NOTES ON THE FEN HABITAT OF OPHRYS INSECTIFERA IN ANGLESEY

By R. H. Roberts

Ophrys insectifera, a very local plant in Wales, was first recorded in Anglesey by the Rev. Hugh Davies (1813). He gave two localities for it: the first in Cors Bodeilio, where it still grows, and the second "in the turbary between that and the mansion of Llanddyfnan". This place, known locally as Cors Llanddyfnan, was visited several times in the flowering season in 1957 and 1958, but no plants of *O. insectifera* were found. Judging by its habitat preferences in Cors Bodeilio, however, suitable conditions for it appear to exist here, but are of limited extent.

In addition to Cors Bodeilio, J. E. Griffith (1895) gave a third locality "under Tyddyn Bach, Lligwy", but did not mention Davies's second locality near Llanddyfnan. It seems probable, therefore, that Griffith also failed to re-find the plant here, and that it may be long extinct in this place.

In June 1957 a new locality for *O. insectifera* in v.c. 52 was discovered by the writer at Cors Erddreiniog. Here the plants were found to be widely scattered over a large area. The remarkable resemblance of the species associated with *O. insectifera* at this locality to those at Cors Bodeilio is of considerable interest, and is shown by the species lists below.

It is possible that the plant may still survive in its old station near Llanddyfnan and the species list for that is also given. Griffith's locality near Lligwy has so far not been found by the writer, but the plant may well be surviving there, too.

In Britain *O. insectifera* occurs most commonly around the borders of woods, or in the open spaces in woods, and in scrubby places on chalk or limestone. It grows in such places on the Denbighshire limestone. Occasionally, however, it is found in the deeper shade within woods and copses (where it may be very hard to find), but sometimes in the open on grassy banks and on spoil slopes on chalk or limestone (Clapham, Tutin and Warburg, 1952; Summerhayes, 1951).

In Ireland, however, the species is recorded in an entirely different type of habitat: Summerhayes (1951) refers to its occurrence there in "rather marshy places, where it is associated with *Epipactis palustris, Gymnadenia conopsea* and other marsh plants"; while Heslop-Harrison (1953) includes it in the list of plants from a fen in Co. Kildare, and states that it is "here a typical rich-fen plant, as in many of its Continental stations". This statement is also true of the two Anglesey localities where *O. insectifera* is now known, as well as of the old locality in Cors Llanddyfnan where it was formerly known to Davies. In all

three places fen vegetation has arisen as a result of strongly calcareous ground water from the adjacent Carboniferous Limestone. A brief description is given to indicate the general nature of each. The species lists, while serving to show the close similarity of the vegetation at each of the three places, are by no means complete.

1. Cors Bodeilio. An area of fen and marsh about 1½ miles S.W. of Pentraeth. It occupies a depression in the Carboniferous Limestone and its vegetation is highly affected by calcareous ground water. In parts the vegetation has been greatly modified by drainage and its present pattern is largely the result of this, but is also, to a lesser extent, affected by former peat cutting. There are, however, stretches dominated by *Phragmites communis, Cladium mariscus, Juncus subnodulosus* and *Schoenus nigricans.*

On the slightly higher parts around the fen are small areas of sedge meadow and a fairly persistent fringe of *Molinia caerulea* and *Myrica gale.* The area is, furthermore, of particular interest for the wealth of species it supports.

2. Cors Erddreiniog. An extensive area of fen and marsh about 3 miles N.N.E. of Llangefni. It lies just off the boundary of the limestone, and probably occupies the site of a shallow Post-glacial lake, which has been gradually filled by the growth of fen peat, and of which a small lake in the middle of the fen is the last remnant. In places, as in Cors Bodeilio, there is a good deal of marl, and the vegetation is strongly influenced by calcareous ground water. Here again there are stretches dominated by *Phragmites, Cladium, Juncus subnodulosus* and *Schoenus nigricans.* There are also extensive areas of *Molinia* with *Myrica gale* where the surface of the peat has risen above the water level (with a consequent lowering of its pH); small stretches of "mixed fen"; and sedge meadow here and there around the margin.

3. Cors Llanddyfnan. This fen occupies a saucer-shaped hollow in the limestone, and was, presumably, like the other two, originally the site of a small Post-glacial lake. No remnant of this now exists, and by far the greater part of the area is dominated by *Cladium.* Around this central tract of *Cladium* are areas where *Juncus subnodulosus* and *Schoenus nigricans* are dominant, with smaller tracts of sedge meadow. The vegetation here again shows the influence of calcareous ground water, and, though small in comparison with the other two, the area is rich in plant species.

Each of these three localities has areas where the *Schoenus* grows in pronounced tussocks surrounded by water-filled hollows in the bare peat. In both Cors Bodeilio and Cors Erddreiniog *Ophrys insectifera* shows a decided preference for these tussocky areas and the majority of the plants are found on them, though occasional ones also occur in the *Molinia-Myrica* association around the margins of the fens.

The characteristic plants of these tussocks are listed in Table I with some estimation of their frequency.

TABLE I

Schoenus nigricans	d	*Myrica gale*	r
Selaginella selaginoides	o	*Cladium mariscus*	r
Linum catharticum	f	*Carex panicea*	o
Potentilla erecta	f	*Sieglingia decumbens*	o
Parnassia palustris	f	*Phragmites communis*	r
Serratula tinctoria	f	*Molinia caerulea*	a
Erica tetralix	o	*Cratoneuron commutatum*	0
		Ctenidium molluscum	f

Several tests at tuber level on the tussocks, using Johnson's Test Papers, gave pH values from 6·1 to 7·1, with the majority around 6·5. In the water between the tussocks, however, a number of tests gave values ranging from 7·5 to 8·0.

The plants of *O. insectifera* in this habitat appear to be markedly shorter and to have fewer flowers per plant than those in the more usual British habitats. Stature, measured above soil level, showed a range of 8·2 to 18·0 cm., with a mean value of 13·8 cm. The majority of the plants had three leaves per plant while a few had four and a very occasional plant only two leaves. The very small number of flowers per plant is shown by the frequency distribution in Table II. Whether these characters of small stature and small number of flowers per plant have a genetic basis, or are merely the result of habitat factors is difficult to determine.

TABLE II

Locality	*Number of Flowers per Plant*					
	1	2	3	4	5	6
Cors Erddreiniog	7·0	34·5	38·0	17·2	3·3	—
Cors Bodeilio	—	41·2	41·2	11·8	—	5·8

SPECIES LISTS

1. Cors Bodeilio.
2. Cors Erddreiniog.
3. Cors Llanddyfnan.

	1	2	3		1	2	3
SELAGINELLA SELAGINOIDES	+	+	+	H. TETRAPTERUM	+	+	
EQUISETUM FLUVIATILE	+	+	+	LINUM CATHARTICUM	+	+	+
E. PALUSTRE	+	+	+	GENISTA ANGLICA	+	+	
CALTHA PALUSTRIS	+	+	+	LOTUS ULIGINOSUS	+	+	+
RANUNCULUS LINGUA	+		+	VICIA CRACCA	+	+	+
R. FLAMMULA	+	+	+	FILIPENDULA ULMARIA	+	+	+
AQUILEGIA VULGARIS		+		POTENTILLA ANSERINA	+	+	+
CARDAMINE PRATENSIS	+	+	+	P. ERECTA	+	+	+
POLYGALA VULGARIS	+	+		P. PALUSTRIS	+	+	+
LYCHNIS FLOS-CUCULI	+	+	+	PARNASSIA PALUSTRIS	+	+	
CERASTIUM HOLOSTEOIDES	+	+	+	DROSERA ROTUNDIFOLIA	+	+	
HYPERICUM PULCHRUM	+	+		MYRIOPHYLLUM ALTERNIFLORUM	+		
				HIPPURIS VULGARIS	+	+	

	1	2	3
Lythrum salicaria	+	+	+
Epilobium hirsutum	+		
Hydrocotyle vulgaris	+	+	+
Apium nodiflorum	+	+	
A. inundatum	+		
Berula erecta	+		+
Oenanthe lachenalii	+	+	+
Angelica sylvestris	+	+	+
Galium palustre	+	+	+
Valeriana officinalis	+		+
Succisa pratensis	+	+	+
Eupatorium cannabinum	+	+	+
Cirsium palustre	+	+	
Serratula tinctoria	+	+	+
Erica tetralix	+	+	+
Anagallis tenella	+	+	+
Samolus valerandi	+	+	+
Centaurium erythraea	+		
Gentianella amarella	+		+
Menyanthes trifoliata	+	+	+
Pedicularis palustris	+	+	+
P. sylvatica	+		+
Utricularia neglecta	+		+
U. minor	+	+	
Pinguicula vulgaris	+	+	+
Mentha aquatica	+	+	+
Prunella vulgaris	+	+	+
Polygonum amphibium	+		
Myrica gale	la	la	+
Salix repens	+	+	+
Listera ovata	+	+	+
Epipactis palustris	+	+	+
Dactylorchis incarnata	+	+	+
D. purpurella	+	+	
D. traunsteineri	+	+	
D. maculata subsp. ericetorum	+	+	
D. fuchsii	+	+	+
Orchis mascula	+	+	+
Ophrys insectifera	+	+	*
Gymnadenia conopsea	+	+	+
Platanthera bifolia	+	+	
Iris pseudacorus	+	+	+
Juncus inflexus	+	+	+
J. subnodulosus	ld	ld	ld
J. articulatus	+	+	+
Luzula multiflora	+	+	+

	1	2	3
Typha latifolia	+	+	
Alisma plantago-aquatica	+	+	+
Baldellia ranunculoides	+	+	+
Triglochin palustris	+	+	+
Potamogeton coloratus	+	+	+
Eleocharis palustris	+		+
E. quinqueflora	+		+
Eriophorum latifolium	+	+	+
E. angustifolium	+	+	+
Schoenus nigricans	ld	ld	ld
Cladium mariscus	ld	ld	ld
Carex hostiana	+	+	+
C. lepidocarpa	+	+	+
C. demissa	+		
C. serotina	+		
C. rostrata	+	+	+
C. panicea	+	+	+
C. flacca	+	+	
C. lasiocarpa	+	+	+
C. elata	+	+	+
C. acuta	+		+
C. nigra	+	+	+
C. diandra	+		+
C. disticha	+		+
C. dioica	+	+	
Phalaris arundinacea	+	+	
Holcus lanatus	+	+	+
Sieglingia decumbens	+	+	+
Phragmites communis	ld	ld	a
Molinia caerulea	la	la	a
Briza media	+	+	
Glyceria plicata	+		
G. declinata	+	+	
Fissidens taxifolius	+	+	
Mnium longirostrum		+	
Aulacomnium palustre		+	
Cratoneuron filicinum		+	
C. commutatum		+	
Campylium stellatum	+	+	+
Drepanocladus revolvens	+	+	+
Scorpidium scorpioides	+	+	
Acrocladium giganteum	+	+	+
A. cuspidatum	+	+	+
Ctenidium molluscum	+	+	

**Ophrys insectifera* recorded here by Davies (1813).

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