

Notes

TOFIELDIA PUSILLA (MICHX.) PERS. AT THE SCOTTISH BORDER

In 1671 John Ray found Scottish Asphodel, *Tofieldia pusilla*, new to science, about two miles from Berwick-upon-Tweed on the North Sea coast. Given the northern and montane distribution of this plant, as it is now known, this is a remarkable locality and this note presents evidence on its exact whereabouts and botanical character and considers whether the question of whether the record belongs to England or Scotland can be resolved.

John Ray (1677) records ‘about two miles from Berwick, by the side of a rivulet, in boggy ground, not far from the road leading to Edinburgh, we found a sort of *Pseudo-asphodelus* which I had never before seen, much less than that common in England, having, as I guess, white flowers in a spike, to which succeed roundish seed-vessels. The stalk of the spike is naked, or not having above one leaf, the spike itself short, the root fibrous, as that of the common’. As the Scottish border lies a little under three miles from Scotch Gate, the northern exit from the walled town of Berwick, this record nominally falls in England (v.c. 68). Ray gave an abbreviated account of the same find in his ‘Synopsis’ (1724) as ‘juxta rivulum non procul Bervico in Scotia’. There is an ambiguity as to whether Ray wrongly thought Berwick to be in Scotland or whether he sought to localise the record in Scotland. As this detail is not in the earlier account, which presumably was drawn from a field notebook, its authority is weakened. Ray may not have been clear just where the Scottish border lay as it may have been marked less well than by the later Lamberton Toll.

No subsequent botanist has re-found the plant in this area, though many have looked for it, notably George Johnston and Charles C. Babington in 1834. Johnston (1829, 1853) quotes Ray but does not attempt to allocate the record to a country. George Swan in his recent ‘Flora of Northumberland’ (1993) follows Johnston (1829) who wrote ‘Ray seems to have found *Tofieldia palustris* by the side of that stream which rises on this hill (Lamberton) and runs by the Shields’, which would place it in Scotland (v.c. 81), despite Lamberton Shiels lying a full four miles from Berwick. This interpretation has been followed by Stace et al. in the ‘Vice-county Census Catalogue’ (2003). Inexplicably, Alfred Slack in ‘Scarce Plants in Britain’ (1994) speculates ‘that it could have been in a flush by the River Tweed’.

THE LOCALITY AND ITS HISTORY

Berwick-upon-Tweed and its bounds or ‘Liberties’ north of the River Tweed comprise a roughly triangular area of land with sides about 5 km long that now falls to England, but only after a turbulent history. Indeed the Bounds of Berwick were granted to England in a treaty with Scotland in 1502 on the condition that they were ‘to remain uncultivated, unbuilt and uninhabited’. They remained thus until the Union of 1603 when James VI of Scotland and I of England gave full ‘liberties’ for the freemen of Berwick to plant and build as they pleased. By 1724 Daniel Defoe was able to report agricultural improvement with fine barley and turnips and, around 1775, the remaining open land was enclosed and let out in small farms. That is not to say that wet meadows and other permanent pasture did not remain or that there were not stretches of coastal heath and heathery deans, but by 1800 almost all the wet areas had been drained and brought under the plough. The position just north of the Scottish Border seems to have been similar.

There were still exceptions: in particular one boggy field on the farm known as ‘The Steps of Grace’ on the main road north (then as now farmed with Conundrum), which seems to have been just across the A1 from Loughend Farm Cottages at NT982558. It is just two miles from Berwick. The name Loughend itself suggests at least a seasonal water body and the field does have a hollow suitable for a former mire and a burn that emerges from a mysterious 200 m underground channel runs alongside. The 1769 map marks a farm here as Sedgeburn and indeed the field is still known today as ‘Sedgden’. Geologically this is just where Silurian rock abuts on Carboniferous calciferous sandstone. Here in the 1790s John V. Thompson, as a teenager, found a fine collection of wetland plants including *Selaginella selaginoides*, *Sagina nodosa* and *Schoenus nigricans*, but not the *Tofieldia*. Here or hereabouts in the 1820s Johnston was also to find *Epipactis palustris*.

This field was drained before 1853 and not a trace of its riches remains today, unless one counts *Parnassia palustris* at the foot of the sea cliffs nearby.

This was not the only mire in the area. Johnston (1829) wrote of the hill and moor of Lamberton that 'several small streams produce a variation in its surface, in some places forming narrow ravines, in others marshes'. He found *Schoenus nigricans* and *Epipactis palustris* in one such mire at Lamberton, apparently the first field into Scotland below the A1 at NT974572, but the habitat was also destroyed by 1853. Indeed, amazingly, a rather similar mire survives today on Lamberton Moor at NT955582 (v. c. 81), and such *Schoenus* flushes survived elsewhere on Lamberton Moor until the 1970s, particularly around the head of the Lamb's Burn, this being the burn by which Johnston thought the *Tofieldia* to have been found. There is evidence from the fragments that remain all along the coast that these mires were formerly set in extensive coastal heath and, indeed, a fine colony of *Scilla verna* survives just 10 km to the north near Eyemouth.

This evidence of relevant botanical riches set in an area of coastal heath near where Ray reported his *Tofieldia* seems sufficient to substantiate his find and the land use history is consistent with the failure by subsequent botanists to refine the plant, as the locality was probably lost before Johnston actively searched for it in the 1820s even though some associated habitats survived. Nevertheless, while there is a choice of suitable localities, it seems churlish to favour any other than that which falls just as he describes. This would localise his record for *Tofieldia* near Loughend in England (v. c. 68), but a Scottish location for the record cannot be ruled out.

ACKNOWLEDGMENTS

I am grateful to Professor George Swan for constructive criticism and to Linda Bankier, Berwick-upon-Tweed borough archivist, for help with old maps.

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THE TAXONOMIC STATUS OF *RUBUS ORBIFOLIUS* SENSU W. C. R. WATSON (ROSACEAE)

In his eventual monograph on the Rubi of Britain and Ireland, Watson (1958) included a bramble belonging to series *Sylvatici* (P. J. Mueller) Focke which he identified with *R. orbifolius* Lef., a species described from, and at that time apparently otherwise known in, one district in dép. Saône-et-Loire in the far east of France. Like many other Watson identifications with *Rubus* taxa of mainland Europe, this seems to have been based solely on the description and drawing in Sudre (1909), for the species is not represented in the extensive series of exsiccatae distributed by Sudre

under the name *Batotheca Europaea*, nor do any British herbaria contain more than the odd specimen or two of the large number distributed through the Association rubologique française in which this species had its taxonomic origin. Although an authentic specimen of *R. orbifolius* is to be found in **MANCH**, that is not a herbarium that Watson appears ever to have consulted. The poor fit of the **MANCH** specimen with the taxon as defined by Watson and the relative unlikelihood that Britain could share a species with such a distant and floristically dissimilar part of France have been sufficient to bring Watson's identification into disrepute, and in their own subsequent monograph Eedes & Newton (1988) relegated his taxon to its lengthy appendix listing species recorded as doubtfully British at best. It may also have been noticed that Sudre's description contains features that are sharply at variance with Watson's yet ignored by the latter, most notably a flat-sided primocane and ternate, finely biserrate leaves.

That the bramble discriminated by Watson is nevertheless a distinctive entity and (disregarding his erroneous determination of a Scottish specimen of *R. septentrionalis* W. C. R. Watson in **CGE** as the same) has a distribution that may well be regional rather than merely local has received general acknowledgement among British *Rubus* specialists informally. More recent work in the field and herbaria, indeed, has revealed its presence in at least 12 hectads and five vice-counties – and a sixth if a credible south Berkshire record cited by Watson (1958) is added to those. With such a distribution the plant amply qualifies for recognition taxonomically. The distinctiveness, however, may be illusory. Curiously, in his monograph Watson failed to draw attention to the similarity to another species restricted to the same region on which he had recently bestowed a name (Watson 1952: 97), *R. averyanus*. Seventeen pages separating the accounts of these two in his book strengthens the impression that he did not particularly connect them: it is *R. obesifolius*, rather, also recently described by him (from the Pennine foothills in Staffordshire, v.c. 39), that he mentions as most like '*R. orbifolius*' and accordingly places next to it. Yet, suspiciously, *R. averyanus* and '*R. orbifolius*' both have their possession of a dense armature of yellow, strongly curved prickles emphasised by means of italics in their respective descriptions and the localities cited for each are in much the same general area, The Weald of north Sussex in the one case and central Surrey in the other. Though Watson rarely includes habitats with his species accounts, he could have added that the two are also alike in favouring the "heaths and open wood margins" identified by Eedes & Newton (1988) as that of *R. averyanus*. Furthermore, that the two are sufficiently similar in appearance to be mistaken for one another is shown by the fact that in two instances herbarium specimens labelled as *R. averyanus* by two of Watson's pupils, C. Avery and J. E. Woodhead, in **SLBI** and **CGE** respectively, were redetermined in subsequent years by B. A. Miles as '*R. orbifolius*'.

Close comparison of the distinguishing characters listed for the two taxa reveals that most are either mere size differences or characters that are particularly prone to variation in *Rubus* or to modification by habitat conditions. *R. averyanus* is typically a tall, slender plant with sharply serrate-dentate leaflets, features consonant with growth on the wood margins on which it occurs in one of its two *loci classici*, Broadwater Common in Surrey's Tillingbourne Valley, the climate of which is sufficiently mild and moist to support several populations of the strongly western *R. incurvatus* Bab., absent or nearly so from all of the surrounding vice-counties. '*R. orbifolius*', by contrast, is a plant of open heath margins at least in the main and its lower stature, shorter prickles and broader and more obtusely toothed leaflets with shorter tips reflect this. Though the sepals of *R. averyanus* are described in both monographs as long-pointed ("prolonged into linear leafy tips" in the words of Watson and those of '*R. orbifolius*' are in most cases short-pointed, exceptions to the latter can be found if a sufficient range of material is examined. The same goes for the pilosity or otherwise of the young carpels, a reliably unvarying character in many *Rubus* species: subglabrous in *R. averyanus*, these are well supplied with long hairs in most examples of '*R. orbifolius*' examined but devoid of them in specimens in **BM** from one Sussex locality (Shortgate) – and total glabrosity was Watson's experience with '*R. orbifolius*' as a whole. Digitate leaves and furrowed, red-purple primocanes, the residue of the claimed differences, hardly seem enough to enable '*R. orbifolius*' to be told apart consistently.

The matter can be resolved definitively only by DNA sequencing or, in default of that, by cultivation of the two under contrasting conditions. For the time being, however, it is suggested that the two are treated provisionally as facies of a single species. This has the consequence of extending the known range of *R. averyanus* very considerably, more particularly into the Weald.

For as well as many further stations in East Sussex, v.c. 14, most notably around Chailey and in Ashdown Forest (Rich *et al.* 1996), and an extra one in West Kent, v.c. 16, bottom of Tunbridge Wells Common, TQ5738, 1902, E. G. Gilbert (**K**)), two additional vice-counties for the species result: v.c. 11, S. Hants.: south-west corner of Havant Thicket, SU7010, 1987, D.E.A. (**BM**) v.c. 13, W. Sussex: open heath north of Hawkin's Pond, St. Leonard's Forest, TQ223300; east side of Mannings Heath golf course, TQ220288, both 1964, B. A. Miles (**CGE**).

The broader interpretation of *R. averyanus* now proposed reopens the possibility that the French bramble may be conspecific after all, in which case the name *R. orbifolius* Lef. would have priority, That Sudre's description of Lefèvre's taxon includes a character, finely serrate leaflets, hitherto regarded as one of the distinguishing features of *R. averyanus*, is suggestive in this connection. It is further suggestive that in Herb. Déséglise in **NMW** (another herbarium unconsulted by Watson) there is a specimen of Ripart's from the Forêt d'Allogny in Cher, two départements closer to England than Saône-et-Loire, that is intermediate between *R. averyanus* and the British '*R. orbifolius*', though nearer the latter. Misdetermined by Ripart as *R. rosaceus* Weihe, a strongly glandular species which resembles this eglandular plant only in having leaves of a similar shape and pink flowers, the specimen was misdetermined by Genevier in turn as *R. atrocaulis* P. J. Mueller, a mainly Central European species now known as *R. gracilis* J. & C. Presl subsp. *gracilis*. In order for the matter to be settled, however, a wider range of material of Lefèvre's taxon from the type locality in Saône-et-Loire needs to be obtained and examined.

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A NEW SITE IN CAITHNESS FOR *SAXIFRAGA HIRCULUS*

In August 2002 a new site for the marsh saxifrage *Saxifraga hirculus* was found on the Plantlife nature reserve at Munsary in Caithness. It was found by Dr Fiona Everingham, who was a member of a survey team led by Dr Richard Lindsay of the University of East London, conducting a baseline survey of the reserve for Plantlife.

At the time the ground was very wet, with footmarks impressing some 7 cm into the site. Consequently only superficial surveying of the site was prudent.

In August 2003 the ground was much drier after a prolonged period without rain and footfalls made no lasting impression. Dr R. E. C. Ferreira and the author were able to examine the site which is on a hillside facing north-west at an altitude of 170 metres and with a slope of 0.04. The hillside is Middle Old Red Sandstone covered in a layer of peat of variable thickness but probably averaging 0.5 m thick. At the site there is a substantial flush of groundwater to the surface, which evidently carries a rich supply of minerals into the surface layers. The flushing promotes a circle of 50 metres diameter of green vegetation that is in marked contrast to the majority of the heather moorland of the hillside. The site is a percolation mire, with a distinct spring head, a large zone of evenly flushed fen and a tail where the water flows into rills and becomes a small burn.

The *S. hirculus* occupies a roughly circular patch of about 22 m diameter within the bigger (50 m) circle. There were more than 1000 flowering shoots visible and around five times that number of non-flowering shoots prominent. About $\frac{2}{3}$ of the flowering shoots bore one flower, while the other $\frac{1}{3}$ had multiple flower heads. Within the 50 m green circle the areas that have the saxifrage are of a different plant community from the areas where it does not occur.

The species associated with the saxifrage were, roughly in order of frequency: *Holcus lanatus* (dominant), *Juncus articulatus* (dominant), *Eriophorum angustifolium*, *Carex dioica*, *Festuca rubra*, *Epilobium palustre*, *Agrostis canina*, *Triglochin palustre*, *Ranunculus flammula*, *Menyanthes trifoliata*, *Carex nigra*, *Anthoxanthum odoratum*, *Rumex acetosa*, *Lychnis flos-cuculi*, *Cerastium fontanum*, *Cardamine pratensis*, *Sagina nodosa*, *Calliergon cuspidatum*. Mosses were very scarce in this congested medium-height community.

Saxifraga hirculus did not occur in:

- the bryophyte-rich spring head community, which includes *Philonotis fontana*,
- the *Juncus effusus* - *Filipendula ulmaria* rush pasture that covers much of the rest of the green circle,
- the tail of the site, which consists of rills and an inundation community.

The site showed no signs of grazing, which is as expected since there has been no agricultural grazing for around 7 years and the number of wild deer is low. However the site would have been heavily grazed previously and may be in a state of transition. There was no known previous survey of the site so it is not known whether the saxifrage has become prominent after the cessation of grazing, or was always waiting to be found.

S. hirculus is a Red Data Book species and the account (Wigginton 1999) by D. Welch indicates that this Caithness site is the biggest in Scotland and around the size – 1000+ flowering stems - of the largest sites in Britain.

The vegetation of the area where the saxifrage occurs does not correspond closely with a category in the N.V.C. (Rodwell 1991), nor is it closely similar to the sites described by Welch in N.E. Scotland (Welch 1996). Rodwell (1991) considers the saxifrage to belong to the M38 community, which is a spring-head community. Welch (1996) found the plant in several forms of the M9 mire and in one case in an M9 / M32 mire. These fen sites are notably variable in floral composition (Rodwell 1991) and the grazing history may be an important factor. It nevertheless seems likely that the vegetation bearing the saxifrage in the Caithness site could be classified as a form of M9 percolation mire. The saxifrage did not extend into the spring-head community - which was not examined in enough detail to classify it.

There was a different site for *S. hirculus* in Caithness found by the Rev. D. Lillie in 1912 but not re-found in recent times despite careful searching.

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RUBUS CROMERENSIS A. L. BULL (ROSACEAE) MUST GIVE WAY TO
R. NEUMANNIANUS WEBER & VANNEROM WHICH HAS PRIORITY

Whilst preparing the paper 'Four new species of *Rubus* L. (Rosaceae) in Eastern England' (Bull 1998) during 1996, specimens of each of which had previously been sent to Prof. H. E. Weber in Germany, questioning whether he knew of any of them growing on the Continent. In his reply, he stated that he did not recognise any of the sheets sent. At about the same time, a sheet of *R. neumannianus* Weber and Vannerom, was received from the latter, from Belgium, which appeared very similar to *R. cromerensis*. At the same time it appeared to differ in a number of important points. The Norfolk plants usually had many more prickles on the stem, some even occurring on the faces as well as the angles, and whereas *R. neumannianus* was usually pink flowered, *Rubus cromerensis* is only occasionally pale pink at first, or more usually white flowered. A specimen of *R. cromerensis* was sent of Mr Vannerom who responded by saying that he felt sure that *R. cromerensis* and *R. neumannianus* were one and the same and urging that a further specimen be sent to Prof. Weber. This time the latter replied that, whilst the two were very similar, he still felt that *R. cromerensis*, in addition to being white flowered, was also a much more heavily armed plant than *R. neumannianus*.

So the matter rested until Dr D. E. Allen questioned the status of *R. cromerensis* as being very narrowly distributed along the coastal fringe of north east Norfolk. After some correspondence, Dr. Allen kindly arranged with **BM** that the author should have a series of sheets of *R. neumannianus* on loan so that they could be compared with the whole folder of *R. cromerensis*. Study and comparison of the two sets revealed that there was a good deal of variation in the plants on both sides of the North Sea. As a result of this, it was decided to send a parcel of specimens to Prof. Weber. With several sheets from Norfolk, and including Mr. Vannerom's sheet of *R. neumannianus* from Belgium. Having had the opportunity to study several Norfolk specimens simultaneously, Prof. Weber was able to determine them all as being *R. neumannianus*, pointing out in several cases how they differed from the holotype collected by himself from the Eifel district of Germany in 1985. Differences in armature have been ascribed to the fact that the Norfolk plants grow on the acid moraines of the Cromer ridge, and at most sites are exposed to the harsh conditions along that coast of biting 'nor'easters' from Scandinavia in winter. It is also now felt in Botanical circles that ecological factors can affect flower colour in *Rubus*, not just with *R. neumannianus*, but in a number of other species found in Britain. For example, *R. londinensis* is pink flowered in Surrey, but has been found to be usually white flowered north of the Thames.

Bearing in mind that *R. neumannianus* only grows in Norfolk, along a narrow coastal fringe for a distance of about 25 km, it is almost without doubt that the plant must have arrived as defecated seed from migrating members of the Thrush family in autumn. On the Continent, *R. neumannianus* occurs in Belgium, Luxembourg, the Rhineland-Palatinate, North Rhine-Westphalia, Lower Saxony, Hessen and Baden-Wurttemberg.

ACKNOWLEDGMENTS

My thanks due to Prof. Weber for his patience in identifying specimens, to Mr Vannerom for sending me a specimen from Belgium in the first place, to Dr D. E. Allen for providing the impetus to get this matter solved, and to **BM** for the loan of specimens.

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