

Introduction to iNaturalist and GBIF- Digital Natural History Resources

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OBJECTIVES

- Contribute to online natural history data through iNaturalist
- Identify available data sets by quick surveys of an online portal to ensure sufficient data exists
- Use the GBIF data portal to download species records
- Evaluate assumptions of existing datasets

MATERIALS

- Notebook or word processing document
- Camera (smartphone or other digital camera)
- Access to a computer and reliable access to the internet for online database searches

PART 1: INATURALIST

The goal of Part 1 is to become familiar with and become a contributor to <u>iNaturalist</u>. iNaturalist is a platform that allows anyone, anywhere in the world, to submit occurrence records for species they see. The beauty of iNaturalist is that the combined effort of the public can generate much more data than any one researcher working on a particular species could generate.

For this assignment, you must **submit at least 10 records to iNaturalist**. These records may be any species (plant, animal, fungus, protozoan, etc.). They can be from your local environment or photos you took in other places (as long as they have data such as date and location). Create an account and upload your photographs. You can enter multiple photos of the same organism in one record, but do not create separate records of the same individual. Enter all the relevant information, including species identification, if known. In order to count for this assignment, all records must have photos, locations, and dates. Your species identifications will be verified by the iNaturalist community later. The best photographs will be labeled Research Grade, meaning it is a clear enough photograph that biologists could use for research projects. Strive to take clear photos that may be Research Grade.

PART 2: GBIF

Write down answers to each question keep these numbered in your document.

- 1. Go to the GBIF data portal. How many occurrence records are listed as of today?
- 2. How many peer reviewed papers are using GBIF data?
- 3. Click on Peer-Reviewed Papers Using Data. Write down a title of one of the papers.
- 4. Go back to the main GBIF page. Click on Occurrences. In Search All Fields, type in the species your instructor gives you (scientific name). What is the total number of records for this species in GBIF?
- 5. Click on Map. What do you notice about the distribution of your species?
- 6. On which continents has it been recorded?
- 7. Do you see any mapped observations that look problematic (in areas or habitats where the species would not be expected)?
- 8. What might be a potential source of error that could cause such a problem?
- 9. Use the + to zoom into your state. What do you notice about the distribution of the species in your state?
- 10. Use the Bounding Box function below the to enclose the town of your college. Click on one of the Occurrences in Area. What is the date of your Occurrence?
- 11. Scroll down to Location. If provided, what is the latitude/longitude of the observation?
- 12. From which Dataset does the record come?
- 13. What is the Basis of Record for that occurrence?
- 14. What do you think GBIF means by Basis of Record?
- 15. Scroll down the page to find more information. Can you identify the institution/catalogue number (if your occurrence is a preserved specimen) or the observer (if an observation)?
- 16. Use the Back button to return to the Map page. Using Basis of Record, click Machine Observation, Human Observation, and Preserved Specimen. How does the number of records decrease when you click these selections?
- 17. Move the Year slider backwards. How do the specimen records change over time?
- 18. How do the relative numbers of Preserved versus Human/Machine records change over time?
- 19. If you see a difference, why do you think this difference exists?
- 20. Describe 3 potential limitations of the data available on GBIF. How might these apply to your species?



PART 2: GBIF (continued)

- 21. Why do you think such limitations exist?
- 22. If we plan to use data such as human observations and preserved specimens, what steps might we take to ensure that our data are valid?
- 23. What kinds of research questions could you address with GBIF data?
- 24. What kinds of research questions would you NOT be able to answer with GBIF data?
- 25. *Optional* Repeat the process above with a species of your choice.

REFERENCES

Global Biodiversity Information Facility. (2022). *GBIF Home Page*. https://www.gbif.org iNaturalist. (2022). *Observations*. https://www.inaturalist.org/observations

