

## Collecting *Euphrasias*.

The forthcoming *Euphrasia* handbook is designed first and foremost to be used in the field. *Euphrasia* identification is much easier when one has the plants growing in front of one than dealing with pressed specimens later. In general *Euphrasia* plants do not press well, the leaves tend to curl, corollas shrink (usually by up to 10-15%) and colour is almost entirely lost.

However, pending its publication we have produced some guidance on collecting specimens for later identification or confirmation.

We suggest that the following methodology is used. It works for us.

1. Take a general overview of the *Euphrasia* plants in front of you. If they are generally fairly consistent in shape, size and colour the task will be somewhat easier. If there is a lot of variation however you will need to sample sufficient specimens to capture this variation. There may be more than one species involved and hybridisation is likely in such situations.
2. Select six plants from an internally consistent group. Avoid damaged plants, these often have their main stem missing and are worthless for identification purposes, and any plants which appear diseased (the yellow-brown rust *Coleosporium rhinanthacearum* is known to occur on *Euphrasia* and there are probably others). If possible take plants with well-developed flowers and capsules. Without both of these it may be impossible to determine the species with certainty.
3. Carefully uproot the plants for preservation. Having sight of the roots is important when deciding on the lowest flowering node. If the population is small, or sampling is otherwise impossible it is best to take no sample at all rather than an insufficient one. However it is generally easier to make identifications with the sample laid out in front of one than crawling around trying to measure and search for key characters.
4. If you have the fortune (or perhaps misfortune) to have come across a mixed population or what may appear to be a hybrid swarm it is extremely useful to attempt to capture the variation within the group. This is best done in the field by observing the area and trying to sample groups of plants which appear different from each other but reasonable similar within the group. Some characters to look for are:
  - Hairs - long glandular hairs are usually easy to spot as are long eglandular ones.
  - Lowest node of flowering.
  - Corolla size.
  - Blunt or sharp leaf tothing.
  - Internode length.
5. Make sure that each group of plants is bagged separately. Mixing of specimens may make identification impossible.

## Next Steps.

*Euphrasias* are difficult plants and gaining experience in identification is essential for good results. So it can be a good idea to send specimens to the referee for confirmation or identification. These should be carefully pressed. This is best done as soon as possible, *Euphrasias* shrivel and lose their leaves very quickly. Identifying dried specimens is much more difficult than field identification and so it will be invaluable to include some brief notes (in addition to the usual location/date/collector and

so forth).

Corolla size is particularly important and details of flower colour, dealing with upper and lower lip separately. Length of the lower lip in comparison with the upper is also important as this is often obscured in pressed material. Leaf colouration is useful too.

Additionally a note of the habitat is extremely useful. Try and be as informative as possible.

The more information you provide the more likelihood there is of getting a good result.