

- Dirkse GM, Greven HC. 1993. *Grimmia meteorae* Townsend new to the Canary Islands. *Lindbergia* **18**: 135-137.
- Greven HC. 1994. The identities of *Grimmia nutans* Bruch, *G. ungeri* Jur. and remarks about other *Grimmiaceae* on the island of Cyprus. *Journal of Bryology* **18**: 303-309.
- Hébrard J-P. 2000. *Grimmia nutans* Bruch en France méridionale et *Grimmia elatior* Bruch ex Bals. & De Not., respectivement nouveaux pour la bryoflore d'Europe occidentale et de Corse. *Botanica Helvetica* **110**: 115-124.
- Henderson DM, Prentice H. 1969. Contributions to the bryophyte flora of Turkey: VII. *Notes from the Royal Botanic Garden Edinburgh* **29**: 235-262.
- Limpricht KG. 1890. *Die Laubmoose Deutschlands, Oesterreichs und der Schweiz, I. Abteilung*. Leipzig: Kummer.
- Loeske L. 1930. *Monographie der Europäischen Grimmiaceen*. Stuttgart: E. Schweizerbart'sche Verlagsbuchhandlung.
- Müller Fr A. 1829. Erstes Verzeichniss sardinischer Laubmoose, wie auch derjenigen welche von meinem Freunde Herrn Fleischer bei Smyrna aufgefunden worden, sind. *Flora oder Botanische Zeitung* **12**: 390-392.
- Savicz-Lyubitskaya LI, Smirnova ZN. 1970. *Handbook of mosses of the USSR. The acrocarpous mosses*. Leningrad: Nauka.
- Thériot I, Trabut L. 1930. Quelques mousses inédites de l'Afrique du Nord. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord*. **21**: 28-31.
- Townsend CC. 1989. *Grimmia (Musci)*. A variety new to the Lebanon and a new species from Greece. In: Ton K, ed. *The Davies & Hedge Festschrift*. Edinburgh: Edinburgh University Press, 45-52.
- Wijk R van der, Margadant WG, Florschütz PA. 1962. *Index Muscorum*. Utrecht: International Bureau for Plant Taxonomy and Nomenclature.

Petalophyllum ralfsii inland in Carmarthenshire (and in a plant pot in Monmouthshire!)

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The habitat of *Petalophyllum* in Britain

The habitat exploited by *Petalophyllum ralfsii* in Britain has long been considered to be relatively tightly defined – periodically flooded hollows and slacks in coastal dunes. The only confirmed record away from the coast is from a damp hollow in an old calcareous grit quarry in Sligo (v.-c. H28) (Paton, 1999). Published records from limestone turf in South Devon (v.-c. 3) (Pool, 1999), and from a fly-ash lagoon in Carmarthenshire (v.-c. 44) (Pryce, 1999) were both misidentifications of *Fossombronina* species.

Previous records of *Petalophyllum* in Carmarthenshire

Petalophyllum was first recorded in Carmarthenshire at Tywyn Burrows by H.H. Knight in 1906. Much of this site was planted with conifers in the middle of the last century, but *Petalophyllum* was again reported from there in 1998 (Pryce, 1999). A subsequent search in 2001 by David Holyoak failed to find the species and, considering the past history of confusion between *Petalophyllum* and *Fossombronina* species, this record should be regarded as unconfirmed. The species has recently been reliably recorded

from the opposite side of Carmarthen Bay at Laugharne-Pendine Burrows, and subsequent survey (Holyoak, 2002) has found the species to be locally frequent there.

An inland record of *Petalophyllum*

In March 2000, we paid a brief visit to a disused lead mine at Nant y Bai (SN7847, 230 m alt.) near Rhandirmwyn in north-east Carmarthenshire. A pile of sand, approximately a truck load, attracted our attention, and on it we found a few small patches of what appeared to be a rather odd-looking, non-fertile *Fossombronia*. The plants were very crowded and lamellae were by no means as parallel as those shown in illustrations of *Petalophyllum*. Neither of us had seen *Petalophyllum* previously.

One of us (GSM) collected two small samples to grow on in the hope that sporophytes might be produced and the '*Fossombronia*' identified. A plant pot was filled with a mixture of about one part loamy soil to three parts building sand, and the liverwort samples were pressed into the surface. The pot was watered and covered with cling-film to keep the soil moist, with a few small holes for ventilation and to allow rainwater to enter. After a few days the plants started to look sickly, and soon afterwards they were no longer visible and were presumed to have died. However, several weeks later, re-examination of the plant pot surprisingly revealed three or four fresh shoots of what was obviously *Petalophyllum*.

During the summer and early autumn of 2000 new shoots appeared and quite quickly died back on a regular basis; possibly they would have persisted if the pot had been watered. From about October 2000 to March 2001, the plant grew continuously, disappearing briefly in April. During the remainder of 2001, up until spring 2002, *Petalophyllum* was visible more or less continuously. Very little maintenance was carried out during this period apart from a handful of waterings during very dry periods and a little weeding of plant seedlings, *Aneura pinguis*

(introduced with the *Petalophyllum*) and *Lunularia cruciata* (which found its way into the pot).

It may be of interest for readers to know how quickly the plant can die back. For example, on 30 March 2001, one of the shoots had started to look pale (see Figure 1). Two days later the pot was examined and the plant had almost completely disappeared.

A return visit to the mine at Nant y Bai in August 2000 provided clues as to the origin of the sand pile and, therefore, the *Petalophyllum*. Vascular plants recorded on the sand included *Honckenya peploides* and *Rubus caesius*, while large bivalves, probably Common Otter Shells (*Lutraria lutraria*, were abundant. All demonstrate a coastal origin of the sand, and indicate that it is unlikely that *Petalophyllum* had independently colonised the pile of sand. *Petalophyllum* was not visible in August 2000; *Ceratodon purpureus* and *Dicranella varia* were frequent to abundant, and there were a few patches of *Aneura pinguis*, all of which were also present nearby on indigenous mine spoil.

It is a mystery as to how a truckload of coastal sand came to be deposited in a disused quarry in a relatively remote area of Wales. It is also difficult to assess how long the pile of sand has been present at the site, but it must be several years at least. It is possible that the sand pile does not have a Carmarthenshire origin, as Nant y Bai is roughly the same distance from the Dyfi estuary on the Ceredigion coast, where *Petalophyllum* is recorded, as it is from Tywyn Burrows on the Carmarthenshire coast.

Discussion

The significance of the record of *Petalophyllum* at Nant y Bai lies in the ability of the species to survive away from its typical sand-dune habitat. The sand had been dumped in a shallow runnel that is kept damp by run-off from the surrounding area. This, together with its survival in a plant pot, suggests that a substrate of damp

sand, perhaps with a small amount of soil, that is kept free of vascular plants could be sufficient for the *ex situ* maintenance of a population of this Biodiversity Action Plan priority species.

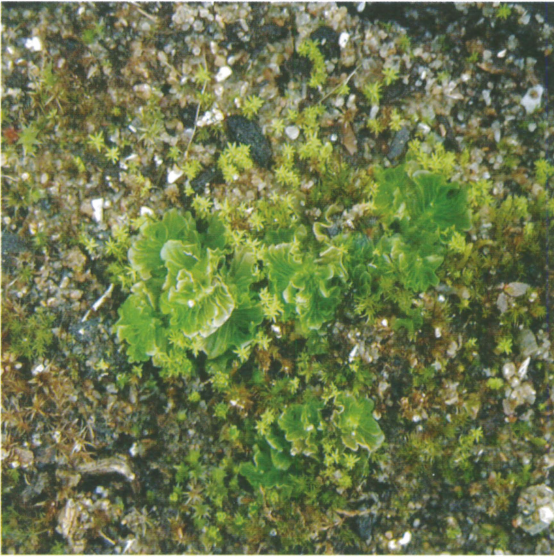


Figure 1. *Petalophyllum* from Nant y Bai in cultivation. Photo: G.S. Motley.

References

- Holyoak DT. 2002. *Petalwort* (*Petalophyllum ralfsii*). Report to Plantlife on work carried out in England and Wales during 2001 and 2002. Plantlife Report no 202.
- Paton JA. 1999. *The liverwort flora of the British Isles*. Colchester: Harley Books.
- Pool M. 1999. Spring field meeting, Torquay, 1999. *Bulletin of the British Bryological Society* 72: 4-12.
- Pryce R. 1999. Pwll fly-ash lagoon – unique in Britain. *Llanelli Naturalists' Newsletter* 64: 6.

Postscript

The *Petalophyllum* was thought to have been lost in summer 2002 when the plant pot was accidentally left in direct sunlight during a heatwave and all the bryophytes became scorched, but although all the mosses and most of the *Aneura* did not re-grow, the *Petalophyllum* recovered well. By spring 2003, the pot had become somewhat neglected, with various common mosses and *Aneura* covering much of the soil surface. Birds then pulled out the bryophytes (apart from the *Petalophyllum*) presumably for nesting material.

Research and herbaria

The Kingsley Edgell White collection

Bristol Museum & Art Gallery recently accepted the K.E. White (1915-2001) collection of bryophytes and lichens. This collection comprises approximately 550 specimens.

Mr White was the son of a Suffolk vicar, and was interested in wildlife and the natural world. When he retired he took up plant photography as a hobby, and became an active member of the Portishead Camera Club and North Somerset botanical and wildlife societies, often giving slide

shows of his adventures in Scotland to local naturalists.

Shortly, the details of the specimens will be entered onto a computerised database, so that the information will be available to all that may wish to find out more.

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