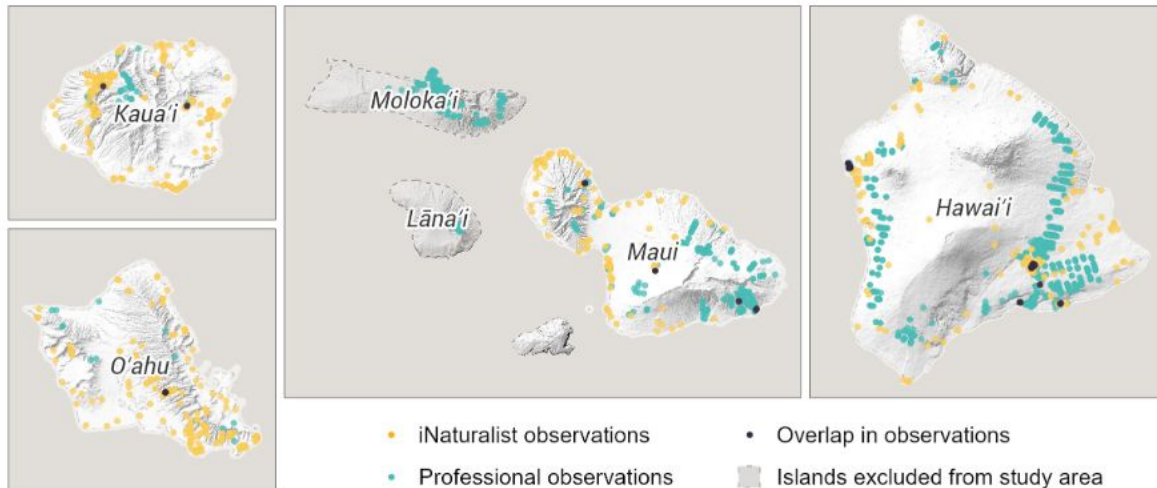


FIGURE 1 Distribution of iNaturalist and professional agency observations for *Hedychium gardnerianum*, *Lantana camara*, *Leucaena leucocephala* and *Psidium cattleianum* (map projection: Universal Transverse Mercator Zone 4N; Kaua'i, O'ahu, and Maui scale 1:1900000; Hawaii'i scale 1:2900000).

What types of questions are these data useful for?

Both to an extent “use agnostic” models (Wiersma, 2023)

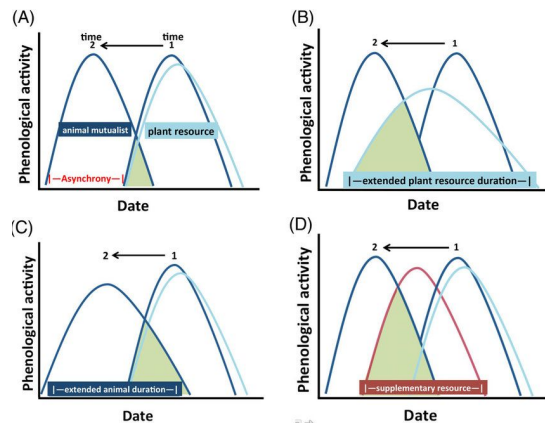
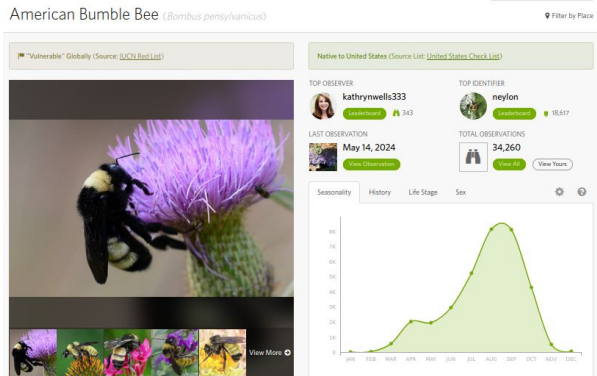
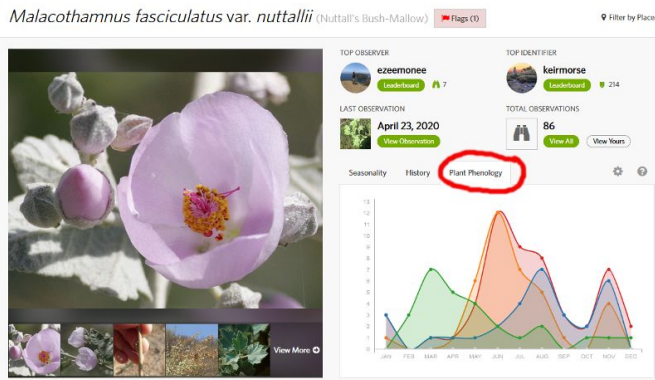
Volume of data is enormous!

Ex. Incredibly useful for training Species Distribution Models

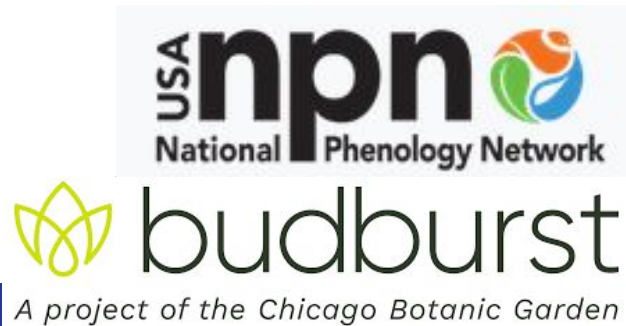
Rapid data collection

Ex. Tracking range shifts/spread of invasive species

Capture phenological & geographical shifts



Olliff Yang et al., 2020



What types of questions are these data useful for?

Both to an extent “use agnostic” models (Wiersma, 2023)

Volume of data is enormous!

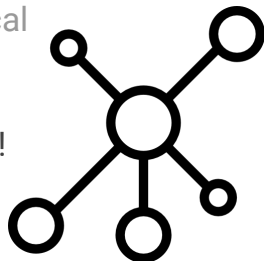
Ex. Incredibly useful for training Species Distribution Models

Rapid data collection

Ex. Tracking range shifts/spread of invasive species

Capture phenological & geographical shifts

Other potential uses/data scraping!



Red-breasted Toucan (*Ramphastos dicolorus*) Research Grade Follow

agujaceratops
22,518 observations

Observed: Apr 25, 2024 - 3:43 PM -03:00
Submitted: Apr 25, 2024 - 9:07 PM EDT

Map Satellite
Aguas Mornas - State of Santa Ca... Show Details

Be the first to save this observation!

Activity

- agujaceratops** suggested an ID Improving 19d
 Red-breasted Toucan *Ramphastos dicolorus* Compare Agree
- enicostosto96** suggested an ID 19d
 Red-breasted Toucan

Community Taxon What's this?

Red-breasted Toucan (*Ramphastos dicolorus*)
Cumulative IDs: 4 of 4

0 2/3rds 4

Agree Compare About

Citizen Science is a Tool for Outreach & Empowerment

Increase Public Engagement

Empower local communities

Support Conservation



Limitations

Data make abundance estimation difficult

Things like ebird's quantification of effort help, but still need to account for biases & detection probability

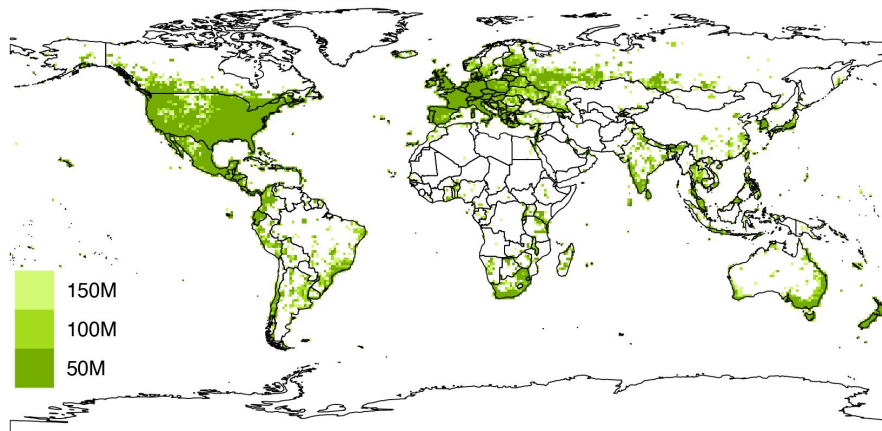
Spatial/taxonomic biases mean we have to interpolate a lot in some places/times

Diversity is often low in citizen science spaces

Allf et al. (2022) found that members of US citizen science projects were 8x more likely to be white and 5x more likely to hold advanced degrees than the general populace

Need to create inclusive spaces and encourage community-level participation

Cells with at least 1,000 Observations

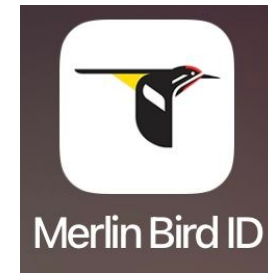


Whose 'Inclusive Conservation'?

Policy Brief of the ICCA Consortium ss. 4 No. 5

Task led by Catherine March-ONGENIE, and the consultancy support of Sandilands
Series Sponsors: The Christensen Fund and UNDP-GEF SGP





Citations

Thigpen, CL and Funk, C. 2020. *Younger, more educated U.S. adults are more likely to take part in citizen science research*. Washington, DC: Pew Research Center

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iNaturalist (2024). Available from <https://www.inaturalist.org>. [9 May 2024]

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Johnston, A., Hochachka, W. M., Strimas-Mackey, M. E., Ruiz Gutierrez, V., Robinson, O. J., Miller, E. T., ... & Fink, D. (2021). Analytical guidelines to increase the value of community science data: An example using eBird data to estimate species distributions. *Diversity and Distributions*, 27(7), 1265-1277.

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