

This new instruction differs slightly from the tutorial and the Field Packet. Please use this amended instruction.

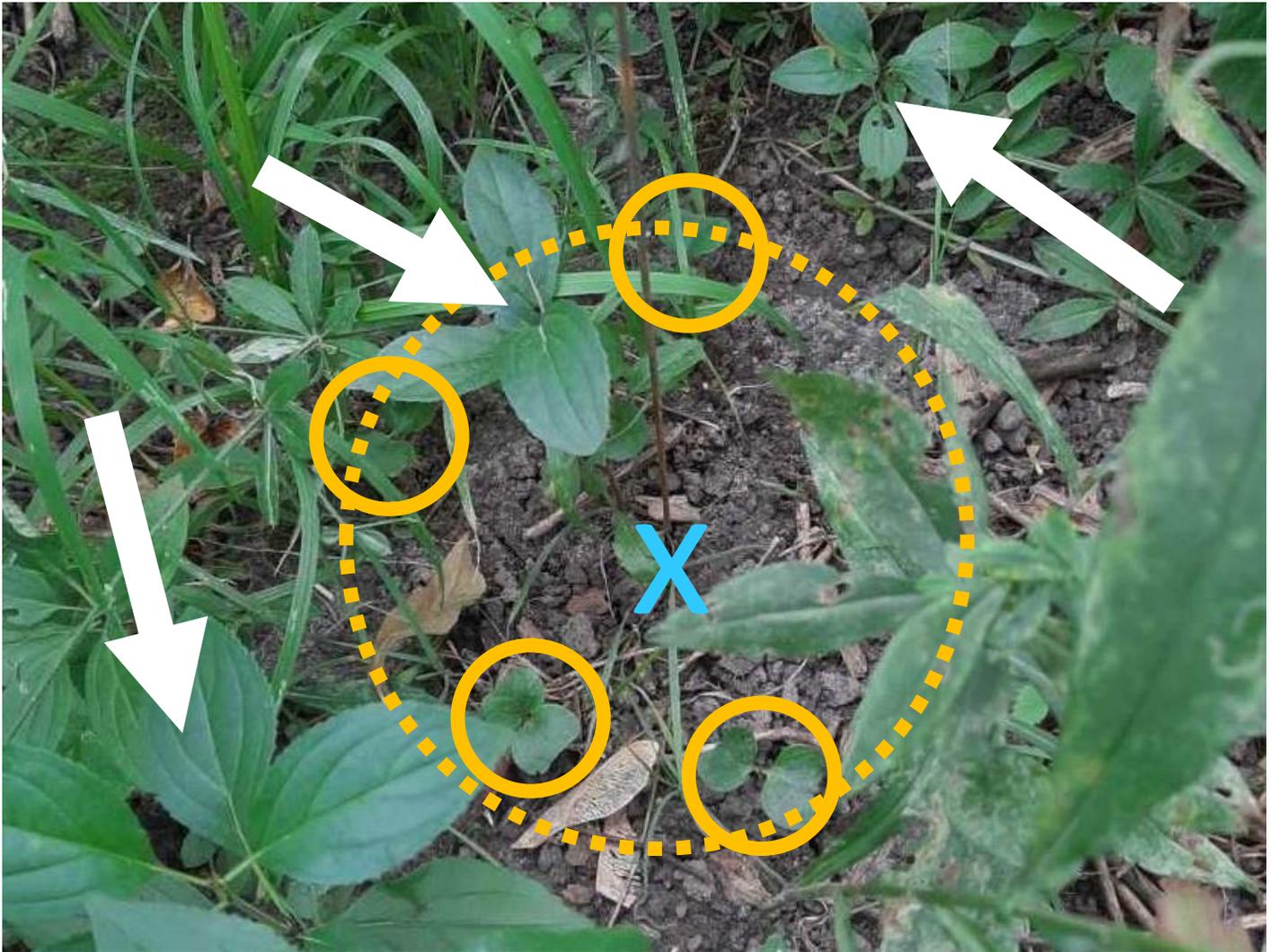
Before Activity 3, please be on the lookout for residual buckthorn that were *already* present in your site *before* you planted test seeds in spring of 2020. Specifically, we are looking for residual buckthorn plants that are close to white flags.

After sending you the Summer's End Field Packet, we realized that these residual (or "non-test") buckthorn plants, although small in size, could drastically skew the data. For this reason we ask you to *remove them* (i.e., cut or pull them). Do not count them in your data collection. This document explains what steps to take.

Consider the image below. Can you speculate which plants grew from test seeds and which are residual? On the following pages, this image is repeated to highlight relevant plants and explain specific steps to take before doing Activity 3.



Thanks to Citizen Scientist Laura for sending this photo and alerting us to this situation!



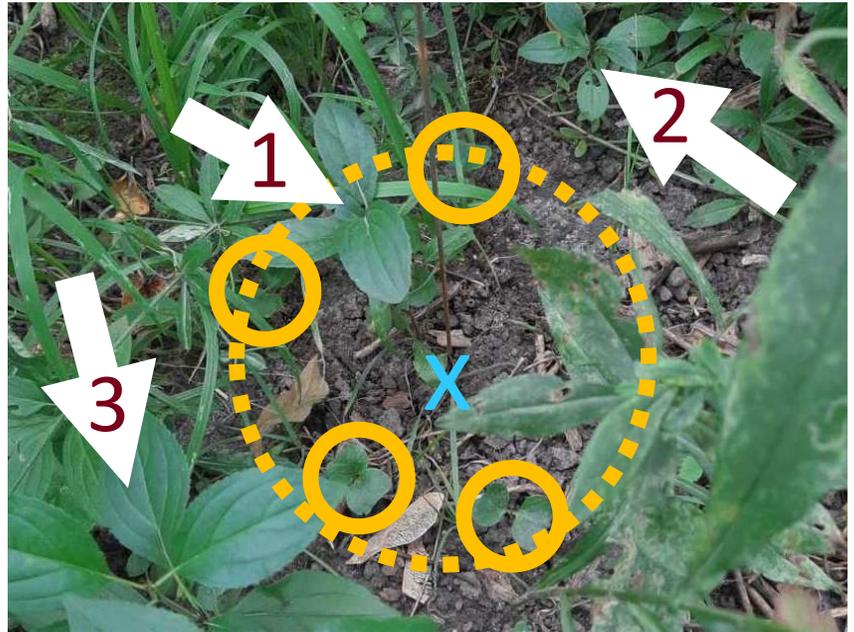
Four buckthorn seedlings (or “germinants”) are visible and marked with solid yellow circles. These seedlings are within 3 inches of where the white flag inserts into the ground (blue “x”). Furthermore, they are arranged in a circle pattern from the planting disc (dashed yellow circle). Critically, these seedlings have *distinct bean-shaped cotyledons*, typical of a young seedling. Because these plants have cotyledons and are within 3 inches of the flag, we are confident that they are indeed **test buckthorn seedlings**.

However, three residual buckthorn plants (shown with white arrows) are also visible here. These buckthorn plants are much larger than the test buckthorn seedlings and *do not have cotyledons*. Because of these clues, we are confident that these plants are residual and not test seedlings. In order to avoid confusion and improve the quality of your data, we ask you to *remove all residual buckthorn located within 3 inches of white flags*.

This new instruction diverges slightly from the tutorial and the Field Packet. Please use this amended instruction.

What steps do I take?

How will it affect the data I collect?



Step 1: Before you assess test buckthorn seedlings at each white flag (i.e., Activity 3), please remove all buckthorn plants that satisfy *all three* qualities:

1. have no cotyledons **AND**
2. are noticeably larger than nearby buckthorn with cotyledons **AND**
3. are within 3 inches from where the white flag inserts into the ground.

In the image above, this means removing the residual buckthorn labeled “1”. If you are unsure what to do about plants “2” and “3,” first, check that they do not have cotyledons. Then, measure their distance from the flag. If they are within the 3-inch radius, remove them. If they are outside the 3-inch radius, leave them. (If these plants grow 6 inches tall next summer, you can cut them during the “Cutting Activities”.)

Please do *not* remove any buckthorn that have cotyledons. Plants with cotyledons are likely test buckthorn seedlings (i.e., growing from the test seeds you planted).

If you have any questions, please let us know. If you are wondering about specific plants at your site, feel free to email a photo (like the photo on page 1) to coveritup@umn.edu. We will provide guidance.

Step 2: Proceed with Activity 3. Now that you have removed all residual buckthorn plants within 3 inches of white flags, you do not need to worry about counting or measuring them. They can be discarded.