

Short Notes

88/4. COCHLEARIA SCOTICA DRUCE—Does it exist in northern Scotland?

The British endemic, *Cochlearia scotica*, is stated to have a chromosome number of $2n = 14$ (Gairdner 1939). As such it resembles the arctic species of the genus: *C. arctica* Schlecht., *C. groenlandica* L. and *C. oblongifolia* DC. *C. scotica*, although consistently recognised by recent workers (Clapham 1952, 1962; Chater & Heywood 1964), is stated to be easily and frequently confused with dwarf specimens of *C. officinalis* L. This latter species is in all characters a much larger plant than *C. scotica*, but in exposed conditions may become so dwarfed as to resemble *C. scotica*. The following are said to be the most consistent points of difference between the two species:

<i>C. scotica</i>	<i>C. officinalis</i>
Basal leaves usually truncate at base	Basal leaves usually cordate at base
Lowest stem-leaves sometimes stalked	Lowest stem-leaves not stalked
Stem-leaves clasping the stem	Stem-leaves not clasping the stem

The author has sampled a large number of populations from northern Scotland and the Scottish Isles which were phenotypically identifiable as *C. scotica*. Most proved to have a chromosome number of $2n = 24$ with many of the populations containing B chromosomes (Table I). Unfortunately, it was not possible to ascertain the origin of Gairdner's material, so no direct check on its validity was possible. This does not, of course, deny the existence of *C. scotica* as a rare diploid entity in northern Britain, but must cast doubts on its supposed distribution.

TABLE 1. CHROMOSOME COUNTS OF SPECIMENS REFERABLE TO *C. SCOTICA*
(all counts based on at least five specimens, except where stated)

Locality	Chromosome Number
East Voe of Skellister, Nesting, Shetland	$2n = 26, 28$ (2 plants)
Scalloway, Shetland	$2n = 24$ (+2B)
Little Green Holm, Orkney	$2n = 24$ (+3B)
Muckle Green Holm, Orkney	$2n = 24$
Brock of Borwick, Orkney	$2n = 24$ (+2B)
Ramnageo, Orkney	$2n = 24$ (+1B)
Wifes Geo, Orkney	$2n = 24$
S. E. Swona, Orkney	$2n = 24$ (+2B)
Loch Sligachan, Skye	$2n = 24$
Loch Ainort, Skye	$2n = 24$ (+2B)
Broadford Bay, Skye	$2n = 24$
Loch na Dal, Skye	$2n = 24$ (+2B)
Armada Bay, Skye	$2n = 24$ (+1B)
Barvas, Lewis	$2n = 24$ (+2B)
Garynahine, Lewis	$2n = 24$
Butt of Lewis, Lewis	$2n = 24$
Balallan, Lewis	$2n = 24$ (+3B)
Husinish, Harris	$2n = 24$ (+2B)
Rudha Reamhur, Harris	$2n = 24$
Loch Scresort, Rhum	$2n = 25$ (1 plant)
Melvich Bay, Sutherland	$2n = 24$ (+1B)
Helmsdale, Sutherland	$2n = 24$
Plockton, Ross & Cromarty	$2n = 24$ (+3B)
Morar, Inverness	$2n = 27$ (1 plant)

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J. J. B. GILL

252/1. *HIPPOPHAE RHAMNOIDES* L.—On the Isle of Mull, Argyllshire.

Whilst on Mull with the botanical survey party from the British Museum (Natural History) during September 1968, I had an opportunity to investigate carefully a locality for *Hippophaë rhamnoides*, sea-buckthorn, discovered the previous year by Mr Peter James (in Cannon & Bangerter 1968). *Hippophaë* is generally not considered to be native on the west coast of Britain. The site lay along a small headland on the north side of Camas Mor, near the grounds of Torosay Castle (GR 17/733.358). Over a distance of 30 yards along the shore of this headland grew some twenty old, gnarled and contorted trees of *Hippophaë* and at an estimate I would consider them to be between 30 and 40 years old. Several had trunks at least six inches in diameter at the base though all were much divided and branched a short way up from the ground. Some of the largest branches (most usually the lowest) were dead or dying. Both male and female trees were present, the females being in full fruit when I saw them on 17th September.

In spite of a thorough search only four seedling trees were found. These were growing close to the outer trees of the colony on the south-west side, and were all between 12 and 18 inches high and probably no more than 3-5 years old.

No evidence of spread by vegetative means was observed amongst the rocks and pebbles surrounding the site (there being no patches of sand present), nor in the adjacent area of finer material, consisting of gravel and mud, nearer the shore. The gravel and mud at this part of the shoreline was closely compacted and waterlogged at every incoming tide. These factors in all probability precluded a successful growth of a horizontal rooting system spreading outwards from the parent bushes. Nor was there any sign of perennation on the landward side of the colony, the shade formed by the woodland trees growing immediately behind being particularly dense.

The hooded crow (*Corvus cornix*) has, on occasions, been reported to feed on sea-buckthorn fruits at localities elsewhere in Britain (Goddard 1949, Groves 1958, Pearson & Rogers 1962). Although this crow was seen feeding elsewhere along the coast of Mull, no evidence of droppings of the bird, or indeed of any other species, that would indicate feeding on the sea-buckthorn fruits, was seen on the rocks beneath the *Hippophaë* at this Torosay Castle site.

Sea-buckthorn at this locality is therefore almost certainly originally planted as is the single tree of *Rhamnus cathartica* noticed growing nearby over a derelict stone summer-house.

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E. W. GROVES

ECHINOPHORA SPINOSA L.—A member of our flora.

This Mediterranean Umbellifer was at one time included in British Floras even though known to be extinct, but in recent Floras it has been excluded. Exclusion of any species unsupported by valid evidence, especially with its specious appearance of critical acumen is no less reprehensible than the indiscriminate inclusion of improbable records.

The justification for the omission of any mention of *Echinophora spinosa* was not merely that it was extinct but it appeared not unreasonable to suppose that it was here beyond its climatic range and, perhaps, a mere casual that neither persisted nor reproduced. It therefore appeared desirable to ascertain by experiment the tolerance of this species in our coastal climate. For this purpose ripe fruits were obtained from the south of France and the seedlings derived from these were grown in a pocket of sand and shingle in my garden on the coast at Felpham, Sussex. The plants were quite unprotected and only two escaped depredation by birds. *Echinophora spinosa* has now survived for five years and endured prolonged frost with winter temperatures that have been below -9°C .

Its capacity for reproduction in our climatic conditions was apparently nil during the first three years, although flowering occurred freely, since no seedlings were produced. In the fifth season infructescences were developed. The produce of an entire plant, all the fruits of which were dissected, was 114 mericarps that appeared to be fertile. In a number of the fruits one of the pair of mericarps had obviously aborted and in some the single fertile mericarp was exceptionally large.

The average weight, based on a sample of 96 mericarps, was 0.0148gm. This compares favourably with the average weight for samples of mericarps harvested in the south of France, which was 0.013gm. This lower average weight is perhaps correlated with an appreciably larger output. The French mericarps showed 28.5% germination, beginning in February and ending in the middle of May.

One sample of 26 fruits from a plant in my garden was sown as soon as the infructescences had withered in November. Germination began in April and continued till the end of May. On the highly improbable assumption that all these fruits contained two fertile mericarps the total seedlings would represent a germination of 32.5%. Actually, in only a few instances did the seedlings appear in pairs so that the real proportion might well have been about 60%. These results warrant the belief that reproduction on the south coast could have been adequate for the maintenance of the species.

Of the records of *Echinophora spinosa* on our coasts, that from Lancashire we have on the authority of Ray. Those from the Kentish localities we have on good authority. The Dorset record has been called in question. Professor Good refers to the belief that this was an error due to *Crithmum maritimum* being mistaken for *Echinophora*. This appears highly improbable, quite apart from the fact that in genuine mistakes the unfamiliar is normally assimilated to the familiar, not the reverse. No one who knew *Crithmum maritimum* could mistake it for the other plant, since even in the vegetative condition *Echinophora* has spiny, almost crisped leaves while those of *Crithmum* have pointed tips with almost flat segments. (Figs. 1B and 1C). Furthermore the *Crithmum* leaf emits the characteristic aromatic odour whilst that of *Echinophora* has but a slight parsley-like scent. The two Dorset records would appear to be on the authority of the Rev. A. Bloxham (Baxter, W. (1843) *British Phaenogamous Botany*, vol. 6, p. 478). Bloxham was evidently a field botanist of competence to whom J. C. Mansell-Pleydell, the author of the *Flora of Dorsetshire* (1874), pays tribute for assistance with certain critical genera.

There are other southern species which are recognised members of the British flora that have become extinct in a large proportion of their former stations. *Otanthus maritimus* has been recorded from some twenty-three coastal areas from East Anglia to the West of Ireland, but is now perhaps extinct from all but three of these (c 87%).

According to the *Atlas*, *Euphorbia peplis* was formerly present in a similar number of locations, though these were not quite so widespread, and it may now be extinct from all but two (c 90%). *Polygonum maritimum* formerly occurred in some twelve distinct areas though it is now probably present in not more than three (c 75%). These species have clearly all declined similarly, the prostrate and inconspicuous annual spurge more severely than the two perennials. The extinction of *Echinophora spinosa* is thus no evidence that it was in any different category to these other southern types whilst its taller habit (up to half a metre) and stems that rather readily fracture from the base, render it specially vulnerable to damage by pedestrians.

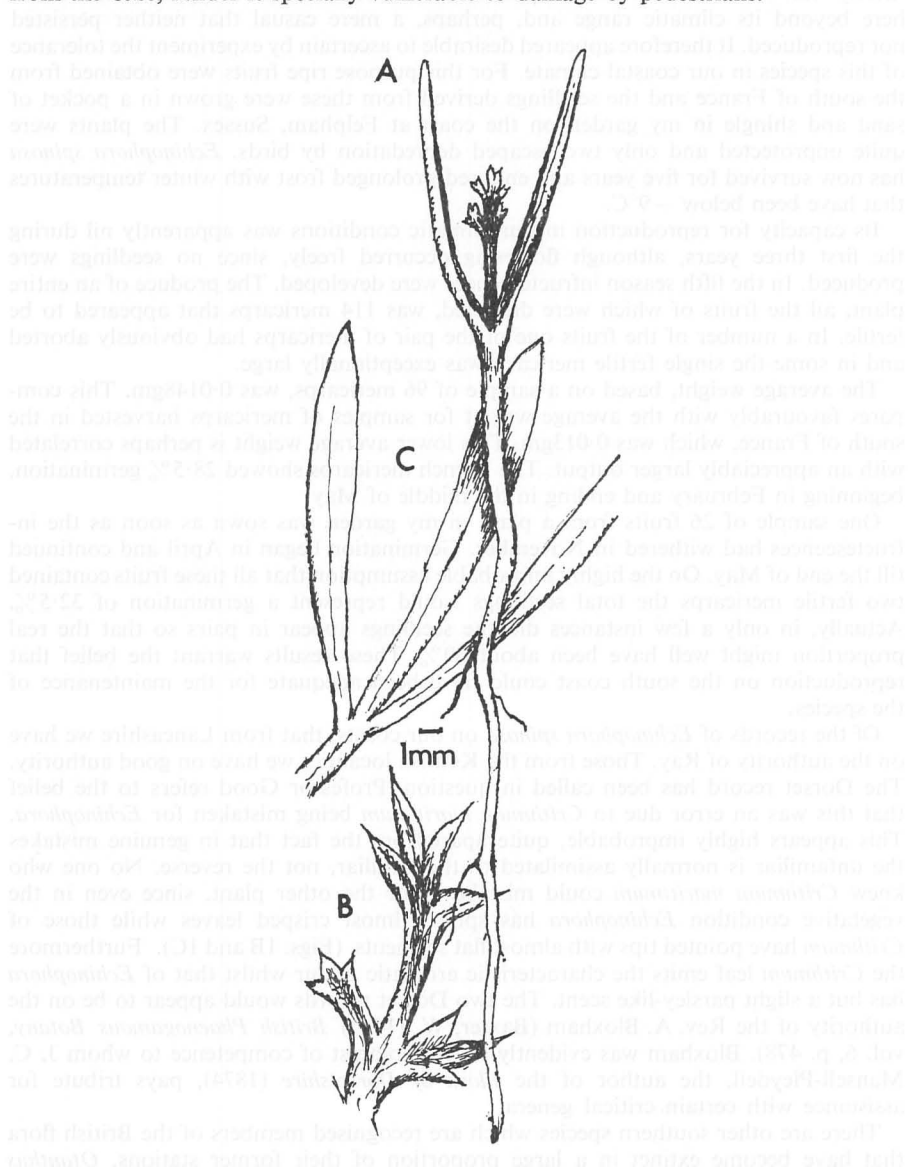


FIGURE 1. A. Seedling of *Echinophora spinosa*. B. Lateral segment of adult leaf. C. Lateral segment of *Crithmum maritimum*. All material grown in Sussex.

It is unlikely that any of these southern types were deliberately introduced since they are not specially attractive nor accredited with medicinal or culinary merits, although J. Hill (*The Family Herbal* (1722)) claims that the root of *Echinophora* is comparable to the parsnip as a vegetable. It is not improbable that all these species owed their presence on our coasts to accidental introduction by man, perhaps in ballast from vessels returning relatively empty from the south of Europe for which, in primitive times, soil from the foreshore would be the handiest source. This is mere speculation, but the facts here recorded emphasise that there is no evidence to warrant placing *Echinophora* in a separate category and any distinction between these southern species is more likely to be one of degree rather than of kind.

E. J. SALISBURY

430/20. *VERONICA HEDERIFOLIA* L. *sensu lato*—In Wales.

The variable *Veronica hederifolia* has lately been divided into three species on cytological grounds by Fischer (1967); an English-language abstract appeared in *Proc. bot. Soc. Br. Isl.*, 7: 435 (1968). Two of these segregates occur in Wales—the pale-lilac-flowered tetraploid ($2n = 36$) *V. sublobata* M. Fischer and the blue-flowered hexaploid ($2n = 54$) *V. hederifolia* L. *sensu stricto*. The following are new descriptions based on Welsh material observed in 1970.

V. sublobata M. Fischer. Plant less robust, greyish green with denser, shorter hairs. Leaves with shallower more obtuse lobes. Stomata $26\text{--}35\text{ }\mu\text{m}$, mean $c\text{ }32\text{ }\mu\text{m}$. Pedicels 4–5 times the fruiting calyx. Calyx weakly accrescent. Corolla $c\text{ }2.0\text{ mm}$ long, pale-lilac to whitish. Anthers 0.6 mm , whitish, dehiscing before the flower opens. Pollen (fresh, in water) $(31\text{--})\text{ }c\text{ }33\text{--}(35)\text{ }\mu\text{m}$.

The common segregate in Wales, occurring on rich humus in woods and on shady roadsides and as a garden weed.

V. hederifolia L. *sensu stricto*. Plant more robust and fleshy, bright green with sparser, longer hairs. Leaves with deeper more acute lobes. Stomata $35\text{--}48\text{ }\mu\text{m}$, mean $c\text{ }42\text{ }\mu\text{m}$. Pedicels $2\frac{1}{2}\text{--}3\frac{1}{2}$ times the fruiting calyx. Calyx strongly accrescent. Corolla $2.5\text{--}3.0\text{ mm}$ long, blue. Anthers 1.0 mm , bright-blue, dehiscing after the flower opens. Pollen (fresh, in water) $(38\text{--})\text{ }c\text{ }40\text{--}(42)\text{ }\mu\text{m}$.

In Wales, more local and so far seen by the writer only as a garden weed.

Corolla size in both species becomes smaller towards the end of the flowering period. Pollen from herbarium specimens, in water, gives measurements about 10% less than fresh pollen in water.

An experiment carried out by the writer during 1970 supports the treatment of these taxa as species. To try to induce a hybrid between them, 20 cross-pollinations were made with *V. sublobata* as the intended ♀ parent and 18 in the opposite direction. No capsules developed from these crossings although all the plants used fruited normally from selfing. A hybrid might well be obtained if a large number of crossings were made, but the negative result of this limited experiment seems proof of an effective if not complete barrier against interbreeding between the two taxa; moreover a hybrid would very probably be at least partially sterile.

Welsh material and records of the aggregate, particularly of *V. hederifolia sensu stricto*, would be welcome for the compilation of distribution maps.

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P. M. BENOIT

457/1. *PRUNELLA VULGARIS* L.—Colour variants apparently introduced.

The distribution of the colour variants in this species has long gone largely unrecorded, in the reasonable belief that, like so many trivial mutants, their incidence is purely

random in character and unlikely to reveal any meaningful patterns. Recent fieldwork in the Isle of Man suggests that this assumption is mistaken. Dr L. S. Garrad has found that a variant with pink flowers characteristically occurs in leys, in which it has been noted in several widely-separated parts of the island. In one such habitat, near Castletown, a large population of the species is as much as about 80% pink-flowered. Rather similarly, a variant with pale blue flowers occurs in plenty on garden lawns in one village in the east of the island; it has not, however, been noticed anywhere else, even singly. In both cases introduction with grass-seed seems to be indicated. Is there, one wonders, a firm of seedsmen somewhere in the British Isles whose premises are overrun with the products of one-time experimental work on the colour forms of this species?

A further point to which attention might usefully be drawn is that in some cases, at least, abnormal corolla colour in this species seems to be associated with distinctiveness in other characters. Var. *pallida* Gilmour, for instance, as originally described, has besides pale bluish-mauve flowers, a smaller corolla and a low stature; it is also said to be characteristic of dunes and dry grassland. N. Douglas Simpson (pers. comm.) had in cultivation for many years a variant with pale pinkish-mauve flowers, viscous foliage and yellow-green leaves. L. Cumming (*Rep. botl. Soc. Exch. Club Br. Isl.*, 6: 245 (1921)) likewise reported cultivating through seven generations a plant with almost-white flowers which was distinctly more hoary-pubescent than the type.

D. E. ALLEN

582/1. *ERIOCAULON AQUATICUM* (Hill) Druce—On Ardnamurchan (Westernness, v.c. 97).

In 1967 Mr D. McClintock showed at the Annual Exhibition Meeting of the B.S.B.I. a living specimen of *Eriocaulon aquaticum* (Hill) Druce (*E. septangulare*) found in the inland hills of Ardnamurchan by Mr W. Dolling (*Proc. bot. Soc. Br. Isl.*, 7:509 (1968)). This is the first record of the plant on the Scottish mainland. *Eriocaulon* is recorded in the *Atlas* from five 10 km grid-squares on the Scottish islands of Skye and Coll and is frequent in much of western Ireland. The record was subsequently published as a new vice-county record for Westernness, v.c. 97 (*Proc. bot. Soc. Br. Isl.*, 7:566 (1969)), but without locality.

In September 1970 the authors carried out a superficial survey of 12 scattered lochs on Ardnamurchan. *Eriocaulon* was found to be very abundant and flowering freely in Loch Caorach, GR 17/434.656, about 1½ miles south-east of the Point of Ardnamurchan. It appears to be absent from the neighbouring Loch Grigadale, GR 17/431.669, and the twin lochs at the head of Allt a' Bhriaghlann, GR 17/437.648, as well as the lochs at GR 17/464.657 and 17/470.655 (Lochan na Crannaig) about three miles to the east. *Eriocaulon* was found in a second locality at Lochan Dubh, GR 17/490.706, about one mile west of Faskadale on the north of the peninsula. Here it was locally abundant in small patches growing in about 1 ft of water with *Littorella*.

The loch at Ockle, GR 17/558.705, and those in Glen Sordail, Lochan an Ìme, GR 17/557.686, Lochan nan Dearcag and Lochan na Tuaidh, GR 17/559.679, and unnamed lochs at GR 17/556.680 and 17/560.689 were visited but *Eriocaulon* was not found. Lochan na Creige Duibhe, GR 17/640.667, south of Kentra Bay was found to now be a reservoir with fluctuating water levels.

It would seem that *Eriocaulon* may be confined to the western third of the Ardnamurchan peninsula but there are a large number of lochs on Ardnamurchan, which to our knowledge remain to be investigated, both within the region where we have found *Eriocaulon* and further east.

Specimens from the two localities are deposited in the herbarium at the British Museum (Natural History) (BM), I.K. & L.F. Ferguson Nos. 2639 & 2667.

I.K. & L.F. FERGUSON

Eriocaulon was searched for independently in the following lochans in 1970 but with no success:

south-east of Beinn nan Ord GR 17/44.64	Lochan an Dobhrain 17/47.70
Lochan Tom Mhic Iain 17/51.66	north of Beinn an Leathaid 17/51.68
lochans on Ben Laga 17/64.62	

G. HALLIDAY

643/1b. *DACTYLORHIZA FUCHSII* subsp. *OKELLYI* (Druce) Soó—Behaviour and characters in the Isle of Man.

Specimens of *D. fuchsii* with small and whitish flowers first attracted notice in the Isle of Man in 1957. Their suspected identity with the predominantly Irish subsp. *okellyi* was subsequently confirmed by several authorities who were sent fresh material or else saw the plant in the field. Since then the taxon has been found, in very varying quantities, in over twenty further localities scattered over a large part of the island. Some of these are in areas where subsp. *fuchsii* is not known to occur. A number are perhaps significantly in secondary habitats—notably quarries and sandpits—in which subsp. *fuchsii* occurs, by comparison, much more seldom on the Island. In several, solitary specimens only have been noted (whereas subsp. *fuchsii* almost invariably occurs in groups), and several more have obvious hybrid swarms with either subsp. *fuchsii* or *D. maculata* subsp. *ericetorum*.

This evidence, taken together, points to a taxon with an existence in the island quite independent of subsp. *fuchsii*, compared with which it appears to be recent and intrusive. It is possible, indeed, that the sudden rush of discoveries made since 1957 reflects an actual spread and is not merely the product of greater taxonomic acumen. In this connection the fact that the B.S.B.I. Field Meeting in late June, 1950, in which V. S. Summerhayes took part, failed to produce a record of any such plant may perhaps be significant. In the intervening period the myxomatosis epidemic has taken place and, probably as a direct result of this, quite a number of Manx orchid species have exhibited striking increases.

Most botanists acquainted with subsp. *okellyi* have seen it only in its *locus classicus*, the Burren. To judge from the comments made, the situation there is abnormally perplexing, with the result that many have come away unconvinced that this is a maintainable taxonomic entity. In several of the Manx localities, however, exclusively homogeneous populations occur and those who have seen these (for example, the entire B.S.B.I. Field Meeting party in 1960) have had no difficulty in accepting their distinctiveness. Several of the discoveries have in fact been made by persons with little or no knowledge of the dactylorchids. The extent to which the taxon is involved in hybridisation, and the relative commonness with which this occurs, is no more than is to be expected in this genus and certainly no argument against taxonomic recognition. If, as seems likely, this is a relatively recently evolved geographical race, possessed of some selective advantage in an Atlantic climate, sufficient time may not yet have elapsed for the development of more than a minimum of isolating barriers—and these, by virtue of their fragility, may well have proved more than ordinarily susceptible to the effects of human interference. There is some evidence that subsp. *okellyi* prefers drier habitats than subsp. *fuchsii*, and its smaller, slighter habit seems to point to an adaptation to shorter herbage. Odd, 'weedy' specimens of *D. fuchsii* which occur here and there in Man on roadsides and waste ground are often suggestive of hybrids with very probably subsp. *okellyi* in their make-up; and it could be that the advent of this race has made possible an extension in the ecological range of the species.

A further cause of scepticism about the validity of this taxon may well be the rather inadequate descriptions of it that appear in the standard books. Accordingly it seems worth drawing attention to the considerably larger number of characters that have emerged from a study of the Manx populations. These may, of course, differ to some

extent from the populations in Ireland and elsewhere, and it would be useful if the following description could be checked against material throughout the full range of the subspecies:

Plant typically small and slender, often no more than 7 cm. Leaves few, relatively narrow, very faintly spotted, typically yellowish-green, the largest 7–11 cm in length. Spike narrow and normally short (down to 3.5 cm). Flowers small (labellum only 5–9 mm wide), cream-coloured, turning pinkish when dried. Outer lateral perianth segments \pm equalling labellum, so that the overall profile of the flower is square (in subsp. *fuchsii* considerably exceeding the labellum, so that the overall profile is inversely triangular). Labellum with at most faint pinkish-purple striae, the central loop markings running vertically (in subsp. *fuchsii* directed sideways); middle lobe approximating the laterals in size and shape, triangular, crenate, with somewhat involute margins (in subsp. *fuchsii* often considerably longer than the laterals, triangular to spatulate, entire, not involute); lateral lobes conspicuously truncate, shorter in relation to breadth than in subsp. *fuchsii* and with strongly curved and rounded (instead of almost straight) outer margins.

The Irish populations are said to be fragrant (whereas subsp. *fuchsii* is almost odourless), but whether this also holds true of those on the Isle of Man is not yet certain.

D. E. ALLEN

698/1. *CORYNEPHORUS CANESCENS* (L.) BEAUV.—In West Suffolk.

This grass was found by the writer and M. Rutterford at Wangford Warren near Brandon in the West Suffolk (v.c. 26) Breckland in January 1970. Later visits to the site in June showed a colony of about 100 plants, confined to an area seven yards by five on a sand bank in association with open colonisation by *Carex arenaria* and *Agrostis canina* subsp. *montana*.

Although Hind's *Flora of Suffolk* (1889) records 'between Lakenheath and Wangford, G. C. Druce and Bolton King: Lackford Heath, G. C. Druce 1883', the former locality is probably now occupied by the aerodrome, whilst it has not been rediscovered on the heathland at Lackford which was converted to arable and new grazing some years ago.

The *Atlas of the British Flora* (1962) shows thirteen post-1930 stations for this grass, all in coastal areas, of which eleven are in Suffolk and Norfolk (v.c.'s 25, 27 and 28). Wangford Warren, which is leased by the Suffolk Trust for Nature Conservation, lies on the eastern extremity of the West Suffolk fens and is 28 miles from the south-eastern corner of the Wash. It is therefore possible to assume that the site was at one time an area of maritime sand dunes.

P. J. O. TRIST