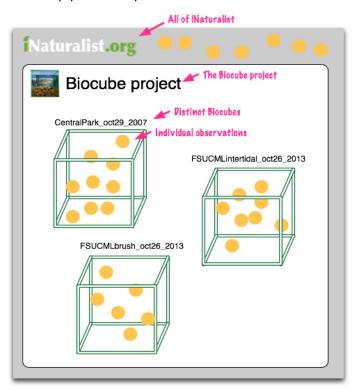Smithsonian
National Museum of Natural History

How to record your biocube data using iNaturalist

This document will explain how to record your Biocube data using iNaturalist. iNaturalist is a social network where participants share observations of living things from nature in order to help identify them and to create high quality data for science. Please follow these linked tutorials to learn how to create an iNaturalist account and understand the basics of how to post and identify observations.

We have two suggestions to make your iNaturalist experience as smooth as possible. (1) We recommend that you use the desktop interface to enter your data. You can find the iNaturalist app for free at iTunes and on Google Play. but for several reasons, we think that the desktop interface is easier to use and more appropriate for this project. (2) Although multiple students may be photographing and documenting organisms from the cube, we suggest that one user compile and upload all of your biocube data to iNaturalist at the end of the exercise. This will allow you to easily find all of your observations, view the summary statistics and manage privacy concerns. If multiple users are contributing images, these tasks become much more difficult or impossible.

A Biocube is an effort to document all living things found within a single cubic foot. Using iNaturalist, you'll strive to record an separate observation for each kind of living thing observed. Each observation will be accompanied by a photo as evidence, a location, date, an identification, and a count for the number of specimens of that kind observed. If you take good photos, the iNaturalist community will be able to help you refine your identifications.

Within iNaturalist, all observations from Biocubes are first grouped within a single umbrella 'Biocubes project'. Within this project, observations from the same distinct Biocube are further grouped using a unique 'Biocube ID' (e.g. CentralPark_oct29_2007). Each distinct Biocube has an accompanying 'Journal post' describing the sampling event with the Biocube ID as its title.

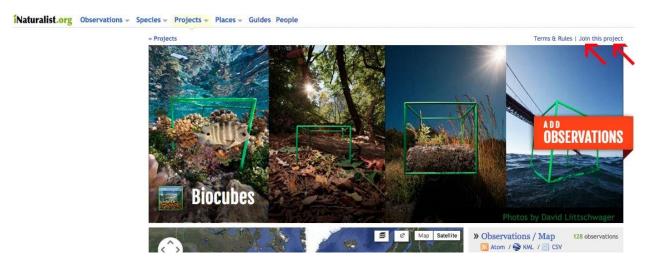This document is organized into 4 parts:

Part 1: Join the Biocubes project

Once you've created an iNaturalist account and are familiar with basics of posting and identifying observations, join the Biocubes project.
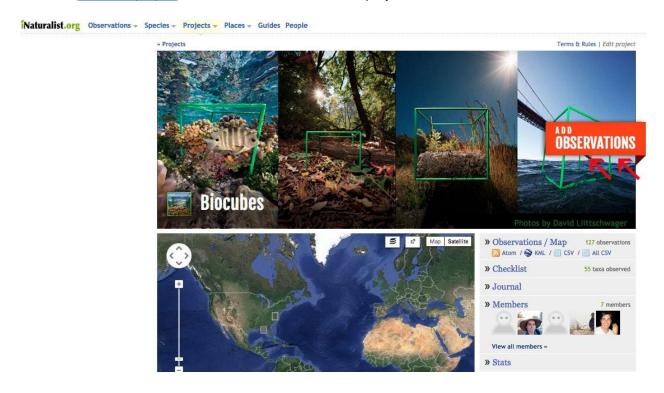

Next, send our biocubes admin, Jen, a message to let her know you'll be executing a biocube. Tell her a bit about your biocube team and your planned location. She'll create a biocube ID for your project, which you'll need when you enter your data. If you have any trouble setting up, you can also message her for that.

When you've selected your biocube site, start entering information about the location, habitat and conditions in the online biocube description form. Check out the master list of biocube descriptions; yours will be added there.
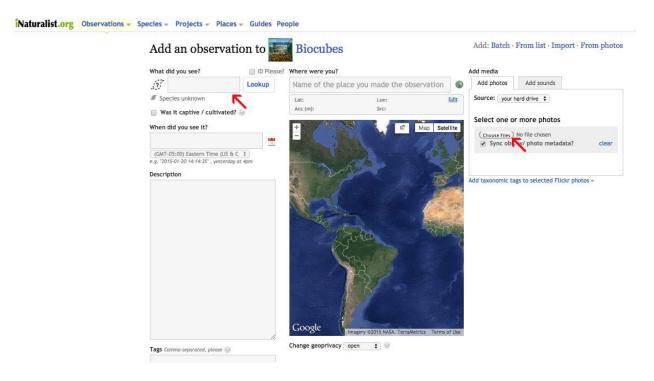
Now you're ready to post your biocube observations, either from your computer (see part 2) or from your phone or tablet (see part 3)
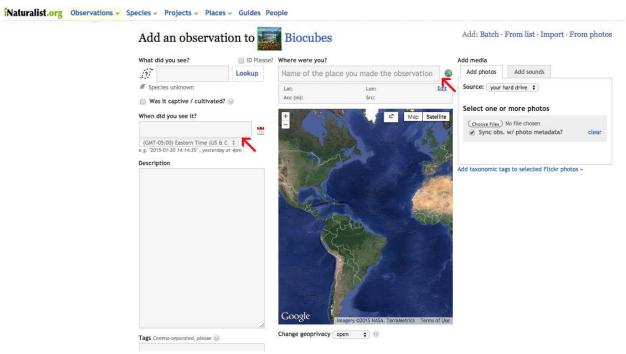
Part 2: Add observations from your computer

From the Biocubes project, click 'Add observations to this project'

Create one observation for each kind of organism observed. You can have an observation for your six big black ants, and another one for your 11 little red ants, for instance. Upload a photo (or several) for your first observation (your first kind of organism) from your computer using the "choose file" button. Add your initial identification in the "What did you see" box.

If you have dates and locations on your photos as metadata already (this is likely if you took them with a mobile device), the Photo Uploader should detect and properly fill in the fields. But double check to make sure you upload the location for your cube collection and **not** for the room where you processed your samples. You can also add that information in this form directly.

If there is important information you would like to add (eg: this worm was 4 cm long) do that in the Description field. You can enter or edit your biocube location by clicking on the provided map. Pinpoint your location as precisely as possibly by zooming in and adjusting the diameter of the circle, by clicking on it and dragging the handles that pop up; use the finish time of collection of your biocube in the date/time box.

Scroll down. There are two more fields to consider. "Number of specimens" should be included if your specimens are countable. You can estimate it, if you had about a hundred and fifty tiny spider mites in your biocube. If you had a patch of lichen, or part of a plant, like a leaf, then number of specimens is less appropriate.

Biocube ID is a required field. Find the name Jen assigned to your biocube in the dropdown menu.
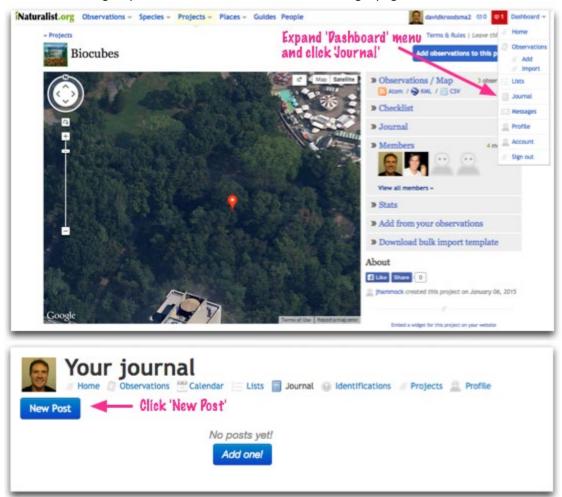
You're done! Select "Save", or "Save and add another" if you have another observation ready to go. Using "Save and add another" is recommended, as it will re-populate most of your fields, so it preserves the precision and accuracy of your biocube location and also saves you from re-entering some information.
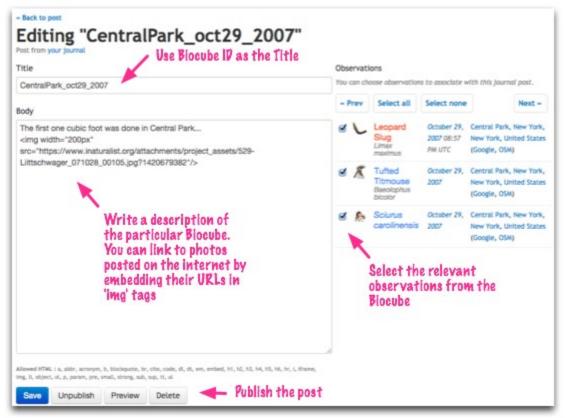

You should make sure that each observation has the proper location, date, and at least a coarse identification. If your photos are high quality enough, it is okay to use coarse identifications like 'Spiders (Order Araenae)' and rely on the iNaturalist community for help refining these IDs.
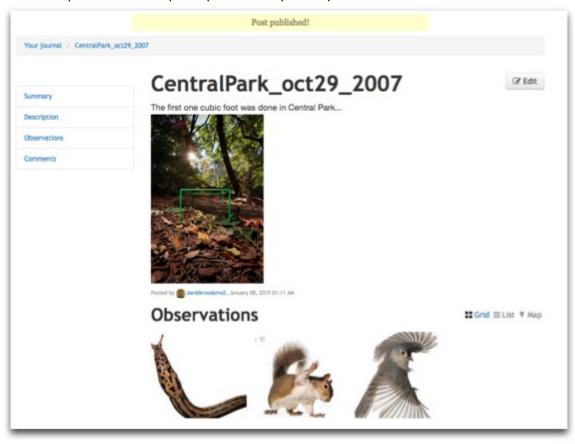
Part 3: Create a Journal Post for your Biocube

You can also use the Biocube ID to create a Journal post where you can describe the distinct Biocube in more detail and group the relevant observations onto a single page.

Feel free to write anything you'd like in the post about particular Biocube. You can embed photos posted elsewhere on the internet using HTML tags. It is a good idea to include a photo of the Biocube itself here. Make sure you associate all the relevant Biocube observations with the journal post by checking them on the right hand side. When you are ready, publish your journal post.

You might receive comments on the journal post from the iNaturalist community, feel free to email a link to the post to all of the participants so they can explore what was found.
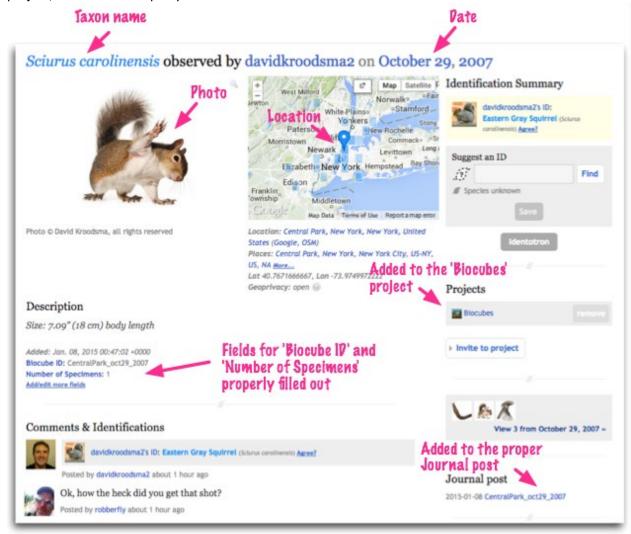
Part 4: Review your Biocube data

Once you've finished uploading your Biocube data, you should be able to see your observations on the Biocube project page. Here you can export your observations alongside observations from other Biocubes for analysis. You can also drill down to explore individual observations.

If you've followed the steps in this document, each observation should include a taxon name (i.e. identification), a date, a location, and additional fields for the Biocube ID and the Number of Specimens (How many individuals of that species did you find?) as well as membership in the umbrella Biocube project, and membership in your Journal Post for the distinct Biocube.

You're likely to get feedback from the iNaturalist community in the form of comments and identifications on your observations. This community feedback is an important part of teaching other naturalists about what you found and creating high quality, independently vetted scientific data. Please be responsive, polite, and a good steward of your Biocube data!