

Welcome to the eDNA Science Project

Help us find eDNA of animals that live in trees! Let's find out what species use trees for a place to sleep, eat, or just hang out. We will use a noninvasive paint roller data collection method.

Onsite Materials: Data sheet, pencil, clipboard, paint roller, rinse water, bucket, DNA filter

Offsite Resources: Glass fiber filter, lab equipment and scientists at OSU

Steps for onsite collection:

1. Gather a paint roller and walk over to a nearby tree.
2. Write down a description of the site. Use your data sheet as a guide.
3. Make your predictions and write a hypothesis. What wildlife do you think use or live in this tree?
4. Grab your paint roller and roll it on the bark of the tree as far up as you can reach! Roll it around the entire tree a few times to make sure you collect all eDNA on that tree bark.
5. Carefully walk back to the buckets at the Field Station to rinse your paint roller.
6. Rinse out your paint roller with the rinse water into the bucket.
7. Take your turn pumping the water through a filter so you can capture all the eDNA from your roller for lab analysis.
8. Finish your data sheet and hand it to a Field Station volunteer.



Professor Tiffany
Sacra Garcia PhD

Offsite (done at the lab):

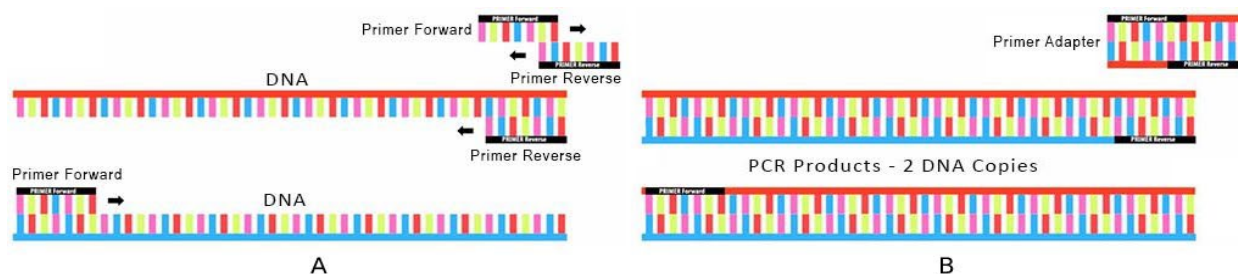
Once you have collected and turned in your samples they will be taken to a lab at OSU for processing



First, the special glass filters you pumped water through will be put into small test tubes.

Next, the DNA on the filters will be extracted and then amplified so we have lots of DNA to analyze.

The data will then be processed. The DNA fragments that are found are matched with a "library" of DNA from known animals. This tells us what animal you found evidence of.



Thank you for being a part of this ground-breaking way of researching the world we live!

eDNA Science Experiment – DATA SHEET

Background: What is eDNA?

eDNA stands for environmental DNA and it is genetic material that is gathered directly from the habitats animals live in, like air, water, soil and snow, etc. This genetic material gives clues to what animals live or pass through the environment. Animals leave traces of themselves, and this left-behind DNA can come from things like waste, mucus, decay and dead skin.

This is especially helpful in measuring the diversity of large communities without having to catch individual animals. Instead, we can track eDNA and know what animals are present. We've been doing this in lakes, streams, and the ocean for several years, but now we are tracking animals on land. We know that forests and trees support a lot of species. What if we could find the fingerprints of these species (their eDNA) on tree bark? Help us test this new idea! 😊

Here is where you come in. Help us collect eDNA from right where you are!

We need your help to see if tree bark is a good substrate for eDNA. With the data you gather today we can find out what animals are using these trees. You will be contributing to new scientific research and a new scientific method! Your sample will be sent off to a lab at Oregon State University, to be analyzed for eDNA specific markers. Together we will learn who and what lives here.

Source: <https://garcia.fw.oregonstate.edu/project/environmental-dna>

eDNA Science Experiment – DATA SHEET

Data Sheet

Site Conditions:

Rain Sun Clouds Snow

Date and Time of Day:

Location: _____

Observations (Describe your tree and what's around you):**Hypothesis (What animals do you think you will find eDNA from here?):****Animal Sightings (Do you see any animals around you? Can you identify them?):****Draw your tree:**

Thank you for gathering this data! We will take your sample to the lab at OSU. Those lab results – what animals we found in the tree – will be posted to the event website (www.winterwildlifefielddays.org)

Data:

Sample #:

Site	Amount of Water