

Community Engagement Field Report

Conduct a Species Census

In this activity, you will collect data in order to determine the diversity of organisms in your garden and to understand how your garden functions as an ecosystem. You will decide as a class or your teacher will let you know how the census will be organized. Remember, you are scientific observers and need to take care of and not interfere with the organisms and ecosystem you are observing.

(NOTE: If you are allergic to bee stings, make sure to inform your teacher before you head outside.)

Preparation

1. You will first conduct your species census in your garden. Then, in order to have an area to compare the garden to, you will also conduct a census in an area outside, but nearby, the garden. Your teacher will help you organize your data collection.
2. Use the tables on the next pages as data collection sheets when you go outside. You will transfer these data to the website back in the classroom. Each part of the table is explained in detail below:
 - a. **Organism:** Write in the **common name** of the animal you observe. If you don't know the name, leave this space blank and take a photo of the animal and/or write notes about it in the notes section. You can use a numbered card to hold up in the photo and write the number in the notes section so when you look the photo later, you know which photo corresponds with which notes. After the survey is over, use a field guide to identify the animal.
 - b. **Quantity:** Keep a count for each different animal. For example, if you see an earthworm, make one hash mark; then, if you see another earthworm, make another hash mark. Make sure not to count the same animal twice. Some animals, like ants, are hard to count. If you can't count all of the animals, you can estimate and write something like "greater than 50" or "greater than 100".
 - c. **Type:** Use the code at the bottom of the chart to identify the type of animal you have observed. Write the corresponding code number on the table.
 - d. **Where Observed:** Describe where you observed the animal. Try to include both the general location and exactly where the animal was when you saw it. For example:
 - In the tomato patch, crawling on a stem
 - On a maple tree, sitting on the bark
 - In the squash patch, on the underside of a leaf
 - e. **Role:** Some animals play a special role in the garden's ecology. Use the code at the bottom of the chart when you observe an animal that plays one of these roles:
 - Pollinators are animals that spread pollen by flying from flower to flower or by crawling into and out of different flowers. Many pollinators are insects, but many birds, such as hummingbirds, can pollinate plants as well.

- Decomposers, usually found in or on the soil, are animals that feed on and help break down decayed organic matter. They play an integral role in the health and productivity of the garden. Worms are an example of decomposers in the garden.
 - Invasive species are non-native organisms that are usually introduced to an ecosystem or habitat from an external source and can play a harmful role in the ecology of the garden. Invasive species can be plants or animals and may disrupt an ecosystem by dominating a region or particular habitat because of the loss of natural controls (predators or other factors in an ecosystem that keep populations of species in check). When introduced to a new ecosystem or non-native habitat, an invasive species can quickly multiply and dominate, negatively impacting native species, because their population is no longer controlled by predators or other factors.
 - Pests also play a harmful role in the garden ecology, but mainly from the gardener's point of view. Aphids and scale insects, for example, which feed on plant sap, can be considered pests when they become so numerous that they weaken or kill a plant. Moles, which burrow through the soil and feed on earthworms, may be considered pests if their burrows disturb plant roots and slow their growth. Gardeners need to be aware of pests like these so they can protect their plants, and you can categorize an animal as a pest if it seems to be damaging a plant.
- f. **Notes:** Use this space to describe organisms you need to identify later and to take notes on animal behaviors — both how the animal interacts with the garden environment (for example, flying from flower to flower on a specific plant, hiding under a leaf, perching on a garden sign) and how it interacts with other animals (for example, attacking or eating another animal, running to hide from another animal). Note how you think the animal's behavior fits into the garden ecology and what role the animal plays.