



Nature Watchers Lab Group

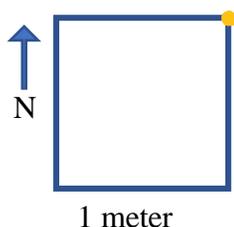
Welcome to the 3rd-5th Grade Young Scientists Ecological Quadrat Study

How does the weather and temperature affect the plants and animals in my neighborhood?

To best answer that question, one must think and work like an ecologist. **Ecologists** are scientists who study the number and kinds (species) of plants and animals found in a community. When an ecologist wants to count the number and kinds of plants and animals in an area, they use a consistent size unit, called a quadrat, to mark off the sampling sites in the environment. This is a way to sample the plants and animals to make sure that the counting is fair and not directed by human opinion (unbiased). Observing the plants and animals in one square meter quadrats randomly placed, produces an accurate sampling of the plants and animals of the larger community.

1. Locate an area (in your yard, a city park, a patch of desert or wash near your home) in which you can set up a total of three one-meter square plots (called a quadrat). Please be sure you are safe in the location and are practicing social distancing from other people.

To make it a random location in your study area, toss a coin over your shoulder and wherever it lands, that will be the northeast corner of your quadrat. Use a meter stick or a metric tape measure to mark off the four sides of your quadrat, making sure that it is square and that each side is 1 meter in length. You will set up a total of three such quadrats and will make observations of one each day, for a total of three days. See diagram and daily plan below.



Day One:

Survey the animals in Quadrat 1 twice, once in the morning & once in the late afternoon/early evening
Survey the plants in Quadrat 1

Day Two:

Survey the animals in Quadrat 2 twice, once in the morning & once in the late afternoon/early evening
Survey the plants in Quadrat 2

Day Three:

Survey the animals in Quadrat 3 twice, once in the morning & once in the late afternoon/early evening
Survey the plants in Quadrat 3

1. Start your survey each morning with the Animal Survey, that way you do not disturb or scare away the animals.

Day One: Record the kinds (species or types) and number of animals that are within the Quadrat 1.

Find a quiet place to sit and observe Quadrat 1 from a distance. Record any animals that are in, enter or leave Quadrat #1 watching for larger animals. Continue to observe and record for 15 minutes. Then carefully search the entire quadrat for smaller animals such as ants, bees, butterfly or caterpillars, etc., record the kind and number of animals that you see.

Repeat this in the late afternoon or early evening. Anything that crawls, flies or leaps across your quadrat is counted: birds, insects, lizards. Take a photo of any animal that you can, making sure that the photo is well focused and as close up as possible. Please upload the photo to the [SARSEF iNaturalist Project](#)

Do the same procedure with Quadrat 2 on Day 2 and Quadrat 3 on Day 3.

Between animal surveys, conduct your plant survey for the Quadrat of the day.

2. Plant Survey: Record the kinds and number of plants that are living in the area within your one square meter quadrat.

You will do this only once for each new quadrat. All plants within the quadrat must be identified, counted, and recorded on the data collection sheet. Make a quick drawing of each plant and take notes: does it have flowers, fruits or seeds? What shape are the leaves? Also make note of any animals, especially insects (ants, aphids, bees, or butterflies etc) that you see while surveying the plants and record these on your Animal Survey data sheet.

If you have access to a cell phone and are able to, please download the iNaturalist app. Take one or two photos of each plant, making sure the photo is clear and well-focused and that it shows the flowers and the leaves of the plant. You can then upload your observations directly to the SARSEF iNaturalist Project, found [here](#)

Please use iNaturalist and other online field guides to identify the plant as best you can but most importantly record whether the plant is a tree, a cactus, a shrub, a herbaceous flowering plant or grass.

Tree: Single woody trunk

Examples: Mesquite, ironwood, paloverde, acacia

Cactus: Spiny, no leaves

Examples: Saguaro, prickly pear, hedgehog

Shrub: Multiple woody trunks, grows continuously

Examples: Texas Ranger, creosote, desert lavender

Herbaceous flowering plant: No woody trunk or stems, may grow in same location year after year or grow, flower, set seed and die.

Examples: Penstemon, poppy, globe mallow, mustard

Be sure to complete one plant survey for each of your three quadrats sites and also to enjoy the animals and plants of your community!