

Recording protocol – *Quercus* spp

Note on selection of trees to record: Every tree is welcome, but please try to target:

1. **Five trees in one location** (if you cannot manage five, any number will do, all the way down to only one, but five is best!). Please, avoid sampling adjacent trees.
2. **Trees that have seeded and grown naturally** (again, if you are uncertain of the origins of your tree, any record is better than none).
3. **Trees that you can label or mark permanently**, in case you or someone else need to find the tree again to take additional measurements or for a second recording.

For each tree please record of the following traits as possible.

We prefer to have complete records, but as some traits need more time and specialisation to measure, you can also limit your recording to those traits you can measure rapidly.

We would also like to have records of the same tree at different time periods: you can add multiple records for the same trees using the "Add a new record for this tree" option on the data entry webpage.

1. **Date of record: Date of the observation.** This field is mandatory.
2. **DBH (cm): Trunk diameter at 1.30 m**, i.e., approximately at adult breast height.
If the tree has more than one trunk, please measure all of them and record the average (but try to avoid trees with many small trunks). Note that tree is multitrunk in Notes.
If the tree is leaning, measure DBH perpendicular to the tree trunk. To obtain DBH, measure the circumference of the tree and compute the diameter from that value (i.e. divide by π , ~ 3.14).
For more details, a graphical representation and special cases see https://en.wikipedia.org/wiki/Tree_measurement#Girth
3. **Number of fruits (units): Acorns are counted from the ground using binoculars.**
Please, provide the average of three rounds of counting. Each round of counting consists in the number of acorns that you are able to count in 30 seconds.
4. **Seed mass (g): Seed mass is the oven-dried mass of an average seed.**
To estimate seed mass, collect 100 mature and viable acorns (if in doubt about viability, place seeds in water and remove any that float). Then dry the seeds and weigh.
5. **Tree age (years): Age determination is very important** for comparing trees growing in different environments.
To estimate tree age, you need to use an increment borer (see https://en.wikipedia.org/wiki/Increment_borer).
Take a small cylinder sample (a core) at the base of the trunk from the tree bark to the pith (tree centre) using an increment borer. From this core, the number of tree rings can be counted providing a good estimate of tree age.