



TASpeR Sampling Protocol

Supplies needed:

Included in sampling kit:

- Sampling data sheet
- Gloves
- White printer paper to place samples between (if sampling more than one tree place a labelled piece of paper between sets of leaves from each tree)
- Cardboard

User provided:

- Telescoping vegetation pruner (if available, but not mandatory)
- Measuring tape (for circumference)
- String or rope (for circumference)
- Litter trap (see below)

Site access and permissions

Prior to sampling, please make sure you have received appropriate permissions to sample. If you plan to sample in a park you will likely need permission from the park's office or administration. Sampling permission can take some time, so it is a good idea to request permission ahead of the first sampling dates in August.

If you are sampling on private property make sure you have received permission from the property owner prior to sampling. For private property sampling we recommend sampling on your own land or that of a friend or family member.

Identification of a red maple to sample

Before sampling leaves you will need to identify a red maple tree to sample. *Acer rubrum* is very widely distributed throughout the eastern United States and is also fairly common. In the landscape it can be found in wetlands and riparian forests along with upland systems. In wetter sites it can be found in stands or in association with black ash, cottonwood, and black gum (https://plants.usda.gov/factsheet/pdf/fs_acru.pdf). In more upland sites it is known to associate with sugar maple, beech, black cherry and birch trees. Cultivars of red maple are also commonly planted as 'street trees' for landscaping trees in residential yards.

Confirm you have identified a red maple by consulting a field guide that includes *Acer rubrum*. Links to red maple descriptions are available on our website: www.sites.bu.edu/tasper

Measuring tree circumference

By knowing the circumference of the tree we are able to estimate its total size using published allometry equations. These equations relate easily measurable tree metrics, such as circumference, to the biomass of the tree.



Wrap a rope or piece of string at a height of 1.3 meters (130 cm, or 51 inches) above the ground surface around the tree you are sampling. For multi-trunked trees, report multiple circumferences and note in the comments section of the datasheet that the tree was multi-trunked. Make sure you are not stretching the rope or string and note the 'start' and 'end' points of the circumference on your string (a marker works well). Then laying the string out measure its distance using your measuring tape.

Sampling Green Leaves

Prepping for leaf collection. It is important that you do not touch the leaves you are going to sampling with your bare hands - the naturally occurring oils on your hands can contaminate the sample. For this reason, we have included several pairs of gloves to wear while handling the leaves.

Green leaves should be collected from a single tree. You should collect a total of ten leaves from your tree. Select leaves from a variety of locations and branches on the tree - this ensures we will document the within tree variability that is caused by different light environments and locations in the canopy. Select only leaves that are not damaged by insects and that look healthy. You need to collect both the leaf blade and petiole. The petiole is the botanical term commonly referred to as the 'stem' of the leaf.

Storing leaves - Immediately after collection place the leaves between the included sheets of paper and then 'sandwich' the leaves between the two pieces of cardboard and tape around the edges to secure the sample. Make sure that the leaves are not folded during this process. The taped cardboard should then be mailed back to Boston University in one of the yellow mailers included in the sampling kit.

Sampling Fallen Leaves

Sampling fallen leaves from your tree will require you to set out a receptacle under your tree and return within 2-3 days to collect the fallen leaves. You will need to keep track of leaf fall in your local area in order to time this correctly. Note that red maples are among the first trees to lose their leaves in the autumn. Similar to the green leaf samples, a total of 10 leaves should be collected. If your trap contains more than 10 leaves, make a representative selection of leaves to sample.

It is important to keep an eye on the weather when getting ready to sample fallen leaves. Leaves that have fallen and have been exposed to standing water due to rain are not suitable for this study, so make sure to clear your leaf litter trap prior to rainfall.

Building the litter trap:

Idea 1: Place and secure a 'tarp' under the tree you are sampling. You can improvise a tarp by using a trash bag cut open to increase surface area or a shower curtain. Basically any plastic sheeting can be used as a tarp.

Idea 2: Bucket, milk crate, or plastic container placed under the tree you are sampling.



The leaves should be handled with gloves and pressed between white paper and cardboard and shipped within several days of collection as with the green leaves.

Sending leaves and processing at Boston University

Leaves should be returned to Boston University sandwiched between the pieces of cardboard and paper provided, inside the included mailer. The mailing address is:

**Finzi Lab (TASpeR Project)
Department of Biology
Boston University
5 Cummington Mall
Boston, MA
02215**

At Boston University we will weigh the leaves, determine their areas, and analyze their carbon and nitrogen concentrations. The resulting data will be shared on the TASpeR website. Analyses and interpretation of the data will be written up and published in peer reviewed scientific journals.

Submitting pictures on iNaturalist and connecting on social media

We highly encourage you to submit photos of your tree(s) and leaves to iNaturalist (www.inaturalist.org) and add the Tag 'tasper' to your observations. This will not only provide independent confirmation that the tree you sampled is *Acer rubrum*, but will also help out another Citizen Science project. By including the Tag 'tasper' everyone that uses iNaturalist (including other TASpeR participants) will be able to look at the tree specimens sampled for the TASpeR project.

Note, our project does not have any formal affiliation with iNaturalist.org

The TASpeR project is active on Twitter (@tasper_project). We post updates about the project and share information about red maple and plant traits. Give us a follow and include @tasper_project in your tweets to post some pictures (we will retweet) – we'd love to see some shots of you sampling leaves for the project!

Thank you for your contributions to the TASpeR project !!!