

Petalwort

Petalophyllum ralfsii



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Top and middle: A male and female Petalwort thallus respectively.
Bottom: A mature Petalwort sporophyte.

Identification

Petalwort is a small, green, thallose liverwort. Its tiny size makes finding and identifying particularly difficult but fortunately, it cannot be confused with many other species and is quite distinctive in appearance. Individuals are no more than 15x10mm in size and typically much smaller than that. Petalwort consists of a midrib flanked by two flat leaf like wings, on which near-parallel ridges of lamellae radiate from the midrib to the margin. It is these features that liken it to a miniature lettuce due to its rosette like appearance.

Petalwort is dioecious and there are some easily identifiable, morphological differences between male and female plants. Towards the centre of male plants there is a cluster of small spherical structures known as antheridia – often green, yellow or cream in colour (top left). These antheridia are absent on females and in their place is a rosette of erect, tooth-like bracts (middle left).

There is one species of liverwort that may be confused with Petalwort, *Fossombronia incurva*, also found in dune slacks. The main difference is *F. incurva* has a thallus which is divided into many leaf-like, wavy lobes overlapping on each side of the stem rather than lamellae emerging like ridges from the leaves themselves.

Common species of liverwort, such as *Aneura pinguis* and *Pellia endiviifolia*, are frequently found in similar habitat and can often grow alongside Petalwort. They bear little resemblance but inexperience may cause some confusion. Repeated surveys and examining specimens closely under a hand-lens will build confidence.

Surveying

When: Surveys for Petalwort should be carried out between September and April. Several visits should be made through each season and the highest count taken as the peak count. It is advised to survey earlier in the season



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A lightly trampled, damp footpath is suitable Petalwort habitat.

as Winter and Spring rainfall may result in a rapid raising of the water table causing some populations to be flooded and therefore difficult, if not impossible, to survey.

Between April and June, female plants may start to produce sporophytes if sexual reproduction has taken place, this is more likely to take place after a wet autumn and winter. Sporophytes may begin to develop early in Spring before maturing in June.

Where: Petalwort grows in damp, calcareous sand often in the vicinity of dune slacks. Occasional, seasonal flooding of these areas seem to benefit the species, aiding in the distribution of spermatophytes and spores. Plants favour firm, compacted sand, avoiding loose or mobile sand although plants can withstand being buried beneath several millimetres of sand. It is mainly found in areas with persistently low vegetation that includes many small perennials caused by a lack of nutrients, intense grazing or slight disturbance on lightly trampled footpaths. It will often colonise small areas of bare ground caused by disturbance and may sometimes grow beneath longer grasses.

How: Use maps or aerial imagery to locate dune slacks and depressions within the dunes close to the water table – these will be the survey areas. Visit each survey area and if there is no bare ground, short sward or trampled footpath, move on to the next survey area. Where the above conditions are present and the ground is damp/wet, search these areas thoroughly for Petalwort. The best method is to crawl forwards slowly on elbows and knees (wet knees are a good sign), scanning side to side using fingers,

tweezers or a small stick to move vegetation or sand. Once you have located a Petalwort thallus, mark it with a small cocktail stick and some tape. Search the whole area of suitable habitat marking up groups of thalli seen. Once the full extent of the population has been marked, count or estimate to the nearest hundred/thousand the number of individual thalli and record the presence of male or female plants.

What to record

Records in the field should be captured on a recording form, in a notebook or using a digital app. For each survey, the date should be recorded. For each area of Petalwort found, record the 10-figure grid reference (British National Grid), species, sex, abundance and any additional notes (e.g sporophytes present). Grid references can be captured using a handheld GPS or mobile phone with a grid-reference app.

Protection

Petalwort is protected in the UK under the Wildlife and Countryside Act 1981 and as a priority species under the UK Biodiversity Action Plan (UK BAP). This plant is included as a species “of principal importance for the purpose of conserving biodiversity” under Section 41 (England) of the Natural Environment and Rural Communities Act 2006.



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Use a hand lens to examine specimens closely and mark up groups or individuals with small markers made of cocktail sticks and tape.