Biodiversity Ambassadors Program Guide:

What is Biodiversity Ambassadors? Biodiversity ambassadors is a new volunteer program where interested volunteers like you will use iNaturalist to document the different plants, animals, and fungi on properties owned and managed by the 300 Committee. It is currently set to run from March to June 2025. You will use the app to complete a series of monthly challenges that will involve locating and identifying living organisms. Each challenge will be held at a different property each month, where we will also host two in-person monthly meet ups on Mondays from 11 a.m. to noon. These meetups will allow you to work with other volunteers and 300 Committee staff on the monthly challenge. They are optional but will provide an opportunity for you to ask questions and meet other program participants.

What is Biodiversity? Biodiversity describes the number of *unique* species in a defined geographical area. An example of a place with high biodiversity is the Amazon Rainforest. Biodiversity is important both for the health of an ecosystem as well as the health and wellbeing of humans. Unfortunately, human activities have led to biodiversity loss all over the world. Some of the main causes of biodiversity loss are the destruction of habitat and climate change.

What is iNaturalist? iNaturalist is an app that helps users with the identification of living organisms. Users upload pictures or sounds of an organism they want to identify. iNaturalist will suggest some possible identifications, but other users can also suggest IDs. Once an ID is agreed upon by the majority of the iNaturalist community, it may be used by scientists for real research.

What If I Have Never Used iNaturalist Before? Even if you are new to iNaturalist, we will provide you with plenty of resources to support you. Linked below is a PowerPoint that goes over how to use iNaturalist and Seek. This PowerPoint is also available on the webpage. Additionally, the 300 Committee will host an in-person iNaturalist training in April at our headquarters. See the webpage for more details. Additionally, iNaturalist has a support page with helpful articles and videos on a variety of topics. You can submit a ticket if you have a specific issue that you need iNaturalist staff to help you with.

- **iNaturalist PowerPoint: https://acrobat.adobe.com/id/urn:aaid:sc:VA6C2:1b02a913-7a28-4087-8dc7-f7b683f6ab12**
- **iNaturalist Knowledge Base: https://help.inaturalist.org/en/support/home**

What Materials do I Need to Participate in The Program? You will need at minimum a mobile phone and a valid email address. It is also strongly suggested that you have a computer for accessing the iNaturalist website. If you have any field guides, you may want to bring these in the field with you for extra help with identification.

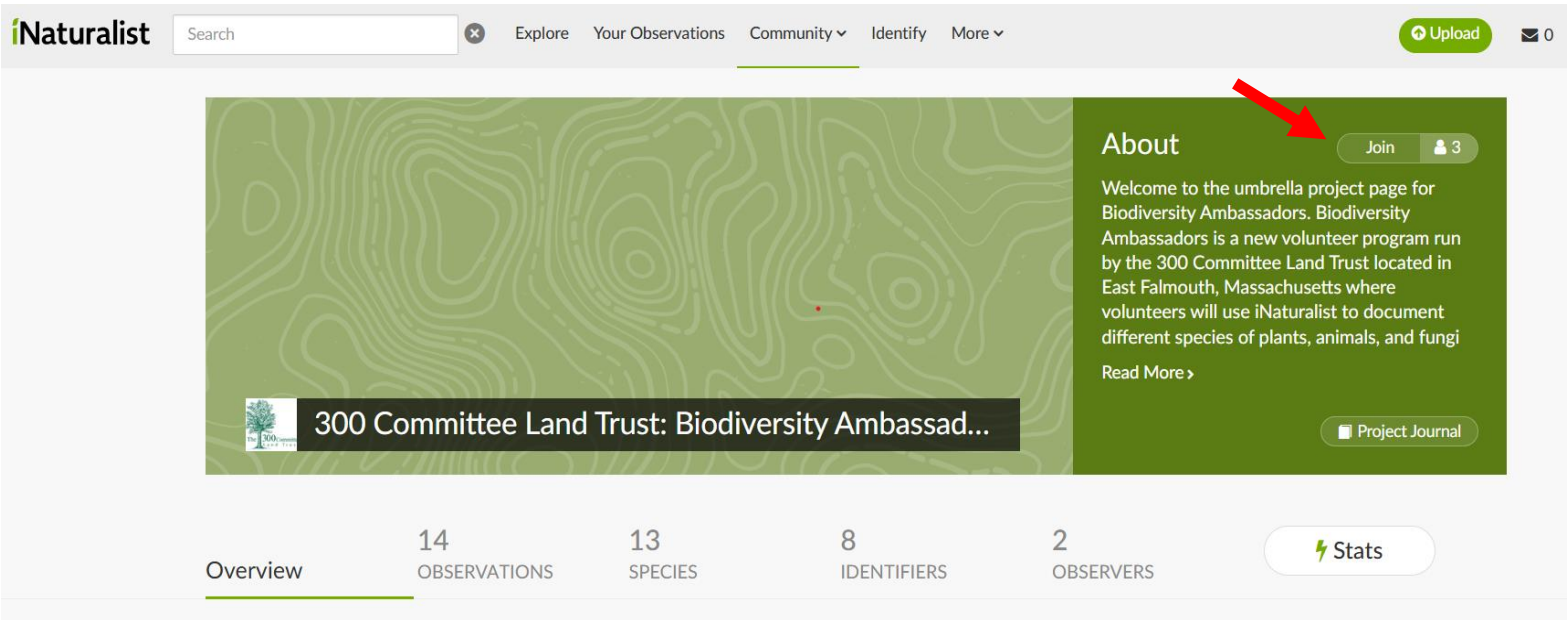
How Do I Participate? Follow the steps below to participate in the Biodiversity Ambassadors program.

Step1: Make an iNaturalist Account. Search for iNaturalist in the app store on your mobile phone then download the app. To create your account provide an email address, username, and password. To protect your privacy, it is best to create a username that does not contain your name or other personal information. Please make sure that your username and password are appropriate and respectful! Once you provide an email address, you will receive an email asking you to confirm your email address to activate your account. Please follow those instructions to confirm your email address. **You must be at least 13 years old to create your own iNaturalist account!**

Search for this icon on the app store.

Step 2: Email us Your iNaturalist Username. This is so we know who is behind the account, which will allow us to keep track of participants. Make sure that the email includes your full name, your username on iNaturalist, your intent to participate, and if it is okay to post any pictures you take to our website. For intent to participate, you can say something like, "I would like to volunteer to be a part of this program." Please send the email to stewardshipcoordinator@300committee.org.

Step 3: Join the Project. Join the umbrella project on iNaturalist. You can access it via this link: https://www.inaturalist.org/projects/300-committee-land-trust-biodiversity-ambassadors-2025-umbrella. You can also find it by going to "Projects" under the "Community" tab on your desktop, and then searching for it. If you are using the mobile app, go to "Projects" on the bottom of the screen and search for it. The page is called *300 Committee Land Trust: Biodiversity Ambassadors 2025 Umbrella*. This is an umbrella project, meaning that all of the project pages for the individual challenges are grouped together on this one page. **Please join the umbrella project first before joining any of the monthly challenges.** The project pages will contain all of the observations for that challenge, which will include photos, sound recordings, IDs, and comments.



Select "Join" to become a member of the umbrella project.

Step 4: Access, Read About, and Join the Appropriate Monthly Challenge. Scroll down on the umbrella project page to access the individual pages for each of the challenges. From here, you can select and join each project separately, depending on which challenges you are interested in completing. You can read more about each challenge on the project page. A list of challenges, dates, and locations is given below. These are also listed on the webpage. **You must join the project page before you are able to add any observations!**

March:

- **Property:** Shallow Pond Woodlands
- **Challenge:** Locate and identify at least 3 species of fungi, lichen, and/or moss
- **Dates:** Complete between March 1st and March 31st

April:

- **Property:** Angel's Mirror
- **Challenge:** Locate and identify at least unique 5 species of creepy crawlies (arthropods)
    - Spiders
    - Earwigs
    - Millipedes or centipedes
    - Beetles
    - Slugs or snails
    - Butterflies
    - Dragonflies
    - Bees
    - Flies

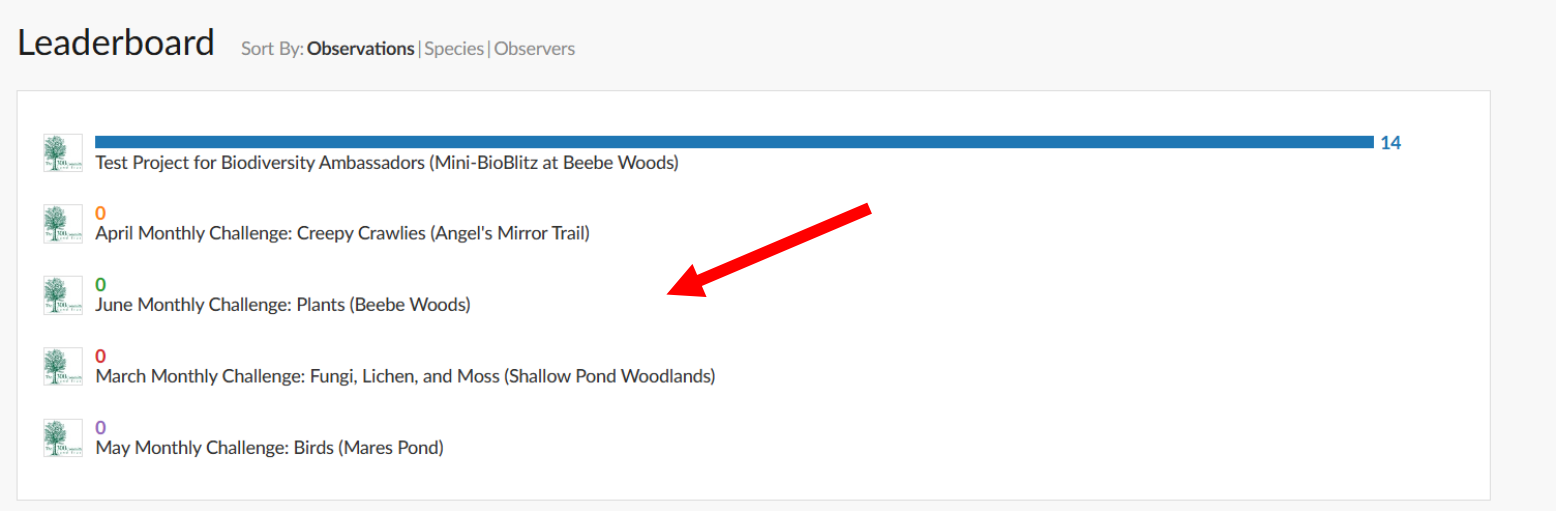
    - Pill bugs
    - Crickets or grasshoppers
- **Dates:** Complete between April 1st and April 30th

May:

- **Property:** Mares Pond
- **Challenge:** Locate and Identify at least 5 unique bird species
- **Dates:** Complete between May 1st and May 31

June:

- **Property:** Beebe Woods
- **Challenge:** Locate and identify each of the following. Try to have a least one be an invasive species:
    - 1 Tree
    - 1 Vine
    - 1 Shrub
    - 1 Fern
    - 1 Grass
- **Dates:** Complete between June 1st and June 30th



Scroll down on the umbrella project page to view each monthly challenge. Select each one to view and join. You must join before you are able to add any observations.

Step 5: Complete the Monthly Challenge. Visit the property to complete the monthly challenge. Each challenge can only be completed at the specified property, but you don't have to complete the challenge in one visit. Feel free to go back multiple times if needed. To make an observation with iNaturalist, locate and take a picture of an organism that meets the challenge requirements, and then try your best to identify it using any tools available to you. Once you have shared your observations to iNaturalist, they should automatically populate the project page. This is because they meet a certain set of requirements. These are that the photo was taken within the boundaries of the specified property by a project member within the challenge timeframe. **You do not need to manually add your observations.** If your observations do not automatically upload, please make sure that you have joined the project page. I have set each project so that only observations from members will be included.

If you are not sure of the ID of the organism, iNaturalist will suggest possible IDs. Other users will also suggest IDs once you have shared the observation. Also feel free to use field guides or friends as resources. Make your best guess using the suggested IDs if you are not sure.

You will have from 12:00 a.m. on the first day of the month until 11:59 p.m. on the last day of the month to complete the monthly challenge. Please try your best to complete it within this period of time.

Step 6: Attend Monthly "Field Days" If Desired: Each month, there will be two monthly meetups where program participants will meet as a group at the property that is the focus of that month's challenge. These will be held on Mondays from 11:00 a.m. - 12:30 p.m. We will walk the property and work on the monthly challenge together. Other participants and 300 Committee staff will be on site to answer any questions that may arise about iNaturalist or species IDs. The dates and times for these meetups are listed below and on the website. Please keep an eye on the website for any date changes or cancelations. These meet ups are optional and not required. If you prefer to complete the challenge completely on your own, that is fine too.

March 10th and 24th at Shallow Pond

- **Access Information:** Meet at the parking lot located at 235 Thomas B Landers Road.

April 7th and 21st at Angel's Mirror

- **Access Information:** Park and meet at Goodwill Park, located at 416 Gifford Street. We will walk to the trail from there. It is a bit of a walk, so please dress accordingly.

May 5th and 19th at Mares Pond

- **Access Information:** Meet at the parking area located off of Pinecrest Beach Drive. Use this Google Maps link to help you navigate. The parking area is a small grassy lot and there is a wooden red heart marking the spot. Please be aware that parking is limited.

June 9th and 23rd at Beebe Woods Trailheads

- **Access Information:** For June 9th, please meet at the trailhead located at the end of Ter Huen Drive. There is a small parking area. For June 23rd, please meet at the trailhead located on Highfield Drive by the Highfield Theater. The address is 56 Highfield Drive, and there is a large parking lot.

Step 7: Review Your Observations for the Month: After you have completed the challenge, go the project page and make sure that your observations are there. Also check to see whether anyone has added IDs or comments to your observations. Agree with these IDs if appropriate and respond to any comments respectfully.

What Can I Not Upload to iNaturalist? What you can upload is any image that meets the requirements of the monthly challenge. For instance, if the challenge for the month is to locate 5 bird species, uploading a picture of a blue jay to your iNaturalist account is completely acceptable. However, all observations that you upload must be *verifiable*, meaning that they have attached media (photo, sound, or both), longitude and latitude coordinates (which iNaturalist should input for you), a date, and are of a wild organism (not captive or cultivated).

Please do not upload an observation that . . .

- Does not show evidence of an organism (i.e. inanimate objects)
- Does not show recent evidence (i.e. bones or fossils)
- Does not have meet the definition of "verifiable" i.e. no attached media, not of a wild organism (ex. pet dog)
- Contains photos of different organisms. It is perfectly fine to upload multiple photos of the same organism, but an observation should not contain more than one organism.
- Contains media that is in any way inappropriate, disrespectful, or harmful

Recognition for Completing the Monthly Challenge: Participants that complete the monthly challenge will be recognized through shout outs on social media and/or the website. We will make an effort to post pictures taken by participants to the website along with biological information about the species featured in the picture, so stay tuned. We will not post these pictures without your prior permission, so in your initial email to us (see above), please indicate whether or not this is okay with you.

Using the Seek App in the Field: Seek is another app created by iNaturalist for wildlife identification. It is similar in that you can take pictures of organisms to help identify them. The main difference between Seek and iNauralist is the absence of the social media aspect. You cannot suggest IDs or make comments on Seek like you can on iNaturalist. Your data also cannot be used for scientific research and there is no minimum age to make an account. Some other helpful things about Seek are that you do not need to be connected to WIFI to use it in the

field. Therefore, Seek may be a better option if you have young children who want to help you with the monthly challenge or if your phone has a spotty connection.

If you decide to use Seek instead of iNaturalist for collecting observations in the field, please log in with your iNaturalist account and then upload any photos you take on Seek to iNaturalist. If they meet the project requirements they should automatically populate the project page. The PowerPoint linked above provides instructions for using Seek and uploading to iNaturalist from Seek.

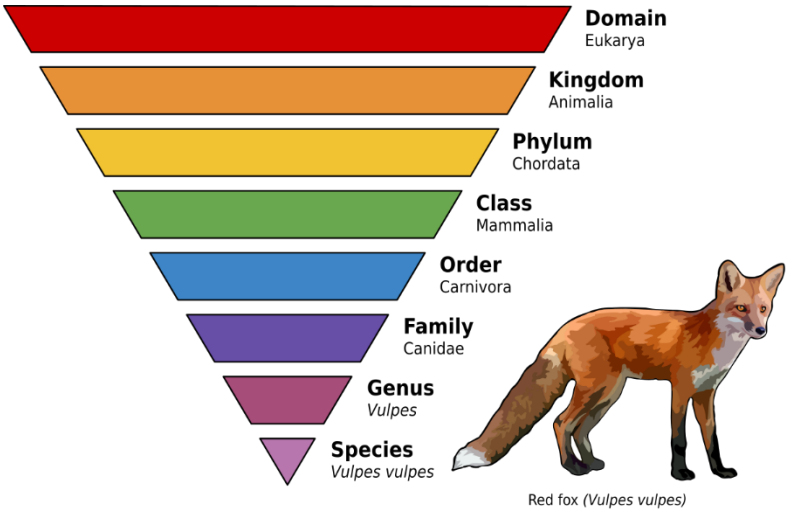
Why are we Doing This? The main purpose of this project is community engagement. We hope that by encouraging people to use iNaturalist to document the wildlife they are seeing on the 300 Committee's properties, they will become more engaged with the 300 Committee as a whole and will spend more time out on our trails. Additionally, the observations collected by volunteers will be helpful for us in understanding biodiversity on our properties.

How Will This Information Be Used? We hope to create a presentation documenting the findings of participants, which include the different species found and some information about them. The date and time of this presentation is to be determined.

What if I Have Questions About iNaturalist or the Program? For any questions related to the program, please contact our TerraCorps member Grace Vachon at stewardshipcoordinator@300committee.org

About Species Taxonomy:

Taxonomy describes the way living organisms are classified. Living organisms are classified into seven main taxonomic groups based on shared characteristics. Species taxonomy is complicated, but below is a guide to some broad taxonomic groups that may be helpful to you. The iNaturalist website also includes basic information about a wide variety of taxonomic groups. When identifying organisms on iNaturalist, do your best to identify to species. However, it is also acceptable to identify to a higher taxonomic level (i.e. family or genus) if you are not sure about the species. Other users can help with more specific IDs.



Plants:

Most plants make their own food through a process called photosynthesis, where they use sunlight to convert carbon dioxide and water into food (sugars). Plant cells contain chlorophyll, a green pigment that is used during this process. Plants are classified in a variety of ways. Vascular plants have tissues for transporting water and nutrients throughout their bodies. Non-vascular plants lack these tissues. Plants are also classified based on whether or not they produce seeds. Some types of plants like mosses produce spores rather than seeds.

Basic plant groups:

Angiosperms (vascular): Flowering plants. Most plants are classified as angiosperms. They produce seeds that are encased in flowers or fruits.

Bryophytes (non-vascular): Mosses and liverworts. They do not produce flowers or seeds. Mosses reproduce through the dispersal of spores.

Chlorophytes (non-vascular): Algae. Algae are aquatic plants and there are various types including green, red, and brown algae. They do not produce seeds.

Pteridophytes (vascular): Ferns and horsetails. Ferns produce spores that grow on the underside of their leaves, which are used for reproduction.

Gymnosperms (vascular): Conifers, ginkgos, and cycads. Gymnosperms produce seeds, but unlike angiosperms, the seeds are not encased in an outer covering. Conifers have needles and cones. The cones are where the seeds are located.

Differentiations and Other Information:

Trees vs. Shrubs: Trees are over 13 feet tall and all of their branches grow from a single trunk. On the other hand, shrubs are generally less than 13 feet tall and often consist of many separate branches.

Deciduous Plants vs. Conifers: Deciduous plants have broad leaves that fall off in the fall and winter. Some examples are maple, oak, and ash trees. Conifers have needles that for most species, do not fall off in the winter. Conifers whose needles remain on year round are called evergreens. Some examples are pines, hemlocks, junipers, spruces, and cedars.

Invasive Plants: Invasive plants are those that are both non-native (from a different country or region) and that are destructive to an ecosystem. Invasive plants wreak havoc on the habitats they colonize by competing with native plants for space and other resources. Invasives also harm native wildlife by replacing the native plants that they rely on for food and shelter. Some common invasives that you are likely to see on Cape Cod are Japanese knotweed, porcelain berry, black locust, Asiatic bittersweet, mugwort, multiflora rose, autumn olive, and honeysuckle bushes and vines

Fungi and Lichen:

Fungi: Fungi are a taxonomic group that includes yeasts, molds, and mushrooms. Fungi are decomposers, meaning that they help break down organic matter like dead plants and animals, and recycle this material back into the environment. They reproduce through spores.

Lichen: Lichen are not solely plants or fungi. Rather, a lichen is a composite organism that forms as the result of a partnership between a fungus and an algae or cyanobacteria (photosynthetic bacteria). The algae or cyanobacteria produces sugars through photosynthesis that the fungus gets sustenance from.

Birds:

Birds can be classified into several taxonomic groups based on their characteristics. Below are some broad classifications.

Order Anseriformes: Waterfowl. Includes ducks, geese, and swans.

Order Galliformes: Landfowl. Includes turkeys, pheasants, chickens, quail, and grouse. They generally have large/heavy bodies and limited ability for flight.

Order Passeriformes: Perching birds. Includes songbirds like swallows, sparrows, finches, chickadees, cardinals, and robins. The configuration of their toes (3 in front and one behind) allows them to perch on tree branches and other objects. They often have the capacity for flight and song-like vocalizations.

Raptors: Raptors are birds of prey such as owls, hawks, and osprey. Owls are nocturnal, meaning that they are active at night, and are in the order Strigiformes. Many species of diurnal (active in the day time) raptors such as hawks and osprey are in the order Accipitriformes.

Arthropods:
Insects such as beetles, butterflies, and crickets are all classified as arthropods. Arachnids like spiders are also classified as arthropods although they are different from insects. All arthropods have segmented bodies, jointed appendages, and a hard exoskeleton or outer shell.

Insects: Have six legs, two antennae, and three body segments (head, thorax, and abdomen). Some have wings. Includes butterflies and moths, bees, wasps, dragonflies, beetles, earwigs, and flies.

Arachnids: Have eight legs, two body segments, and no wings or antennae. The two body segments are the cephalothorax (composed of the head and thorax) and the abdomen. Includes spiders, mites, ticks, and scorpions.

Chilopoda and Diplopoda: Centipedes (chilopoda) and millipedes (diplopoda) have long bodies with many segments and several pairs of legs.