Short Notes

DIANTHUS ARMERIA L. NEW TO IRELAND AND OTHER RARE PLANTS IN WEST CORK

This note presents a preliminary report of extensive floristic research on Sherkin Island and adjacent islands in Roaringwater Bay to the west of Baltimore, West Cork (vice-county H3). During field-work from March to September 1992, based at Sherkin Marine Station, K.C. (joined by J.R.A., 25 August–4 September) made so many significant records of rare native and ruderal species that it seemed pertinent to make the most interesting results available. All data have been lodged at Sherkin Marine Station. Some of our herbarium voucher specimens of the plants are fragmentary or even lacking, as many of the plants are extremely rare and protected by Irish law. Nomenclature follows Stace (1991).

Dianthus armeria L.
Horse Island, rocky pasture near the sea, 1 September 1992, *J. R. Akeroyd & K. Clarke*, **DBN, herb. Sherkin Marine Station.**

Six plants in all were found, severely grazed by sheep and goats. The plants had anomalous few-flowered inflorescences with secondary growth below, but could be distinguished by the annual/biennial habit and flowers c. 1 cm in diameter, bright reddish-pink and scentless. The leaves, bracts and stems were reddish.

Dianthus armeria, a plant of grasslands on sandy soils, has not previously been reported from Ireland. It occurs over much of southern and central Britain, but is now rare and decreasing (Perring & Walters 1976; Stace 1991). The Irish station is an area of some 12 × 3 m on a south-facing slope of submaritime grassland interspersed with a few outcrops of Old Red Sandstone. The species-rich sward, dominated by *Agrostis vinealis* Schreber, *Cynosurus cristatus* L. and *Koeleria macrantha* (Ledeb.) Schultes, is grazed to 5–8 cm, with grass-stems and chewed inflorescences of *D. armeria* up to 18 cm. Further down the slope the grassland is coarser and enriched, with patches of nettles and thistles. On adjacent rock outcrops a more heathy flora, dominated by *Ulex gallii* Planchon, includes a large, unrecorded population of *Ornithopus perpusillus* L., a rare but often overlooked plant in Ireland (fide J. R. Akeroyd & R. FitzGerald). No soil analyses have been carried out, but it may be significant that the site is adjacent to old copper workings.

D. armeria has a wide distribution in Europe, where it extends northwards to southern Norway and westwards to Galicia, Cornwall and mid-Wales (Jalas & Suominen 1986). Its occurrence in southern Ireland, although a welcome surprise, is perhaps therefore not too unexpected. It should certainly be sought elsewhere in W. Cork and on coasts from Co. Cork to Co. Dublin. It is the only member of the genus *Dianthus* that is apparently native to Ireland.

Allium ampeloprasum L. var. *babingtonii* (Borrer) Syme
Sherkin Island, road from church towards Sherkin Point, garden of deserted cottage, July 1992, obs. K. Clarke.

This distinctive leek has long been known from the Aran Islands and the coasts of Clare, W. Galway (Webb & Scannell 1983) and from Donegal, and is also widespread in Scilly and the coast of mainland Cornwall. It is considered to be a relic of ancient cultivation, probably introduced from the Mediterranean region where the species has its centre of distribution, but perhaps a native species (Webb & Scannell 1983). Var. *babingtonii*, endemic to western Ireland and south-western England, is frequently associated with human habitation and old ruins. The Sherkin plants might have been introduced, but they do provide a geographical link between the two main areas of distribution of this variant.

Asplenium obovatum Viv. subsp. *lanceolatum* (Fiori) P. Silva
Cape Clear Island, South Harbour, damp stonework, 3 September 1992, *obs. K. Clarke & J. R. Akeroyd*.

We observed a single plant of this rare fern at South Harbour, where it had last been recorded, as *A. lanceolatum* Huds., in 1896 (Colgan & Scully 1898). The warden of the Cape Clear Bird Observatory later kindly directed us to a second locality to the west of South Harbour where the plant had been rediscovered by another botanist on a damp stone wall just a few days previously, allowing us to confirm the identity of our own plant.

Centaurium pulchellum (Sw.) Druce
Horse Island, damp grassland above patch of scrub on east coast, 10 m, 19 June 1982, *L. C. Wright LW0045*, **herb. Sherkin Marine Station**.

We were unable to refind this species ourselves, but the herbarium material represents the only recent record from Co. Cork. It is apparently the first record of this species from Roaringwater Bay since 1818 when it was reported on Cape Clear Island (Colgan & Scully 1898). *C. pulchellum* has recently been rediscovered at several old stations in Co. Wexford (fide J. R. Akeroyd & R. FitzGerald), so may be overlooked.

Kickxia elatine (L.) Dumort.
Sherkin Island, Foardree, open peaty ground on south-facing slope above sea, *obs. J. R. Akeroyd & K. Clarke*, 29 August 1992.

A very rare, submaritime plant in Ireland, now restricted to Counties Cork and Wexford and usually found on cultivated land. It was found at Foardree whilst examining a population of *Lotus subbiflorus* Lag. discovered there earlier (fide K. Clarke). However, we failed to find *K. elatine*, described by Polunin (1949) as "frequent on cultivated ground", elsewhere on Sherkin or Cape Clear Islands, although fragments of a formerly rich weed flora (cf. Polunin 1949, 1950) have survived in the islands.

Rumex pulcher L.
Sherkin Island, above Horseshoe Bay, obs. 28 June 1990, 25 August 1992, J. R. Akeroyd.

Ten plants of this rare Irish dock were located in two small colonies at the eastern end of Sherkin Island. This confirms reports from the area by Polunin (1950) and earlier workers. As the species has persisted for nearly 100 years on Sherkin, has been repeatedly recorded in Co. Wexford and is a member of native plant communities (fide J. R. Akeroyd), it cannot be regarded as merely "casual" (Perring & Walters 1976) and is probably native in Ireland.

Tuberaria guttata (L.) Fourr.
E. Calf Island, rock outcrops in heathland, 20 May 1992, *K. Clarke C198*, **herb. Sherkin Marine Station**.

This confirms an old record of the species from E. Calf, where it was not refound by Polunin (1950). The other Irish stations are all on islands or peninsulas in the extreme west of the country: on the coasts of W. Mayo and W. Galway and on Sheep's Head and Three Castles Head, Co. Cork (recorded by J. R. Akeroyd & D. A. Webb in July 1987), respectively some 25 km to the north-west and west of E. Calf Island.

In addition to the above reports, we have made or confirmed records on Sherkin Island or adjacent islands of many rare or local Irish plants, including *Althaea officinalis* L., *Artemisia absinthium* L., *Lotus subbiflorus*, *Trifolium striatum* L. (cf. O'Mahony 1979), *T. micranthum* Viv., *T. arvense* L., *Torilis nodosa* (L.) Gaertner and *Viola lactea* Sm. The total number of flowering plants and ferns on the islands of Roaringwater Bay, including Cape Clear and Sherkin Islands, now stands at about 500, at least ten of them among the rarest of Irish plants – a flora of remarkable richness. A full Flora of the area is currently being prepared.

ACKNOWLEDGMENTS

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Island would never have been possible without the solid groundwork provided by the studies of Lucy Wright (1981–2) and Jennifer Shockley (1990).

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PILOSELLA × *FLORIBUNDA* (WIMMER & GRAB.) ARVET-TOUVET (ASTERACEAE) IN THE BRITISH ISLES

Stewart (1903) recorded *Hieracium auricula* L. from an old limestone quarry at Cave Hill, Belfast, and remarked: "I have known this plant growing on the debris of the Whitewell limestone quarries, Cave Hill, for at least six years. During that time it has neither increased nor decreased. It partially occupies an area of about two square yards. The district around it is uncultivated, save for grass. There are few gardens in the vicinity – none close at hand. I consider it an alien, but how it has reached here is not easily understood". It was first recorded there in 1897 and last seen in 1910 (Wear 1923). Pugsley (1946, 1948) renamed it *H. helveolum* (Dahlst.) Pugsley. Sell and West (Sell 1967) made *H. helveolum* a subspecies of *Pilosella lactucella* (Wallr.) P. D. Sell & C. West. The same authors, when writing the account of *Hieracium* for *Flora Europaea* (Tutin *et al.* 1976), decided it was better put under *Hieracium* × *floribundum* Wimmer & Grab., i.e. *Pilosella floribunda* (Wimmer & Grab.) Arvet-Touvet which is where *H. helveolum* was originally placed by Dahlstedt as subsp. *helveolum*.

P. floribunda is almost certainly a hybrid between *P. lactucella* (Wallr.) P. D. Sell & C. West and *P. caespitosa* (Dumort.) P. D. Sell & C. West, which can spread vegetatively as well as by seed. It differs from *P. caespitosa* by its glaucous, less hairy leaves, and from *P. lactucella* by its much taller habit.

On 21 June 1991, R. P. Bowman discovered 45 or more plants occupying an area of about 4 × 2 m, in grass heath with *Calluna vulgaris* – *Erica tetralix* tussocks, on the wide verge of the B3056 between Stephill Bottom and Pig Bush in the New Forest, S. Hants. v.c. 11, GR SU/35.05, **herb. R.P.B.** It was the site of military emplacements during the 1939–1945 war, and *P.* × *floribunda* may have been introduced during that period.

It is a good match with the eight plants from the Belfast locality in **CGE**, and with continental material in that herbarium.

Pilosella × **floribunda** (Wimmer & Grab.) Arvet-Touvet in *Bull. Soc. Dauph.* 1880: 280 (1880).
Syn. *Hieracium floribundum* Wimmer & Grab., *Fl. Siles.* **2**(2): 204 (1829); *Hieracium floribundum* subsp. *helveolum* Dahlst., Hier. Exsicc. **4**: nos. 14 & 15 (1891); *Acta Horti Berg.* **2**(4): 13 (1894); *Hieracium helveolum* (Dahlst.) Pugsley in *J. Ecol.* **33**: 347 (1946); *Pilosella lactucella* subsp. *helveola* (Dahlst.) P. D. Sell & C. West in *Watsonia* **6**: 314 (1967).
Rootstock rather thick, sometimes producing leafy stolons. Stems 10–35(–45) cm, erect, rather slender, green below, darker above, with numerous long (to 7 mm), pale, dark-based simple eglandular hairs throughout and with numerous to dense, small stellate hairs and numerous, short, dark glandular hairs in the upper part. Leaves 50–180 × 6–20 mm, glaucous-green with a whitish

midrib; the basal numerous, in a rosette, narrowly elliptical or narrowly oblanceolate, the outermost rounded at apex, the inner obtuse or subacute and mucronulate, long attenuate at base to a broadly winged petiole, with few to numerous, long (to 4 mm), pale simple eglandular hairs on or near the margin, and similar ones with red bases along the midrib (sometimes the hairs are found on the surfaces and sometimes small stellate hairs are present on the lower surface); the cauline 0–3, similar to basal but smaller; when stolons are present they bear numerous leaves which are similar to basal but small. Inflorescence of 3–7 capitula, compact; peduncles 3–25 mm, with dense, white stellate hairs, numerous, short, dark glandular hairs, and few to numerous, long simple eglandular hairs. Capitula 15–20 mm in diameter. Involucral bracts 6–9 × 1·0–1·5 mm, dark green with whitish margins, linear-lanceolate, rounded-obtuse at apex, with numerous, very small stellate hairs particularly on the margins, numerous, short, dark glandular hairs down the centre, and few to numerous, long, whitish, dark-based simple eglandular hairs. Ligules bright yellow, paler beneath, glabrous. Styles yellow or slightly discoloured. Margins of receptacle pits shortly dentate. Achenes 2–3 mm, purplish-black.

In Stace (1991) it will key out to *P. caespitosa*, but differs from that species in its bluish-green rather than yellowish-green leaves which are not as hairy on the surface. In Europe it occurs in the north and centre southwards to north Switzerland and the east Carpathians. It is a triploid with 2n = 27. Little is known about its biology.

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REGENERATING BALSAM POPLAR (*POPULUS CANDICANS* AIT.) × BLACK POPLAR (*P. NIGRA* L.) (SALICACEAE) AT A SITE IN LEEDS

In 1983 poplar regeneration was observed on a patch of waste ground at a site in central Leeds, Yorkshire. Vegetation surveys carried out in other towns over the next eight years failed to reveal further examples and it gradually became clear that this was a most unusual occurrence. A literature search revealed only one other incidence in the UK; this involved different poplar taxa at a sewage works at Hackney, East London (Wurzell 1985). During 1991 the Leeds population, which is now very well established, was investigated in more detail.

The parents, which are growing on a traffic roundabout at the junction of Kirkgate and Crown Point Road, are 20 well grown specimens of the Balsam Poplar (*P. candicans* Ait., all female) and two similar sized Black Poplars (*P. nigra* L., both male). The origin of *P. candicans* is unknown; it may be a hybrid between *P. balsamifera* L. and *P. deltoides* Marshall and, if so, the regeneration could well be tri-clonal, a most unusual occurrence. The large quantities of seed which are shed in late June collect as piles of white 'fluff' wherever there is a little shelter. Following rain, they germinate within 24 hours to produce extensive, dense swards of seedlings with dark blue-green elliptic cotyledons. Most of these are subsequently killed by drought. In many years however a number survive, particularly where the substrate contains fine material. This has led locally to very dense stands of uneven aged young poplars up to several metres high; hundreds of individuals are involved.

The community they are invading is typical of dry, brick rubble demolition sites all over the country (Gilbert 1989). Leading herbaceous species are *Agrostis stolonifera* L., *Artemisia vulgaris* L., *Chamerion angustifolium* (L.) Holub, *Poa annua* L., *Senecio squalidus* L. and *Taraxacum officinale* Wigg. which provide an open vegetation into which woody plants such as *Buddleja davidii* Franchet, *Fraxinus excelsior* L., *Malus domestica* Borkh., *Salix caprea* L., *Sambucus nigra* L. and the poplars readily self-seed. The only remarkable feature of the vegetation is the presence of the poplars, now up to 3 m high and visually dominant. The climate of Leeds is not unusual in any way and open, competition-free conditions are a universal feature of urban areas so the reason behind this regeneration episode is enigmatic.

The hybrid plants are too young for features such as canopy shape, sucker development or trunk morphology to be assessed, and to date none has flowered so their sex is unknown. However it is already clear that they show a greater range of variability in leaf characters than either parent. A hundred leaves were collected from strong shoots of each parent population and compared with a similar number from the progeny (Table 1). The results suggest that by using combinations of leaf characters it should be possible to identify populations that have arisen as hybrids between the black and balsam poplar. The range of variation in leaf characters is wider than in either parent; the mean expression of this variation is intermediate between that shown by the parents and new characters are present such as the subpallid colour of the underside of the leaf (34%), rounded leaf base (20%) and subacute leaf tip (17%). The variability of the parents needs to be fully understood before such determinations are made (see Jobling 1990).

The opportunity was taken to investigate seed viability which is reported to drop to zero after only a few days (Brendell 1990). A large sample of seed, collected from bursting capsules on 29 June 1991, was stored in daylight at room temperature. Initially, then at seven day intervals, subsamples of c. 200 seeds were moistened and placed on damp filter paper in a petri dish. Germination occurred within 24 hours but the dishes were left for seven days before being scored. The results

TABLE 1. A COMPARISON OF THE CHARACTERS OF *POPULUS NIGRA*, *P. CANDICANS* AND THEIR HYBRIDS

Character	*P. nigra*	Hybrid	*P. candicans*
Leaf shape	Triangular 80% Diamond 20%	Triangular 28% Diamond 39% Ovate 26% Heart-shaped 3% Elliptic 4%	Heart-shaped 80% Ovate 20%
Leaf base	Cuneate	Cuneate 80% Rounded 20%	Cordate-subcordate
Leaf tip	Acute through acuminate to cuspidate	Acute through acuminate to cuspidate 83% Subacute 17%	Acute through acuminate to cuspidate
Colour of underside	Green	Green 31% Pallid 35% Subpallid 34%	Pallid (whitish)
Serration	Crenate	Crenate 52% Serrate 47% Entire 1%	Serrate
Gland(s) at top of petiole	Absent	Present 52% Absent 48%	Present 68% Absent 32%
Hairiness of petiole	Hairy 80% Subglabrous 20%	Hairy 49% Subglabrous 4% Glabrous 47%	Subglabrous 84% Glabrous 16%
Cross section of petiole*	Flattened	Flattened 25% Rounded 75%	Rounded
Scent of unfolding foliage	Unscented	Scented to some extent	Balsamic

* This character was difficult to assess.

showed that a germination rate of 80% is maintained for the first week, after a fortnight it had dropped to 25%, after three weeks to 1%, and after five weeks to zero. In this instance it would be correct to record that germination dropped to zero after a few weeks.

At the London site, where hundreds of selfsown poplars have established at two adjacent disused sewage works (the Middlesex and the Essex Filter Beds) ecological conditions are very different. Here the substrate is mud in the bottom of seasonally waterlogged lagoons. The parents involved are two varieties of black Italian Poplar which have crossed to produce abundant regeneration of the hybrid *P.* × *canadensis* Moench 'Serotina' (male) × 'Marilandica' (female); the former has also crossed with Balsam Poplar to produce the hybrid *P.* × *canadensis* 'Serotina' (male) × *P. candicans* Aiton (female).

These examples from Leeds and London are the only recorded instances of alien hybrid poplars, which are usually present as single sex clones, regenerating in Britain and are a further example of how new taxa, with their dispersal centre in urban areas, are being added to our flora. In the Ruhr district of Germany, I have observed that Black Poplars and Balsam Poplars hybridise freely, their progeny are a conspicuous feature of dry urban wasteland sites in industrial areas. It would appear that unlike Black Poplar regeneration, which is currently limited by a lack of suitably muddy germination sites (Milne-Redhead 1990), regeneration involving alien poplars may be controlled by the chance juxtaposition of compatible genotypes.

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SEXUAL DIMORPHISM IN *ERIOPHORUM VAGINATUM* L. (CYPERACEAE)

In Britain, *Eriophorum vaginatum* L. is one of the major dominants in ombrotrophic mire vegetation and comes into flower in early spring, before most other bog species. On 22 March 1991, we had an opportunity to observe its floral characters in a central part of Borth Bog (Cors Fochno) in Cardiganshire (v.c. 46), one of the largest intact raised mires in Britain. Tussocks of *E. vaginatum* are a prominent component of the vegetation at Borth Bog, so there was an abundance of material on which to make observations.

The florets of *E. vaginatum* are wind-pollinated and strongly protogynous. Following pollen liberation, anthers are shed leaving the more persistent filaments protruding from the glumes. Eventually, the filaments too are abscised, and the perianth bristles elongate rapidly and massively to form the familiar cotton-like heads which aid seed dispersal.

What seemed curious about the floral biology of *E. vaginatum* at Borth Bog was that no stamens were visible on the flowering spikes of some tussocks, even though they were at the appropriate ontogenetic stage, with withered stigmas on the one hand and no sign of remnant filaments or developing 'cotton' on the other. Suspicion that these plants were male-sterile was confirmed by closer inspection; three tiny vestigial stamens, or staminodes, were clustered around the base of the

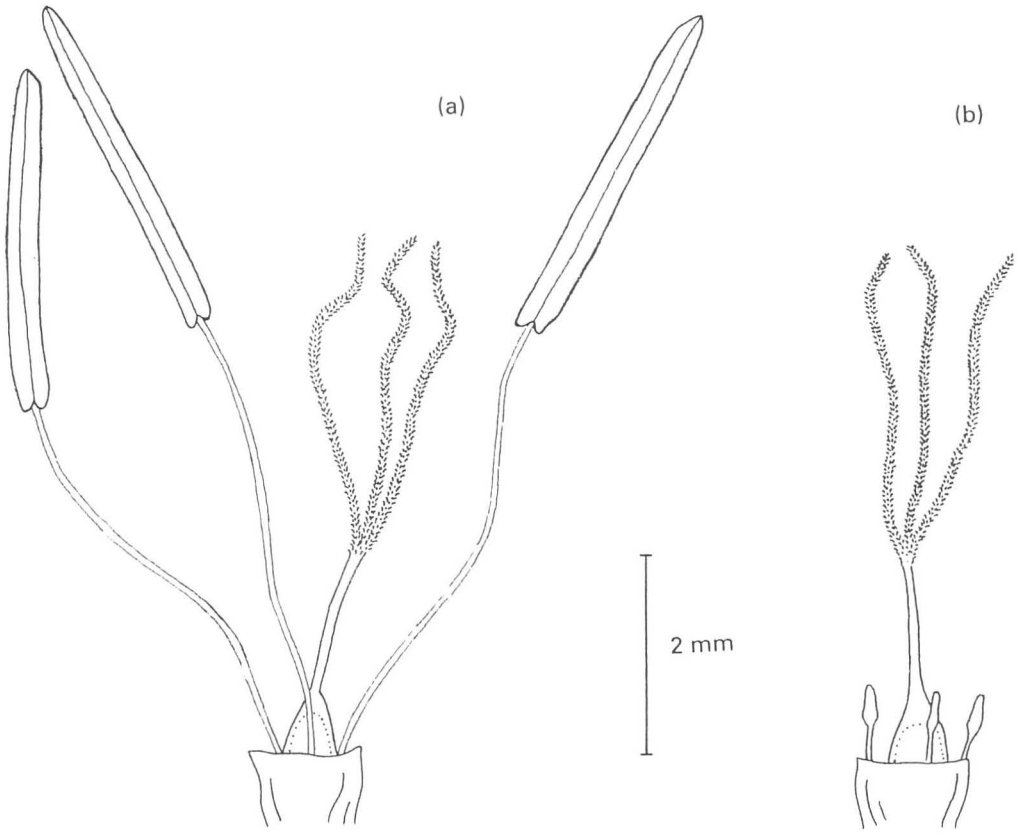

FIGURE 1. Flowers of *Eriophorum vaginatum* collected from Borth Bog in March 1991: (a) hermaphrodite; (b) male-sterile (glumes and bristles removed).

ovary in every floret. These staminodes were clearly non-functional, with minute, empty, non-dehiscent anthers, white or brown in colour, on filaments which had failed to elongate. The striking difference between these structures and those of male-fertile plants is illustrated in Fig. 1.

Several male-sterile and male-fertile tussocks were examined in the field, and no variation in stamen development was detected, either within or between inflorescences on the same tussock. However, no thorough search for plants of intermediate phenotype was carried out. Similarly, no attempt was made to assess the abundance of male-sterile tussocks on 22 March 1991, but they were obviously frequent in the study area. No marked ecological separation of the two sex phenotypes was apparent.

We re-visited the same section of Borth Bog on 21 June 1991 to see whether the two phenotypes were setting seed. It was past the optimum time to make such an assessment as fruiting spikes were disarticulating. Sexing had to be carried out with great care because staminodes were being shed from male-sterile florets, as were remnant filaments from male-fertile spikes. Many of the remaining intact fruiting heads of both phenotypes were barren. However, several florets in both male-sterile and male-fertile spikes were found to contain ripening nuts. It appears therefore that the Borth Bog population of *E. vaginatum* is gynodioecious (*sensu* Darwin 1877), with co-existing female and hermaphrodite tussocks.

The only previous record of sexual dimorphism in *E. vaginatum* of which we are aware was reported in a talk on pollination and seed dispersal in Danish Cyperaceae given by the eminent botanist C. Raunkiaer to the Botanical Society of Copenhagen at a meeting on 14 May 1892

(Anonymous 1893). Raunkiaer stated that he had found *E. vaginatum* to be completely gynodioecious on a small island in the Hvalsølille Sea; unfortunately, no further description of the sexual characteristics was transcribed. Male-sterility has been reported for other species of *Eriophorum* by several authors, including Dickie (1865) and Knuth (1906), but not for *E. vaginatum* by Wein (1973).

Further investigations into the distribution of gender in *E. vaginatum* and other British cottongrasses are in progress.

ACKNOWLEDGMENT

We thank Anna Williams for translating the account of Raunkiaer's talk.

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CORYNEPHORUS CANESCENS (L.) BEAUV. (POACEAE) ON THE WEST COAST OF SCOTLAND

There are three records between 1895 and 1961 of *Corynephorus canescens* (L.) Beauv. on the Morar coast. In 1948 R. C. L. Burges collected "on sands one and a half miles south of Morar", Westerness v.c. 97 in **E**. If this distance is stretched a little, is there similarity between this record and that of S. J. P. Waters, 1961, "sand dunes by Camusdarach" which is slightly more than 3 km by road from Morar? Or is it more likely that the Burges record refers to the earliest known site at Toigal which by road is 2·5 km south of Morar? This site of *C. canescens* was found by F. Townsend, as *Weingaertneria canescens* Bernh., on "Sand Dunes by the sea between Morar river and Arisaig, Scotland, July 1895", in herb. Druce, **OXF** with duplicates in **CGE**, **E**, **K** and **LIV**. There has been no further report of this site, except the reference to Burges above, until 24 July 1991 when Alfred Slack, Elizabeth Norman and John Trist found the remains of the colony.

Beeby (1897) reported that one Eneas R. Macdonnel of Morar introduced *C. canescens* to this site; but this 'introduction' is Beeby's interpretation of Macdonnel who *in litt.*, 1896 to Townsend wrote "it is not indigenous but was introduced direct here and not by accidental admixture". This does not imply that Macdonnel introduced either seed or plant.

In 1991, after a thorough search of the dunes, we found a single plant of *C. canescens* within the area described by Townsend. He reported to Beeby (1897) that "the grass occurs in plenty on the sand-hills". At Morar the dunes are highly mobile and bare of vegetation except for *Ammophila arenaria* (L.) Link, which is largely confined to the crests, and a little *Carex arenaria* L. At the site of the single *C. canescens* there was one plant each of *Aira praecox* L., *Rumex acetosella* L. and *Carex arenaria* which were within 10 m of a small dune crested with *Calluna vulgaris* (L.) Hull.

Marshall (1967) reports that *Corynephorus canescens* is a plant of substrates which are extremely low in mineral nutrients, and this is true of this site at Toigal, which showed available phosphorus 4 mg/l^{-1}, potassium 9 mg/l^{-1} and magnesium 7 mg/l^{-1}. These values are very low and would offer minimal plant nutrition.

The pH of the Toigal sand is high at 8·3. It was treated with dilute hydrochloric acid and shown to have no calcium carbonate present, indicating that there must be another source of calcium. This was confirmed by the detection of ammonium acetate extractable calcium in moderate quantity.

This sand consists of multi-faced subangular particles of quartz, some of which are transparent, opaque and ferrugineous; minute black particles of a mineral are also present and may represent 1–2% of ferro-magnesian minerals.

The instability of these dunes has probably been a major influence in the past history of this *Corynephorus* colony. Consideration may also be given to Marshall (1967) who has shown that this taxon can thrive in a wide range of pH (3·7–8·5). Perhaps in this case we should only regard the high pH value as one of several factors which have influenced the gradual decline of this grass colony.

C. canescens has a shallow rooting system of 7·5–10 cm in depth (Marshall 1967). In this site on the coast it is subject to high winds which puts further stress on the sand to retain moisture. However this area has an annual rainfall of c. 1500 mm (Met. Office 1991) which to some extent will offset the disadvantages of a medium which lacks moisture storage. *C. canescens* grows best where up to 10 cm of sand accretion per year takes place though Marshall points out that where this exceeds 2 cm at germination too much sand may be trapped and seedlings are smothered. Even in this event some young plants may survive which have not germinated from seed and which owe their existence to vegetative internodal growth.

Rabbits may have contributed to the decline. The single plant of *C. canescens* of 1991 had twelve culms of which only three panicles survived the rabbits. Reference has been made to the sparse vegetation of the dunes which would not attract rabbits. There are no rabbit-grazed swards about the dunes but they are found around the settlement. As rabbits have probably been present here for a long time, it would be difficult to assess their part in the decline of the *C. canescens* colony which has survived for 97 years and now appears to be reduced to a single plant.

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