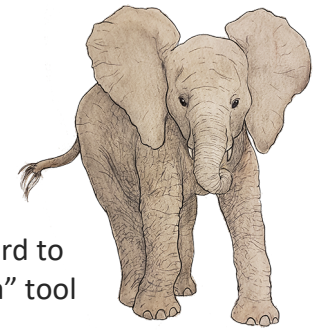
Elephant Trails

By Tom J. McConnell



Elephants are the largest land animal on our planet, but they can be hard to find! They are also endangered! In this activity, you will use a "big data" tool to find out where African elephants are observed. From that data, we can ask questions about their habitat and movements that can be answered by looking for patterns in the data!

Grade Level – 4-10

Driving Question: Where in Africa would we mostly likely find elephants?
Timeline – 1-2 class periods
Objectives:

- I can ask questions that can be answered with data.
- I can access a database of observations and data.
- I can notice patterns in data.
- I can create a map comparing habitats of elephants.

NGSS Alignment

DCIs:
LS2A: Interdependent Relationships in Ecosystems
LS4D: Biodiversity & Humans

SEPs:
Developing & using models.
Analyzing & interpreting data
Engaging in argument from evidence
Obtaining, evaluating & communicating information

CCs:
Patterns
Systems & System Models

One of the most iconic animals in Africa is the elephant! But did you know that there are two different species of elephants on the African continent? One is called the Savanna Elephant, and the other is the Forest Elephant.

Scientists sometimes track elephants using radio or satellite transmitters. We cannot view that data, but to understand how elephant move and use their habitats, we can look for patterns in the observations people post to a a citizen science database called "iNaturalist."
Real scientists use this data for their own research, and YOU can do the same!

In this activity, you can be the scientist by seeing the real observations that other people are recording in "iNaturalist." This tool will let you see lots of information reported by people who see African elephants in the wild, including the species, the habitat, the location on a map, and more!

Download iNaturalist

The first step is to download iNaturalist. This app is FREE, and they will not send you information you do not ask for. Have an adult help to access the site and set up your account. They can check for security concerns.

iNaturalist is available from your app store for both Mac and Android smartphones and tablets. You can also use a computer to view the site at https://inaturalist.org.

When you have downloaded the site or reach the web page, create your own account. Follow the steps on the website or app. Then on the next page, follow the instructions to find data to help answer your own questions.

Finding Elephant Data in iNaturalist

iNaturalist is a "citizen science" site that lets you post photos of living things, identify them, and share with other people. When you post an observation, other viewers may either confirm or correct your identification. The data in the site is used by professional scientists to get large amounts of data about animal habitats, location, population numbers, and other information.

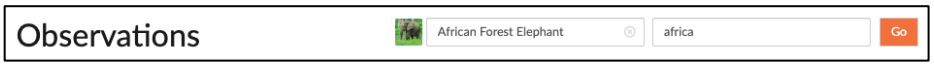
For this activity, you will "Explore" the data others have posted.

Procedure:

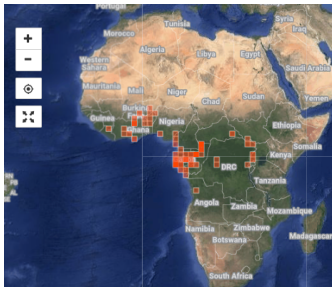
1. Log onto iNaturalist on your smartphone, tablet or computer. See page 2 for instructions for installing or accessing on the computer. Use your account login and password.

2. Click on the "Explore" tab in the top row menu.

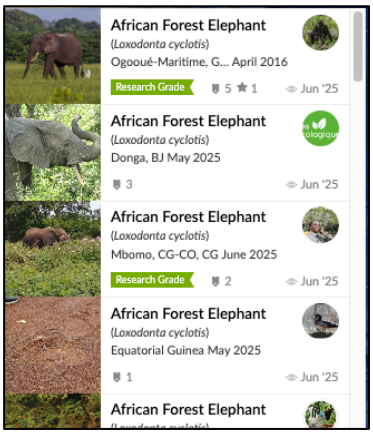
3. When the world map loads, type "Forest Elephant" into the "species" box in the search bar.

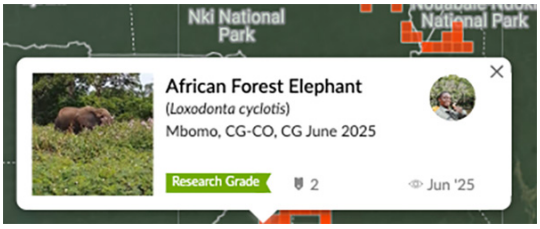


4. The map will show colored pixels where elephants have been observed. Use the + and – buttons to the left to zoom in or zoom out, and look more closely at the area where elephants live.

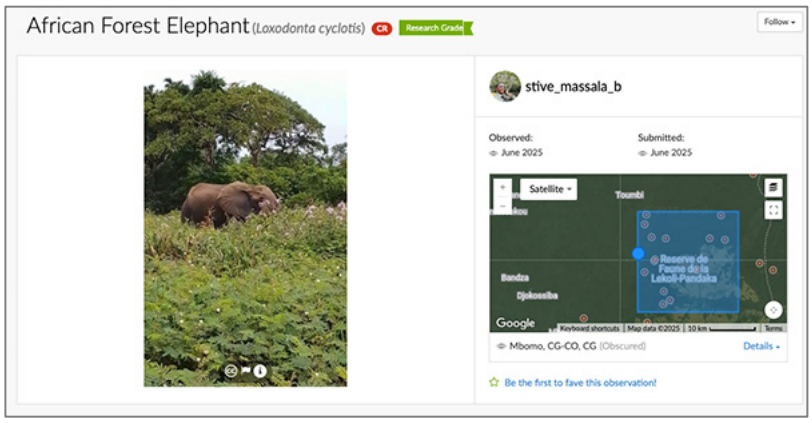


5. You will also see a list of elephant observations that tell you what species of elephant the observer found. This can give you more information about each kind of elephant.





6. When you zoom in far enough, you can click an individual orang pixel to see more information about that observation.



7. If you double click on the observation on this image, you can get more details (see image below.) This information includes the photograph of that animal, a map of the location, and any confirmation from others that this is the correct species.

Mapping Elephants and Asking Your Own Questions!

Now you know how to FIND information. It's time to BE the scientist!! Use Page 5 by mapping out where you find different species of elephants. You may eventually notice a pattern on the map that tells you more about elephants!

Then you can ask your own questions using the template on Page 6. Then use the information in iNaturalist to get the data you need to help answer your questions!

You can also learn more about elephants by reading ***Conservation Tales: Elephants***!

Mapping African Elephant Observations

Driving Question: Where do the different African elephant species live?

On the African map below, put colored dots on the areas where you find each species of elephants! You get to pick what colors to use! Make sure you color in the "key" that tells what color represents each kind of elephant!

Africa Elephant Species

- ◯ Savanna Elephant
- ◯ Forest Elephant

Asking Your Own Questions

Now it's time to ask your own questions that you can answer using iNaturalist data.

In the table below, write some questions about elephants that you wonder about. You will see a sample question to get you started! Then write your ideas about what you THINK will be the answer. Then use the iNaturalist app to find out more about elephants. When you find answers, you can write your conclusions in the space provided!

Question	What data do I need to find?	Conclusions
Do any elephant species share the same habitat and location?	*Look for color dots on the map that are in the same area.*	
What countries have large forests needed by forest elephants?	Look for patterns seen in the location of forest elephants.	
In a savanna, do elephants stay near specific habitat features?	Zoom in on savanna elephant observations to see if they are similar?	

Share your questions and conclusions with a teacher or parent. They can help suggest other ways to use the data, or they might help ask other new questions!

