

## A guide to the identification of Pedunculate and Sessile Oaks and their hybrids

This is based on a method by S.M. Potter, a version of which was published in the "Quarterly Journal of Forestry", Vol.88, No.1, 1994.

### In the Field

Collect fifteen leaves from the tree to be identified. These should be taken from the most accessible part of the lower crown, but epicormic shoots or coppice growth should be avoided. Young trees, less than about 4m in height may still have predominantly juvenile foliage, which cannot be reliably identified by this method.

If possible the fifteen leaves should be made up of three samples of five, taken from equidistant points around the crown. Select whole, undamaged leaves from the middle part of the shoot; avoid leaves which have been produced during the second (Lammas) flush of growth from late July onwards, as these can be of abnormal shape.

Pack the leaves in polythene bags.

### At Home

If the leaves cannot be measured immediately they should be stored, in their polythene bags, in a refrigerator or preferably in a freezer, to prevent mildew or depredations by the insects that will inevitably be attached to them.

Take one leaf at a time from the bag and make the following measurements:

1. Measure the length of the leaf blade or lamella - 'A' on Diagram
2. Measure the length of the leaf stalk or petiole - 'B' on Diagram.
3. The *petiole percentage*, 'P', for that leaf is calculated as

$$P = \frac{100B}{A}$$

**Make a note of the value of P.**

4. Calculate the number of pairs of leaf lobes.

As the leaf may not be symmetrical the easiest way to do this is to count the number of lobes and divide by two. On the diagram above, each lobe is marked by an asterisk: there are 3 on one side of the leaf and 5 on the other, so the number of pairs of lobes, 'L', is

$$L = \frac{3+5}{2} = 4$$

Note that the tip of the leaf does not count as a lobe. It may sometimes be difficult to distinguish between a small lobe and a wavy margin to the leaf, especially near the petiole. If in doubt, note whether a vein extends from the mid-rib to the edge of the leaf at that point: if it does, this should be counted as a lobe.

**Make a note of the value of L.**

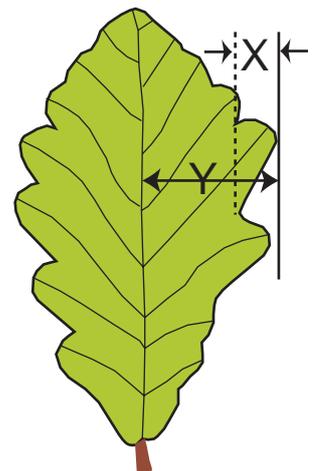
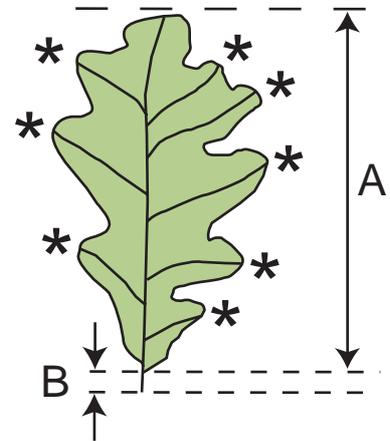
5. Assess the depth and regularity of lobing.

A more or less symmetrical leaf (as in diagram opposite) has regular lobing, whilst that shown in above would count as irregular. The depth of lobing can usually be assessed by eye, but if in doubt the measurement shown opposite can be used.

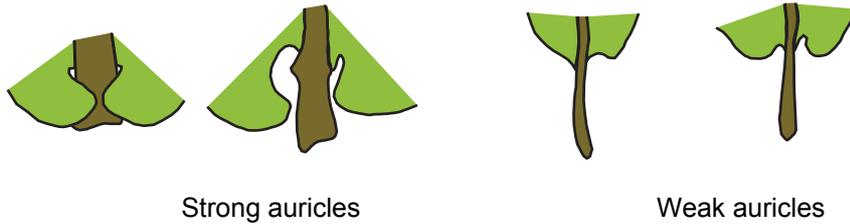
If  $X = 0.5Y$  or less the lobing is shallow; if more than  $0.5Y$  it is deep.

- If the lobes are shallow and regular, give the leaf a score of +1;
- if deep and irregular score -1;
- if intermediate, i.e. shallow and irregular or deep and regular, score 0.

(N.B. The leaf in diagram above would score -1 and that in diagram opposite +1).



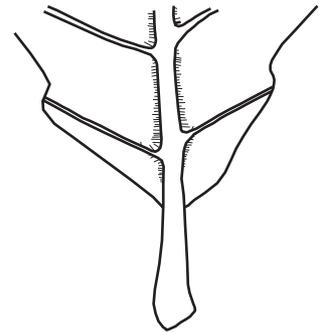
6. Assess whether auricles (small ear-like appendages) are present or absent at the base of the leaf blade, near the petiole. The diagram below gives some examples of “strong” and “weak” auricles.



- if auricles are absent or there is a single very weak one the leaf scores +1;
- if two strongly developed auricles score -1;
- if intermediate, i.e. two very weak auricles or one, well developed, score 0.

7. Look at the underside of the leaf.

- If there are clusters of silvery-white hairs on each side of the mid-rib, especially near its base, visible with the naked eye the leaf will score +1.
- If hairs are quite obviously absent score -1.
- If there are hairs present but they are thinly scattered and scarcely visible without a lens, score 0.



8. Add together the three scores obtained in steps 5, 6 and 7 to give a total *Leaf Character Score, C*, which can vary from +3 to -3. **Make a note of C.**

9. This completes the measurement of the first leaf. The process is now repeated for each of the remaining fourteen leaves and each of the values recorded above summed and the totals divided by 15 to arrive at average values of P, L and C.

10. Plot the values of P, L and C (as P against L and P against C) on the graph, the following rules apply to its interpretation:—

- If the tree falls within the “*Q. petraea*” area on both parts of the diagram, it can be regarded as *Quercus petraea*, Sessile Oak.
- If the tree falls within the “*Q. robur*” area on both parts of the diagram, it can be regarded as *Quercus robur*, Pedunculate Oak.
- If the tree falls within the “*Q. robur*” or “*Q. petraea*” area on one part of the diagram but in the “Intermediate” area on the other part it can be regarded as a hybrid.
- If the tree falls within the “Intermediate” area on both parts of the diagram it can be regarded as a hybrid.
- If the tree falls within the “Common” area on the left hand side of the diagram refer to its position on the right hand side to identify it.

