



# POLLINATOR WEEK 2023-

# POLLINATOR BIOBLITZ TOOLKIT



Photo of Wilke's Mining Bee (*Andrena wilkella*) by @cindilou on iNaturalist

## About National Pollinator Week

Pollinator Week is an annual event celebrated internationally in support of pollinators. Every year, an iNaturalist community science bioblitz project is hosted by the North American Pollinator Protection Campaign's (NAPPC) Pollinator Communications Taskforce. Everyone is welcome to join this year's project to help collect data on the abundance and distribution of pollinators across the US, Canada, and Mexico during Pollinator Week, June 19-25, 2023.

To contribute to the Pollinator Week Bioblitz, use iNaturalist to upload your pollinator observations. Pollinators are animals that move pollen from the male parts of flowers to the female parts, facilitating plant reproduction. Pollinators typically rely on the plants they visit for food - consuming pollen and/or nectar. The majority of plants on earth, including many of our food plants, rely on animal pollination to reproduce. Pollinators include many types of animals such as ants, bats, bees, beetles, butterflies, flies, hummingbirds, moths, and wasps. Some small mammals are also important pollinators in certain habitats.

You can use this toolkit to help pollinator researchers better understand pollinator abundance and diversity by joining the Pollinator Week Bioblitz project in iNaturalist and contributing your observations. Your contributions will help scientists protect and conserve our incredibly valuable community of North American pollinators.



# TABLE OF CONTENTS



Bicolored Striped Sweat bee (*Agapostemon virescens*) by @heytxexas on iNaturalist



Fiery skipper (*Hylephila phyleus*) by @pollinatorweb on iNaturalist

What is the Bioblitz?	4
How to use iNaturalist	5
How to join the Bioblitz?	6
How to upload from a computer	7-8
How to upload from iPhone	9-11
How to upload from Android	12-14
Taking pictures of Pollinators	15-16
Using Seek	17
FAQs	18



# WHAT IS THE BIOBLITZ AND WHY IS COMMUNITY SCIENCE IMPORTANT?



Community science can advance scientific knowledge and foster public engagement. By involving individuals from diverse backgrounds, community science projects enable widespread participation in the scientific process, breaking down traditional barriers between scientists and the public. This empowers community members to actively contribute to research and promotes a sense of ownership and understanding of scientific issues.

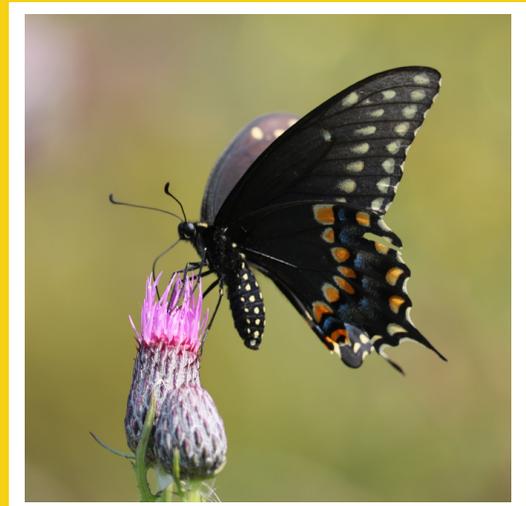
A bioblitz is a period of biological surveying that aims to identify and document as many species as possible within a specific area and defined time frame. During an iNaturalist bioblitz, participants use the iNaturalist app to capture and upload photos of species they encounter during the event. These observations are then shared with the iNaturalist community, allowing experts and peers to assist in species identification. The iNaturalist platform uses image recognition technology and community verification to help identify species and provide accurate information. This collaborative approach promotes community science by engaging a wide range of participants in documenting biodiversity, contributing to scientific research, and creating valuable datasets.



# HOW TO USE INATURALIST

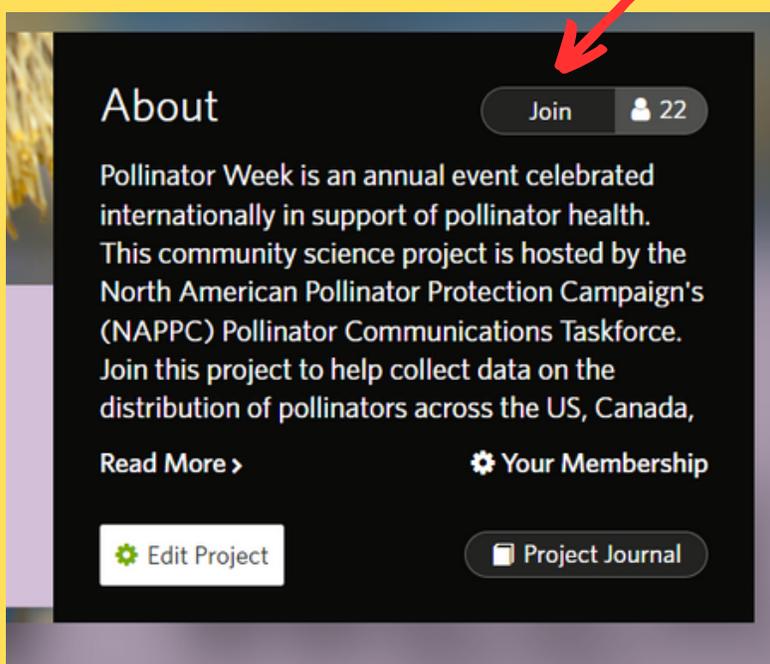
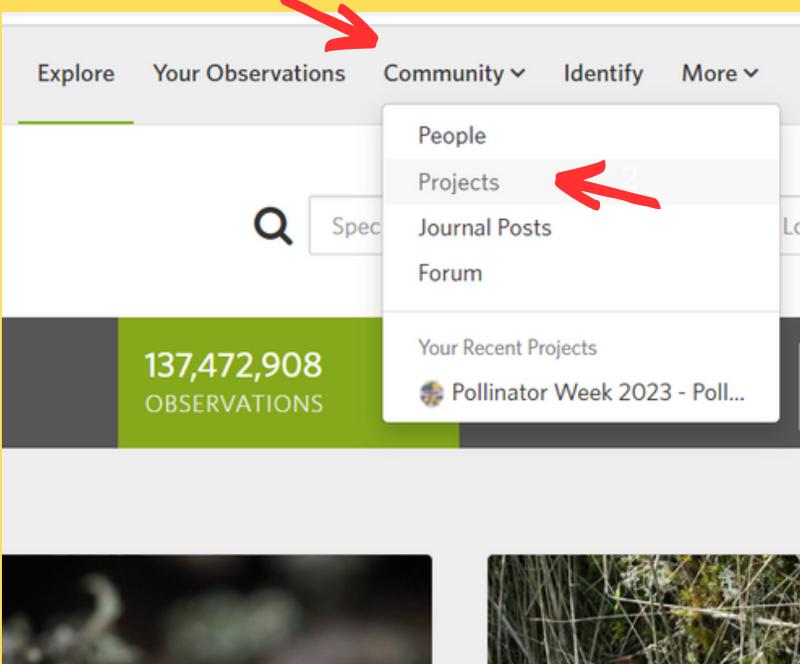
## GETTING STARTED

- Get started by creating your own iNaturalist account
  - Visit iNaturalist.com or download the app on your mobile device to start creating an account.
- Customize your profile to include a profile picture and personal biography so other members of the iNaturalist community can get to know you!
- Further customize your iNaturalist profile so your observations automatically fit your licensing and privacy preferences.
  - Consider leaving licensing at the default settings or a license that allows your observations to aggregate to the Global Biodiversity Information Facility (GBIF) where researchers can monitor pollinator populations from thousands of data sources across the globe.
  - Leaving location settings at open or obscure rather than private allows for increased possibilities for iNaturalist identifiers to see and accurately ID your pollinator photos.
- Start snapping photos of any pollinators you see and uploading them as observations to iNaturalist.
  - Check on the identification status of your observations and see if they've reached Research Grade.
- Follow other iNaturalist users and join the Pollinator Week 2023-Pollinator Bioblitz and many other great projects!



Black Swallowtail (*Papilio polyxenes*)  
by @dadorsen on iNaturalist

# HOW TO JOIN THE BIOBLITZ



## JOIN THE BIOBLITZ

1. To join the Pollinator Week 2023 Bioblitz and other iNaturalist projects on your computer or desktop, navigate to the "Community" tab and select "Projects". Here you can search for the Pollinator Week 2023 - Pollinator Bioblitz
2. Once you're on the project page click the "Join" icon in the top right corner.

Congratulations! You've just joined the Pollinator Week 2023 - Pollinator Bioblitz Project!



## HOW WILL YOUR PHOTOS WILL BE INCLUDED IN THE BIOBLITZ?

All pollinator photos that fall under the projects accepted taxa (i.e Bees, Wasps, Bats, Butterflies, Moths, Hoverflies, and Hummingbirds) submitted by project members and the iNaturalist community will automatically be included in the project.

Scan the QR code here to be taken to the Pollinator Week 2023- Pollinator Bioblitz!



# HOW TO UPLOAD FROM A COMPUTER

**1** Start by clicking on the green "Upload" icon in the upper right corner of your home page

**2** Drag and drop your photo(s) or choose them from your files to begin an observation

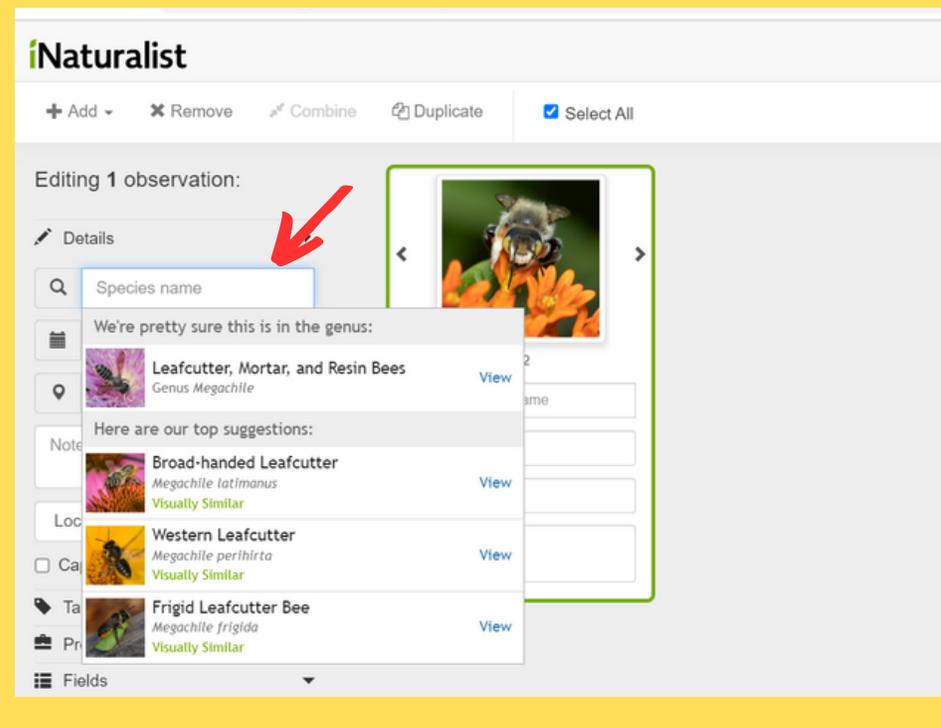
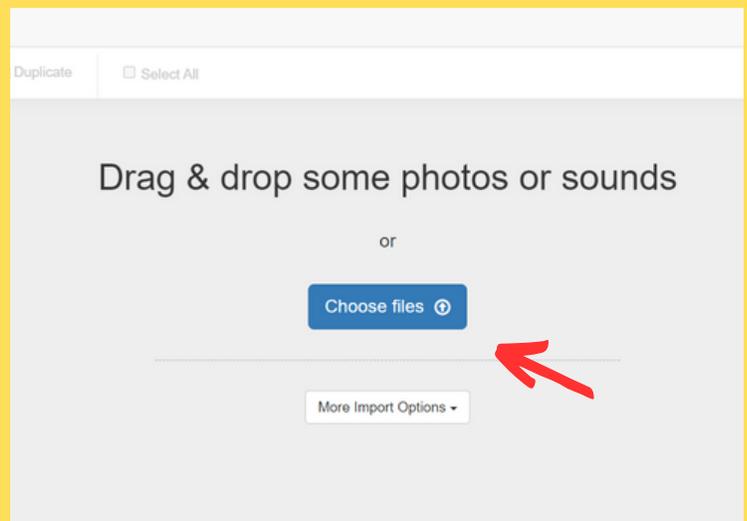
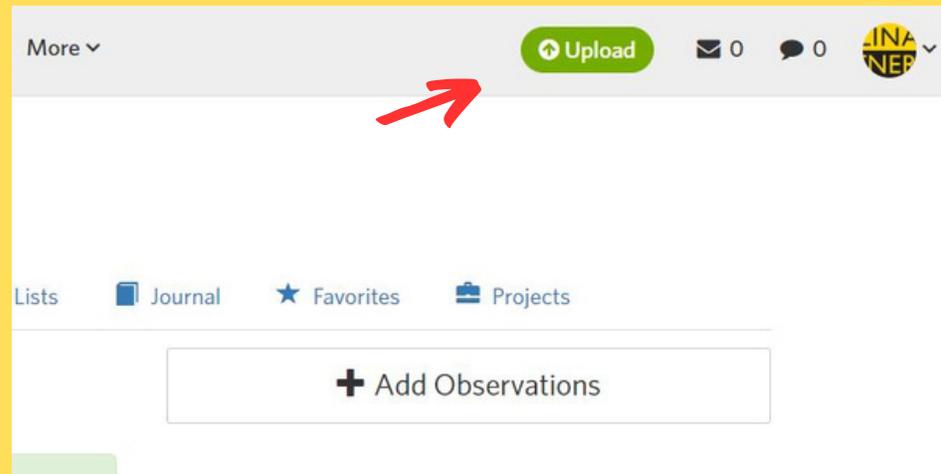
\*Be sure to upload only one observation per individual pollinator

\*You can add up to 4 photos for an individual during each observation

\*Feel free to include photos of the pollinator with different floral interactions in your 4 photos per observation, however, any additional interactions can be considered in the notes section.

**3** Click the "Species name" box to suggest your own identification of your pollinator photo or select iNaturalist's species suggestion.

\*Not sure what pollinator species you've captured? No problem! Leave the observation to the highest taxonomic level your comfortable with (i.e flies, beetles, *Bombus*, etc.)



# HOW TO UPLOAD FROM A COMPUTER

**3** Add the date of your observation if your photo does not automatically do so

\*The date is important if you'd like your observation to be included in the Pollinator Week Bioblitz project

**5** You can also leave any additional information that you'd like to include about your observation in the "Notes" box

Editing 1 observation:

Details

Species name

Date

Location

Notes

Location is public

Captive / Cultivated

**4** Next, add the location of your observation to help the iNaturalist community identify your observation more accurately and track species distributions

**6** Choose your location privacy settings  
\*Consider avoiding private locations as this may make identification of your observation more difficult

\*At a public location, like a park? Choose public. At home and don't want the exact location pinned? Choose obscured.

**7** Bonus! Click on the "Fields" tab and type in "interaction->Visited flower of" to include information about the floral species in your photo

**8** When your observation is ready, click the green icon in the top right corner of the screen to submit your observation!

Species name

Date

Location

Notes

Location is public

Location is obscured

Location is private

Editing 1 observation:

Details

Tags

Projects

Fields

Add a Field

Interaction->Visited flower of

Asclepias tuberosa

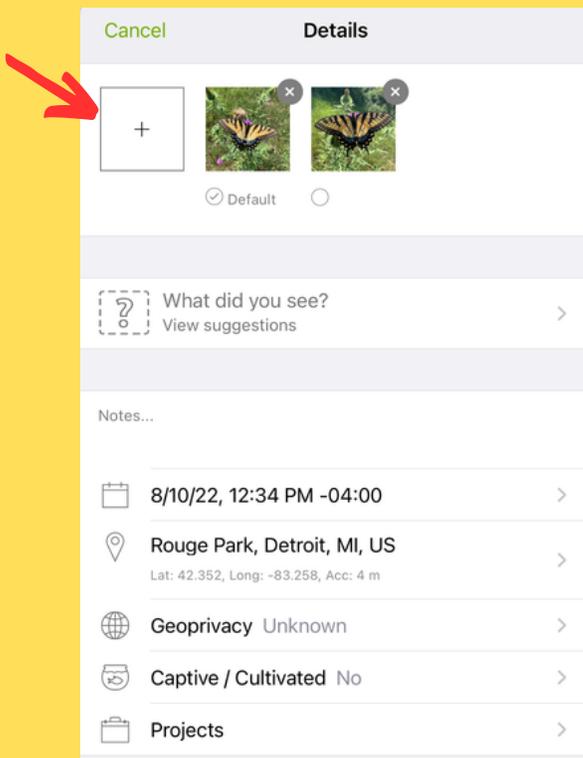
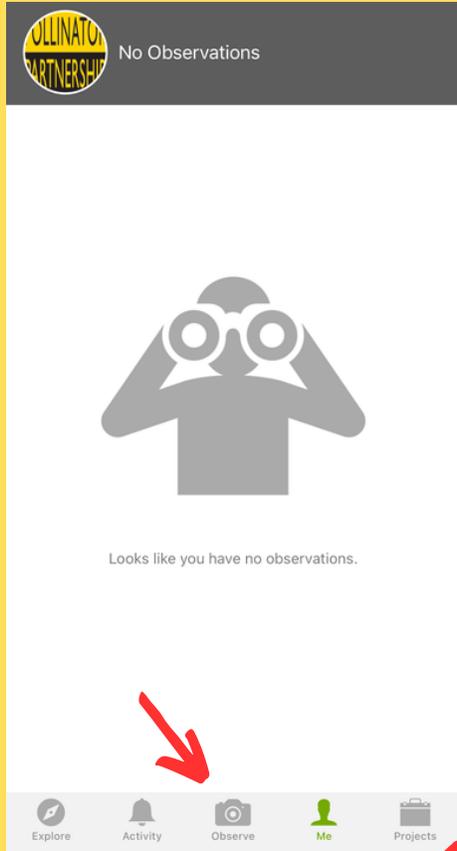
Butterfly Milkweed (Asclepias tuberosa)

Asclepias tuberosa interior

pollinatorpartnership

Submit 1 observation

# HOW TO UPLOAD FROM AN IPHONE



**1** To start an observation, navigate to the bottom of the home page and click on the camera icon

\*You can also see a list of your previous observations on this page

**2** Next, select the photo library icon to choose from photos in your camera roll to start your observation OR select the camera icon to take a picture directly from the app.

**3** Further refine your photo selection by deleting or adding photos here.

\*Be sure to upload only one observation per individual pollinator

\*You can add up to 4 photos for an individual during each observation

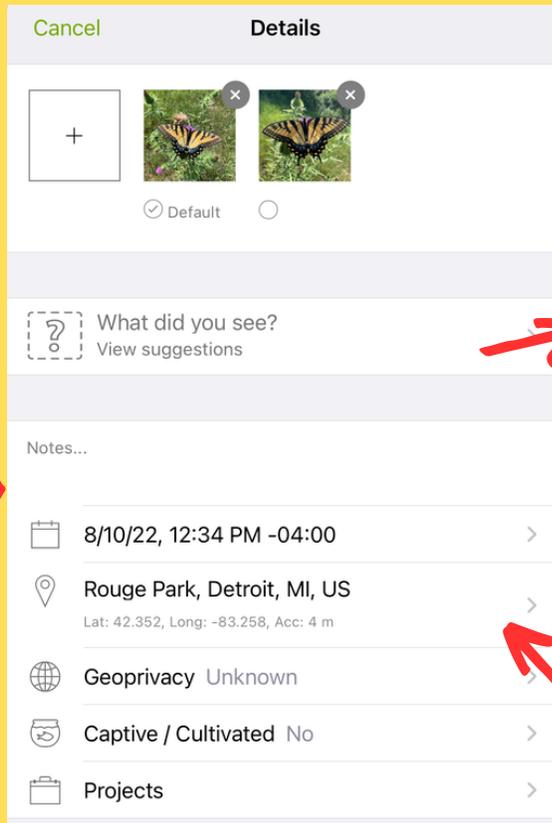
\*Feel free to include photos of the pollinator with different floral interactions in your 4 photos per observation, however, any additional interactions can be considered in the notes section.

# HOW TO UPLOAD FROM AN IPHONE

4

Select the "What did you see?" box to suggest your own identification of your pollinator photo or select iNaturalist's species suggestion.

\*Not sure what pollinator species you've captured? No problem! Leave your ID to the highest taxonomic level your comfortable with (i.e flies, beetles, Bombus, etc.)



5

You can also leave any additional information that you'd like to include about your observation in the "Notes" box

6

Add the date and location of your observation to help the iNaturalist community identify your observation more accurately and inform on species ranges

\*Photos captured on your iPhone will likely automatically include this information when uploaded in iNaturalist

7

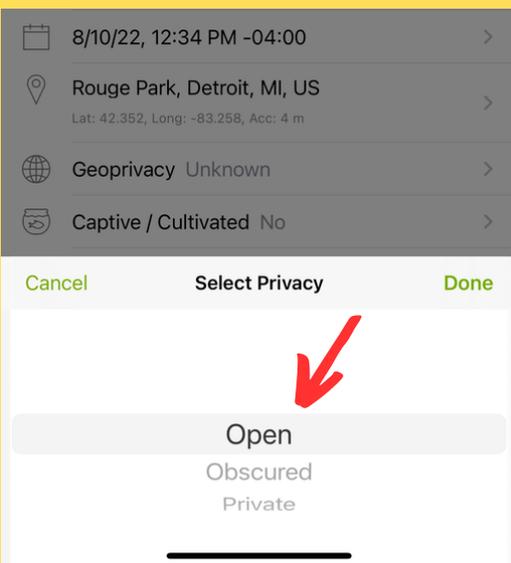
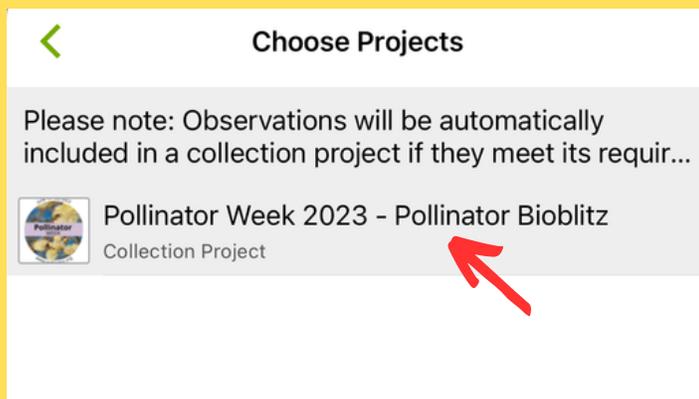
Choose your location privacy settings in the "Geoprivacy" box

\*Consider avoiding private locations as this may make identification of your observation more difficult

\*At a public location, like a park? Choose public. At home and don't want the exact location pinned? Choose obscured.

8

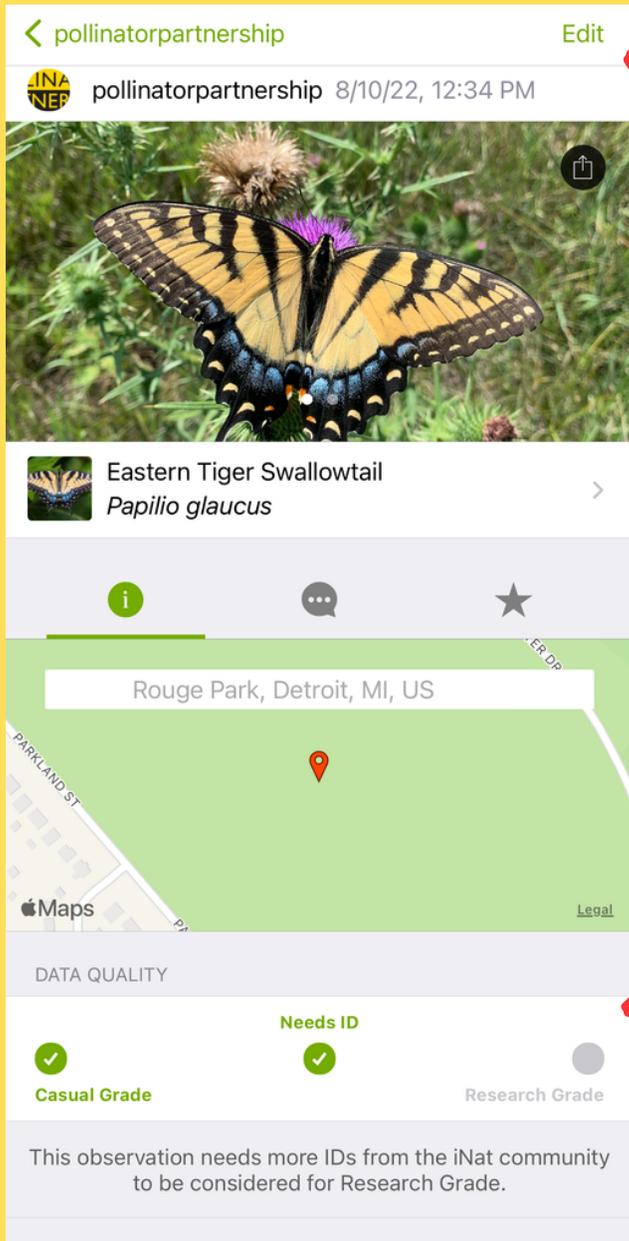
You can manually add your observation to the Pollinator Week 2023-Pollinator Bioblitz in the "Projects" box but this is not necessary if you've already joined the project



# HOW TO UPLOAD FROM IPHONE



- 9 When your observation is ready, click the green "share" icon at the bottom of your screen to submit your observation!



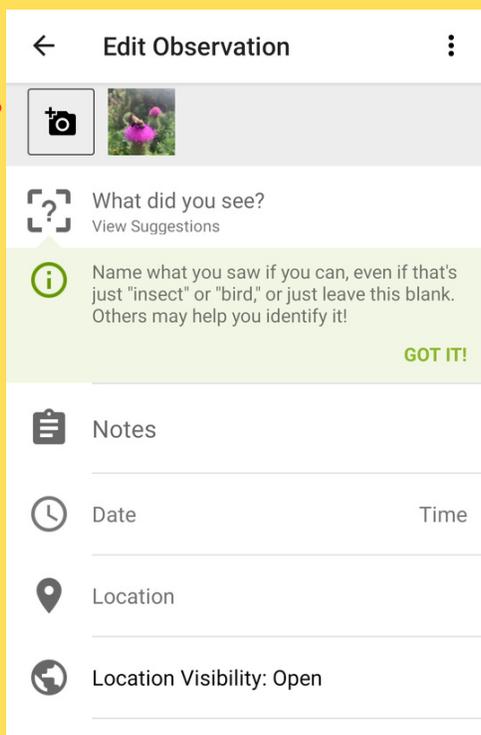
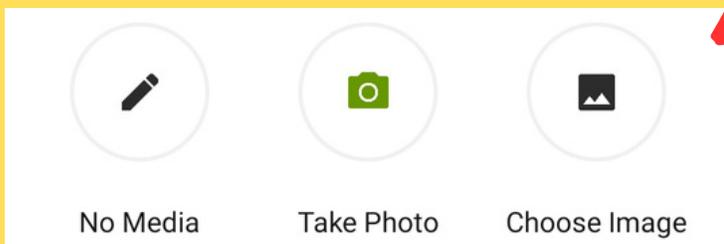
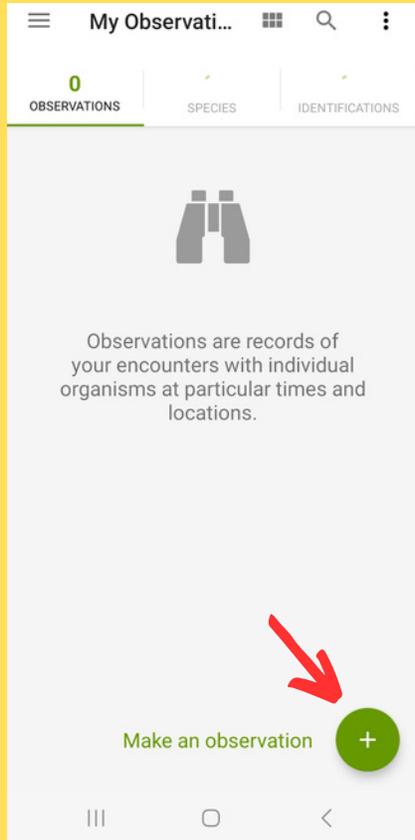
Once your observation is shared you can make any further edits by selecting the "Edit" icon in the top right corner of your screen

**Congratulations! You've just submitted an observation to iNaturalist for the Pollinator Week 2023-Pollinator Bioblitz!**

Stay tuned to see if/when your observation has been identified by other members of the iNaturalist community and has moved to "Research Grade" status



# HOW TO UPLOAD FROM AN ANDROID



**1** To start an observation, navigate to the bottom right corner of the home page and click the "+" icon

\*You can also see a list of your previous observations on this page

**2** Next, select the "Choose Image" icon to select from photos in your camera roll OR select the "Take Photo" icon to take a picture directly from the app

**3** Further refine your photo selection by deleting or adding photos here

\*Be sure to upload only one observation per individual pollinator

\*You can add up to 4 photos for an individual during each observation

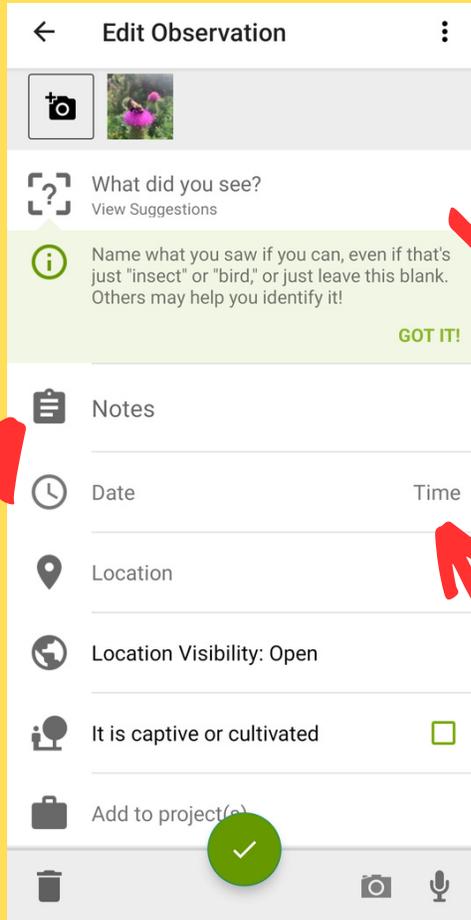
\*Feel free to include photos of the pollinator with different floral interactions in your 4 photos per observation, however, any additional interactions can be considered in the notes section.

# HOW TO UPLOAD FROM AN ANDROID

4

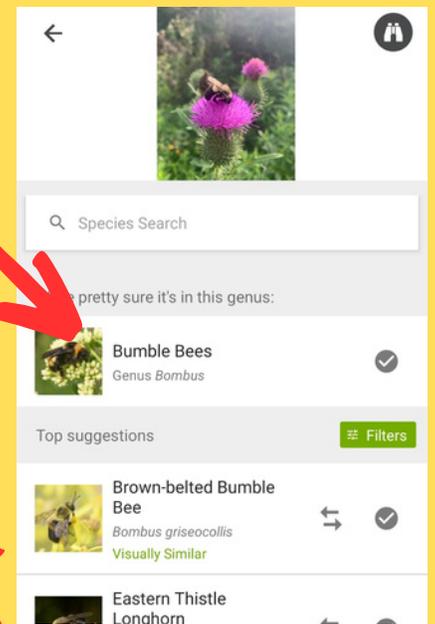
Select the "What did you see?" box to suggest your own identification of your pollinator photo or select iNaturalist's species suggestion

\*Not sure what pollinator species you've captured? No problem! Leave your ID to the highest taxonomic level your comfortable with (i.e flies, beetles, Bombus, etc.)



5

You can also leave any additional information that you'd like to include about your observation in the "notes" box



6

Next, add the date and location of your observation to help the iNaturalist community identify your observation more accurately and inform on species ranges

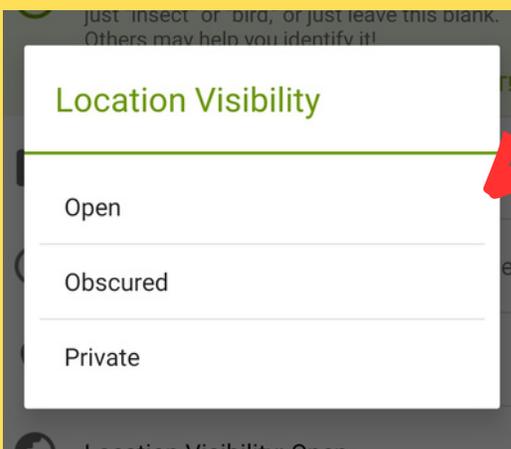
\*Photos captured on your smartphone will likely automatically include this information when uploaded in iNaturalist

7

Choose your location privacy settings in the "Geoprivacy" box

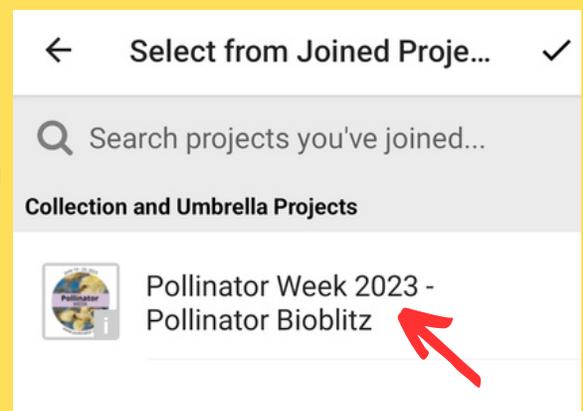
\*Consider avoiding private locations as this may make identification of your observation more difficult

\*At a public location, like a park? Choose public. At home and don't want the exact location pinned? Choose obscured.

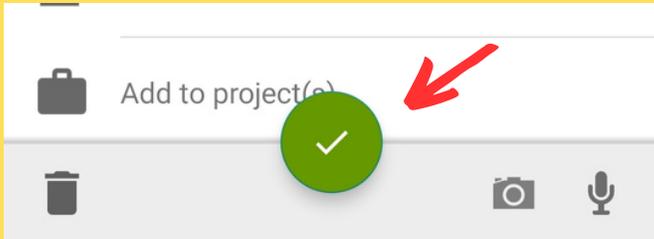


8

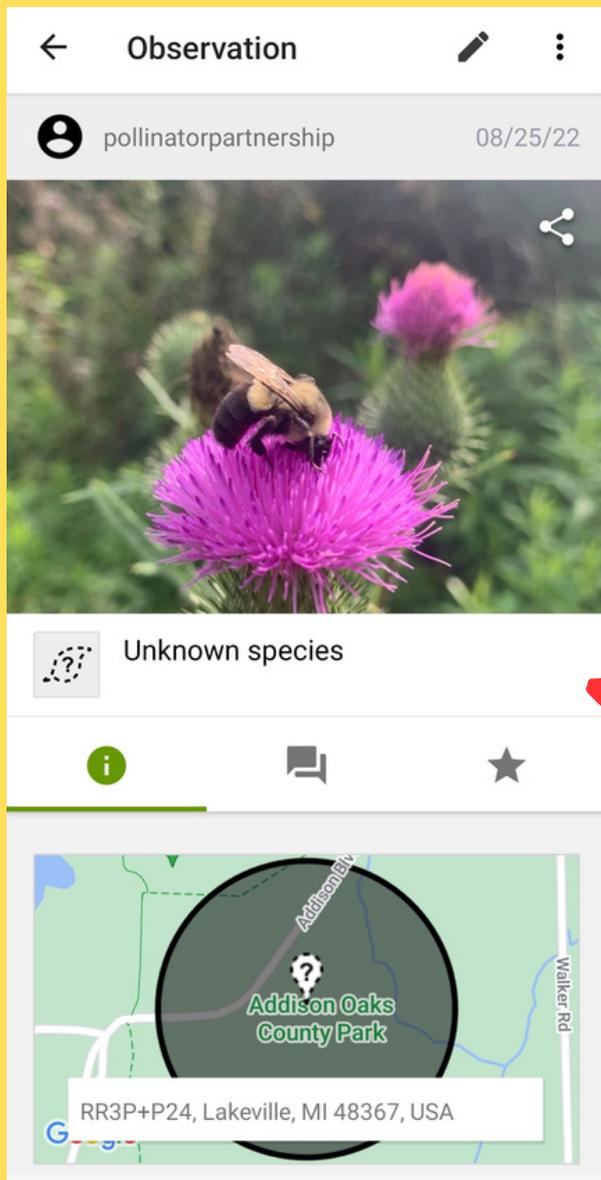
You can manually add your observation to the Pollinator week 2023-Pollinator Bioblitz in the "Add to projects" box but this is not necessary if you've already joined the project



# HOW TO UPLOAD FROM ANDROID



- 9 When your observation is ready, click the green " " icon at the bottom of your screen to submit your observation! ✓



Once your observation is shared you can make any further edits by selecting the pencil icon in the top right corner of your screen

**Congratulations! You've just submitted an observation to iNaturalist for the Pollinator Week 2023-Pollinator Bioblitz!**

Stay tuned to see if/when your observation has been identified by other members of the iNaturalist community and has moved to "Research Grade" status



# HOW TO CAPTURE POLLINATORS



Bicolored Striped Sweat Bee (*Agapostemon virescens*) by @lotusblossom02 on iNaturalist

Taking clear photos will greatly help you and scientists with identification on iNaturalist, especially of pollinators. Since many pollinators are flying insects, taking photos can be tricky. Here are some tips to help you capture the best photos for the Bioblitz:

**1. Approach slowly-** Take many pictures as you slowly approach the pollinator. Better yet, use a long lens at a distance so you don't scare away the organism. Practice patience to allow the pollinator to acclimate to your presence.

**2. Macrolens-** You can create your own macro lens by holding up a magnifying glass to your phone camera to simulate the long lens.

**3. Shadow-** Try not to let your shadow cover the pollinator. Notice the direction of where the sun is coming from and make sure you won't block the sun from your subject.



Red-belted Bumble Bee (*Bombus rufocinctus*) by @leisah on iNaturalist



@kngojewski on iNaturalist

**4. Focus-** When photographing pollinators, you want the entire organism to be in focus. You can experiment with increasing the aperture, or f-stop, until all of your subject is in focus. Try to also position yourself on the same plane as the pollinator. E.g. if an insect pollinator is on a flower- get low to the ground and move horizontally around the flower so the insect remains in focus while you take multiple photos.

**5. Shutter Speed-** Use a fast shutter speed or just your phone camera (instant capture).

**6. Angles-** Take photos from different angles. You can upload multiple photos of the same organism for a more accurate identification. For bees and flies, a side, face and wing photo are most useful so that the head and abdomen are visible. For butterflies, the underwing is most useful for identification while it is the top side for moths. Try to get photos of both angles for the best chances of identification.

# PHOTO EXAMPLES

When taking your photos, it is helpful to understand how scientists identify species. This is especially important for insect pollinators which are diverse and numerous. For many insect pollinators, you can help the iNaturalist community identify the animal in your observation by getting clear images of the eyes, wings, and body shape. If you can, take a photo from the side and from above. Especially for bees, beetles, and butterflies, try to capture any color patterning on their abdomen or wings. Antenna shape is another important feature that can be helpful in identifying insects, especially beetles. When uploading an observation, iNaturalist will ask for your ideas on what you saw and also offer suggestions. Knowing broadly what type of insect you've observed can be helpful in narrowing the search. There are several groups of insects that can be easy to mix up - especially because they sometimes mimic each other! Here are some quick ways to help ID your insect to Order:



Large-tailed Aphideater (*Eupeodes volucris*) by @stinglessbee on iNaturalist



From left to right: fly wings and bee wings from beespotter.org (left image).

Milwaukee Mining Bee (*Andrena milwaukeensis*) by @nbdragonflyguy on iNaturalist (right image)



Western Tiger Swallowtail (*Papilio rutulus*) by @hannawacker on iNaturalist

## Flies (Diptera)

Most importantly, flies have only two wings. They also generally have short, stubby antennae very close to their large eyes. Fly mouthparts are adapted for sucking, so they will have much smaller mandibles than bees and wasps. Hoverflies (Syrphidae) tend to mimic bee color patterns and often have black and yellow stripes. There are also some robber flies (Asilidae) that mimic bumblebees with black and yellow fuzz.

## Bees and Wasps (Hymenoptera)

Bees and wasps have 4 wings and tend to have elbowed antennae. Bees tend to have stout bodies with fuzzy hairs used for collecting pollen. Wasps tend to be slender and hairless. Both can have striped patterning on their bodies.

## Butterflies and Moths (Lepidoptera)

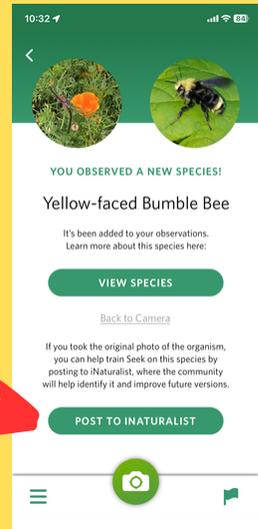
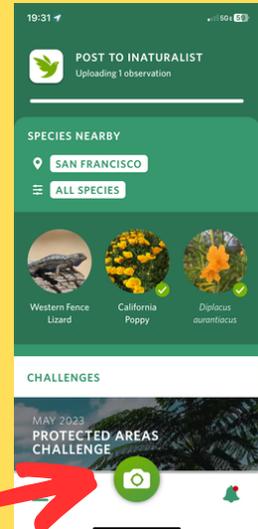
Butterflies and moths have 4 large wings. Butterflies tend to fly during the day and land with their wings folded vertically. They also tend to have slender, clubbed antennae. Moths tend to fly at night, have more fuzz on their bodies, and land with their wings folded horizontally. Male moths tend to have branched, feathery antennae used for picking up chemical signals.

# USING SEEK



Seek is an image recognition tool from iNaturalist designed to help users identify organisms around them in real-time using just their phone cameras. It's a great way to post to iNaturalist, especially if you don't have much experience with identification or you are simply curious! If you connect your Seek app with iNaturalist, you can then post your observations directly from Seek and these observations will automatically be uploaded to the Bioblitz. How does it work?

1. Download the Seek app from the app store on your smartphone
2. Open up the app and hit the camera button at the bottom
3. You can upload a photo from your device or use the built-in camera. You will not be able to use the real-time identification if you upload a photo.
4. With the built-in camera, you can move the camera around the organism and watch the identification happen on-screen. The more you move around the organism with more angles, the more the app will offer taxonomic suggestions on the ID meter.
5. Don't get to the species level? That's ok! If the app gets stuck at the Order, Family or Genus level, you can still snap a picture. On the next screen, you will be able to search through "Species nearby in this taxon" to assist you with further identification.
6. Seek is best at identifying common wild species. If Seek cannot identify the organism this probably means there isn't much data available from iNaturalist. In this case, you can still post the photo to iNaturalist where the community of experts will work together to confirm the species!



# FAQs

## How do I check if my photo has been identified?

You can navigate back to your observations to check for identifications at any time. Updates from the iNaturalist community will be listed under your observation. Here, you can see what species identifications others have suggested or disagreed with. You can also turn on notifications in your account settings so that you receive live updates via email or ribbon notifications.

## How do I check my notifications?

To check notifications on your desktop, navigate to your profile's dashboard and click on the "home" tab. Here you can view all updates regarding your observations under the "All Updates" tab. To check notifications on your mobile device navigate to the "Activity" icon at the bottom of your screen (This icon may vary depending on your smartphone).

## What location privacy options do I have?

You can choose to set your observation's location privacy to either "open", "obscured", or "private". Private location settings exclude your observation from location searches and may make it more difficult for your observation to be identified. Obscured locations will randomly select your observation's location within a 400 square meter area around its original location. All vulnerable taxa automatically have their locations obscured by iNaturalist.

## What if I don't know what species my pollinator is?

No problem! iNaturalist can suggest an identification for you. Browse iNaturalist's suggestions by clicking on the "Species Name" box on your internet browser or the "What did you see" box on your mobile device. While these suggestions can be accurate they are not always correct; therefore, we suggest leaving your identification suggestion to the highest taxonomic level you're comfortable with ( i.e bees, flies, butterflies, *Bombus*, etc.)

## What will the bioblitz be used for?

Data from the Bioblitz is open to the public so anyone can use this data for their own projects and research endeavors. As data from the Bioblitz grows over the years, NAPPC plans to aggregate our findings and publish notable trends, patterns and observations. Multiple years of Bioblitz data has great potential for us to monitor pollinator populations over time and how they change.

