

***THE FLORA OF HANDA ISLAND (v.c. 108)**

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GENERAL DESCRIPTION.

Handa is a small island of 766 acres. Roughly rectangular in shape, $1\frac{1}{2}$ miles by $1\frac{1}{4}$ miles, it lies $\frac{1}{4}$ mile off the west coast of West Sutherland (v.c. 108), some 18 miles SSW of Cape Wrath and 3 miles NW of Scourie. Geologically it is of Torridonian sandstone with a little conglomerate in the south. The sandstone strata slope gently from the dune systems of the south-east of the island to the superb cliffs in the north-west. These 350' cliffs are the breeding site for many seabirds and for this reason the island has recently been established as a reserve by the Royal Society for the Protection of Birds.

PLANT COMMUNITIES.

For convenience of description the vascular vegetation can be classified into three community types.

1. Maritime. These are the communities occupying the cliff-faces and a narrow coastal strip around the island including sand-dunes and machair.
2. Bog and moor. Occupying the central region and varying from waterlogged *Sphagnum* bog to relatively well-drained moorland.
3. Aquatic. In the lochans and burns.

1. MARITIME COMMUNITIES.

The cliff flora varies considerably. In the north-west the environmental forces are severe, the plants having to tolerate exposure to very high winds and a lot of salt spray. Another important factor is the degree of "liming" from sea-bird guano. The plant communities of the more exposed cliff faces consist chiefly of *Rumex acetosa* and *Festuca rubra*, while the cliff tops bear rich *Festuca-Agrostis* pasture with patches of *Armeria maritima* in places. As one moves towards the south and east there is a gradual amelioration of environmental conditions and a decrease in the height of the cliffs, and the most important consideration as far as the plants are concerned becomes the amount of shelter which these low cliffs can afford. Many of the plants rare on Handa are to be found only on the low cliffs of the south and east. Some of these plants may well be the relics of a more

*This paper is based in part on the records of the Forest Hill School, London, Expedition to Handa in August 1962.

extensive distribution on the island, having been destroyed elsewhere by firing, drainage and grazing, both by sheep and rabbits. *Endymion*, *Daucus* and *Heracleum* are examples of plants which may have been affected in this way.

On the dunes the dominant plant is *Ammophila arenaria*. There are three areas of dunes very close together in the south-east of the island. In some places they are formed of shell-sand and in others of weathered sandstone. Of particular botanical interest is *Catabrosa aquatica* var. *littoralis* Parn. growing at the mouths of small burns, between the dunes and the sea. Also of interest is a colony of *Calamagrostis epigejos* (the most northerly station for this species in Britain) on the eastern edge of the dune systems where the low cliff faces are covered with sand. At one point the colonies of *Ammophila* and *Calamagrostis* overlap to some extent but although the hybrid \times *Ammocalamagrostis baltica* has been recorded from this locality (Harrison, J. W. Heslop & Harrison, H. Heslop, 1938) none was found after exhaustive searching.

The region between the coastal dunes and the central moorland constitutes the machair. This is an area rich in plant species and subjected to considerable grazing pressure from sheep and rabbits. Typical machair species are *Lotus corniculatus*, *Prunella vulgaris*, *Taraxacum laevigatum*, *Geranium molle* and *Myosotis discolor*.

2. THE CENTRAL AREA

This constitutes a number of plant communities with complex distributions. The most important controlling factors here seem to be:—

- a) degree of slope—this particularly affects the natural drainage and the depth of the soil.
- b) aspect—the most important consideration being the amount of shelter from the severest gales; almost invariably these are from the west or north-west.
- c) intensity of grazing.
- d) frequency of firing—which gives a competitive advantage to some species.
- e) amount of artificial drainage.

Although it is impossible to classify all groups of plants into recognisable communities the following classification was adopted for convenience.

- i) *Scirpus cespitosus* dominant. This is far and away the most extensive moorland type and covers the bulk of the central region. The probable reason for its success is its ability to recover quickly from firing and its ability to withstand considerable exposure to wind.
- ii) *Calluna vulgaris* dominant. Being slower to recover from firing than *Scirpus cespitosus* this is restricted as a dominant

- to the shallower soils where the latter cannot grow, particularly on steep slopes and near rocky outcrops, but is also found as an extensive sub-dominant in the *S. cespitosus* communities. *Salix repens* and *Empetrum nigrum* are frequently sub-dominant in the *Calluna* communities.
- iii) *Molinia caerulea* dominant. Found in two different growth forms in two distinct habitats. In the "tussocky" form below steep slopes and along the sides of burns, and in the "non-tussocky" form in the drier *Calluna* moorland and the grasslands receiving the run-off water from the centre of the island. In the latter situations it occasionally gives way to *Nardus* grassland, probably where there is an appreciable quantity of redistributed peat.
- iv) *Eriophorum angustifolium* dominant. A very patchy distribution, restricted to pools in eroded peat, and other water-logged localities.
- v) *Juncus effusus* dominant. Only found in a few places where there is considerable moisture and some degree of protection from the wind.
- vi) *Pteridium aquilinum* dominant. Very obviously restricted to sheltered situations. Almost without exception found on ground sheltered from the north-west. In places of extreme shelter it is replaced by *Salix aurita* scrub. The existence of the *Pteridium* gives rise to an interesting ground flora containing such species as *Trientalis europaea*, *Scutellaria galericulata* and *Galium palustre*.

3. AQUATIC COMMUNITIES

In addition to numerous small areas of standing water there are five lochans of substantial size on the island. *Eleocharis* spp., *Juncus bulbosus*, *Menyanthes trifoliata* and *Potamogeton polygonifolius* are common in these situations. Of particular interest is the presence of *Nymphaea occidentalis* and *Potamogeton natans* in one lochan, the latter also growing in one other lochan. Three plants of *Osmunda regalis* growing beside one of the burns are also worthy of note.

METHOD OF MAPPING

For the purposes of mapping the distribution of each plant species a grid system was used and the procedure was similar to that used by the Botanical Society of the British Isles in the production of the *Atlas of the British Flora*. For the purposes of this survey 200 metre squares were used, being regarded as small enough to produce useful maps and large enough to make the marking out of squares and the recording of species possible in a short time. Because of the uniform character of the terrain the squares had to be marked on the ground in some way. This was done by placing wooden posts at the grid intersections. Having fixed one intersection by compass bearings and reference to prominent features on the ground, a combination of actual

measurement with a surveyor's tape and trigonometrical methods using two theodolites was used to fix the other points. Several of these were checked by direct compass bearings and reference to a map. By this method the limits of 98 squares or part squares were marked out on the island.

A search was then made in each square and species names were crossed off a duplicated list as they were found. These data were later transferred to printed maps showing the distribution of individual species. Using the same grid system a sketch map was made of the distribution of the major plant communities in each square and these were transferred to a large scale map of the island to give an overall picture of the vegetation.

ANNOTATED LIST OF VASCULAR SPECIES FOUND

Nomenclature and order of species are based on Dandy (1958). Plants which are not native in the island are prefixed by a dagger. The number of survey squares (maximum 98) in which a plant was found is indicated after the note on each species.

THE FLORA

- SELAGINELLA SELAGINOIDES (L.) Link. Fairly common in boggy areas. 17.
 EQUISETUM PALUSTRE L. Common near old cultivation strips. 7.
 OSMUNDA REGALIS L. On the peaty sides of a burn. Three plants only. 3.
 PTERIDIUM AQUILINUM (L.) Kuhn. Widespread. Dominant in sheltered areas only. Absent from north-west. 56.
 BLECHNUM SPICANT (L.) Roth. Widespread on peat. Absent in south-east and extreme west. 64.
 ASPLENIUM ADIANTUM-NIGRUM L. Uncommon. In caves and damp rock-clefts in the east. 7.
 ASPLENIUM MARINUM L. Scattered in damp rock-clefts in the south and east. Coastal. 12.
 ATHYRIUM FILIX-FEMINA (L.) Roth. Scattered, between rocks, mostly in the centre of the island. 30.
 DRYOPTERIS FILIX-MAS (L.) Schott. Rather uncommon. Only in the most sheltered places. 14.
 DRYOPTERIS DILATATA (Hoffm.) A. Gray. Mostly with *A. filix-femina*, but a little more common. 39.
 POLYPODIUM VULGARE L. Uncommon. In cracks in rocks. Small plants. 13.
 †PICEA ABIES (L.) Karst. Three young specimens recently planted behind bothy, one dead. 1.
 JUNIPERUS COMMUNIS subsp. NANA Syme. Damp sheltered edges of low cliffs, not more than six plants. 3.
 CALTHA PALUSTRIS L. Plentiful near burns and damp places in the south-east. 9.
 RANUNCULUS ACRIS L. Common in machair in the south-east. Scattered records in grassy places in north and east. 25.
 RANUNCULUS REPENS L. Fairly common in short turf all round the island. 34.
 RANUNCULUS FLAMMULA L. Common especially in peaty pools. 51.

- RANUNCULUS FICARIA L. Uncommon. Only in damp sheltered gullies in cliffs in the south. 7.
- THALICTRUM MINUS subsp. ARENARIUM (Butcher) Clapham. Local. Sandy patches on cliffs adjoining the dunes in the south-east. 3.
- NYMPHAEA OCCIDENTALIS (Ostenf.) Moss. One lochan only. 1.
- CAKILE MARITIMA Scop. One plant on the dunes. 1.
- COCHLEARIA OFFICINALIS L. Common on the high cliffs in the north and west. 18.
- COCHLEARIA SCOTICA Druce. Distinctly uncommon. Cliffs in the north-east. 2.
- CARDAMINE PRATENSIS L. Wet sheltered places near old cultivation strips. 6.
- CARDAMINE FLEXUOSA With. Rare. Near the bothy and on a damp cliff in the south-east. 2.
- VIOLA RIVINIANA Reichb. Scattered in grassy places and under bracken. 28.
- VIOLA CANINA L. subsp. CANINA. Only in the machair. 5.
- VIOLA PALUSTRIS L. Widespread. In wet grassy areas. 64.
- POLYGALA VULGARIS L. } Distribution of species not determined.
POLYGALA SERPYLLIFOLIA Hose. } As a genus; widespread in boggy areas.
55 (for genus).
- HYPERICUM PULCHRUM L. Not common. Drier sheltered places. 15.
- SILENE MARITIMA With. Not common. Cliff-tops. 15.
- SILENE DIOICA (L.) Clairv. Rare. Only four plants seen. On wet sheltered cliffs. 4.
- LYCHNIS FLOS-CUCULI L. Uncommon. Wet places in the south-east. 4.
- CERASTIUM HOLOSTEOIDES Fr. Common in grassy places. 65.
- CERASTIUM DIFFUSUM Pers. (*C. atrovirens* Bab.). Uncommon. Dunes and low cliffs. 4.
- STELLARIA MEDIA (L.) Vill. Uncommon. Wet bare soil and 'sheep-rubs'. 20.
- STELLARIA ALSINE Grimm. Rare. Disturbed ground near the bothy. 1.
- SAGINA PROCUMBENS L. Widespread. On rocks and bare peat. 57.
- MONTIA FONTANA L. Small burns in the north and west. 25.
- ATRIPLEX PATULA L. } Distribution of species not determined. As a genus; coastal, on shingle and sand, frequent. 20 (for genus).
ATRIPLEX GLABRIUSCULA Edmondst. }
- LINUM CATHARTICUM L. Not common. Restricted to dunes, machair and sandy places in the south-east. 14.
- GERANIUM MOLLE L. Very local. In machair. 6.
- OXALIS ACETOSELLA L. Distinctly uncommon. Under bracken. 4.
- TRIFOLIUM PRATENSE L. Cliffs and small stacks in the south-east. 5.
- TRIFOLIUM REPENS L. Common in all grassy places. 62.
- ANTHYLLIS VULNERARIA L. Common on the cliffs. 26.
- LOTUS CORNICULATUS L. Common in dry places. 60.
- LOTUS PEDUNCULATUS Cav. Rare. By a burn in the south. 1.
- VICIA CRACCA L. Damp sheltered places in the south-east. 10.
- VICIA SEPIUM L. Not common. Sheltered cliff gullies. 6.
- LATHYRUS PRATENSIS L. Uncommon. Grassy places in the south-east. 5.
- LATHYRUS MONTANUS (L.) Bernh. Scattered in dry moorland. 17.

- FILIPENDULA ULMARIA (L.) Maxim. Restricted to wet places in the south-east. 17.
- POTENTILLA PALUSTRIS (L.) Scop. Rare. In *Juncus* near the path to the bothy. 1.
- POTENTILLA ANSERINA L. Restricted to sandy areas in the south-east. 23.
- POTENTILLA ERECTA (L.) Räsch. Very common and widespread. 86.
- GEUM RIVALE L. Rare. Wet places in the south-east. 2.
- ROSA PIMPINELLIFOLIA L. Uncommon. On cliffs. Six plants only. 5.
- ROSA SHERARDII Davies. One plant on a stack in the south-east. 1.
- SEDUM ROSEA (L.) Scop. Common on cliffs all round the island. 28.
- SEDUM ANGLICUM Huds. Uncommon. On rocks in the south-east. 9.
- SEDUM ACRE L. With above but more common. Also on the dunes. 7.
- DROSERA ROTUNDIFOLIA L. Common in boggy places. 68.
- DROSERA ANGLICA Huds. Frequent in very wet areas. 27.
- DROSERA INTERMEDIA Hayne. Less frequent with above. 21.
- EPILOBIUM MONTANUM L. Uncommon. Wet sheltered cliff flushes in the south-east. 5.
- EPILOBIUM PALUSTRE L. Local. Wet grassy places in the south-east. 13.
- CALLITRICHE STAGNALIS Scop. Rare. Some pools and ditches. 6.
- HEDERA HELIX L. Very rare. On a cliff in the east. 1.
- HYDROCOTYLE VULGARIS L. Only in a few wet grassy places in the south-west but there common. 9.
- LIGUSTICUM SCOTICUM L. Cliffs in the north and west. 11.
- ANGELICA SYLVESTRIS L. Not common. Damp cliffs and by one of the lochans. 18.
- HERACLEUM SPHONDYLIIUM L. Rare. Cliffs in the south-east. 2.
- DAUCUS CAROTA L. Very rare. Cliffs in the south-east. 3.
- RUMEX ACETOSELLA L. Uncommon. Dry moorland. 10.
- RUMEX ACETOSA L. Common and widespread, especially under bracken. Most luxuriant on the high cliffs in the north and west. 76.
- RUMEX CRISPUS L. Shingle and disturbed ground. 28.
- URTICA HOICA L. Local. Dunes and machair near old crofts. 17.
- MYRICA GALE L. Distinctly local. One colony near south-west coast. 1.
- POPULUS TREMULA L. Rare. Cliffs in the south-east. 3.
- SALIX CINEREA L. Rare. In dry sheltered places. 10.
- SALIX AURITA L. In similar situations to *S. cinerea* but more common. 52.
- SALIX REPENS L. Common and widespread. Dominant in the drier wind-swept areas. 85.
- ARCTOSTAPHYLOS UVA-URSI (L.) Spreng. Restricted to dry peat near rocky outcrops in the west, away from the cliffs. 44.
- CALLUNA VULGARIS (L.) Hull. Very common. Dominant in many areas, but absent from the dunes and machair. 91.
- ERICA TETRALIX L. Frequent in wet areas. Absent from the south-east. 82.
- ERICA CINEREA L. Scattered in drier places. Absent from the south-east. 76.
- VACCINIUM MYRTILLUS L. Very rare. Two or three plants in moorland. 2.
- EMPETRUM NIGRUM L. Abundant. With *Salix repens*. 83.
- ARMERIA MARITIMA (Mill.) Willd. Common on the coast. Commoner in north-west than in south-east. 53.
- PRIMULA VULGARIS Huds. Uncommon. Sheltered cliff ledges in the south-east. 21.

- LYSIMACHIA NEMORUM L. Very rare. One colony near burn by old crofts. 1.
 TRIENTALIS EUROPAEA L. Distinctly rare. In a few places under bracken. 4.
 ANAGALLIS TENELLA (L.) Murr. Uncommon. Near burns in the south-east. 5.
 GLAUX MARITIMA L. Very uncommon. Rocky promontories in the south-east. 2.
 GENTIANELLA CAMPESTRIS (L.) Börner. Not common. Grassy places in the south-east. 6.
 MENYANTHES TRIFOLIATA L. In all major lochans and most boggy places. 10.
 MYOSOTIS CAESPITOSA K. F. Schultz. Rare. Extreme south-east. 1.
 MYOSOTIS ARVENSIS (L.) Hill. Uncommon. Dunes and machair. 2.
 MYOSOTIS DISCOLOR Pers. More common. Machair. 2.
 †SOLANUM TUBEROSUM L. Very rare. Two plants in the south. 2.
 SCROPHULARIA NODOSA L. Rare. By a burn in the south. 2.
 DIGITALIS PURPUREA L. Uncommon. Among rocks inland and on a cliff in the east. 4.
 VERONICA SCUTELLATA L. Very rare. In one drainage cutting near the old crofts. 1.
 PEDICULARIS SYLVATICA L. Widely distributed except in the extreme north-west and south-east. 56.
 EUPHRASIA MICRANTHA Reichb. }
 EUPHRASIA FOULAENSIS Townsend ex Wettst. } Distribution of species not
 EUPHRASIA BREVIPILA Burnat & Gremli. } determined, except *E. brevipila* which is widespread.
 } 65 (for genus).
 ODONTITES VERNA (Bellardi) Dumort. subsp. VERNA. Very rare. One patch behind the dunes. 1.
 PINGUICULA LUSITANICA L. Local. On wet peat. 20.
 PINGUICULA VULGARIS L. Much more common, in wet places. 64.
 UTRICULARIA MINOR L. One lochan. 1.
 MENTHA sp. Only a few patches by a burn in the south. 3.
 THYMUS DRUCEI Ronn. Not common. Only in better drained places. 33.
 PRUNELLA VULGARIS L. Common in the less wet and exposed areas, in the south. 48.
 SCUTELLARIA GALERICULATA L. Rare. Under bracken in two localities. 2.
 TEUCRIUM SCORODONIA L. Occasional among rocks in sheltered places. 9.
 AJUGA PYRAMIDALIS L. Very rare. On a cliff in the south and between rocks in the centre of the island. 2.
 PLANTAGO MAJOR L. Not at all common. A few plants in grassland around the coast. 9.
 PLANTAGO LANCEOLATA L. More common. In grassland. 47.
 PLANTAGO MARITIMA L. Plentiful on cliffs and inland rocks. 47.
 PLANTAGO CORONOPUS L. Very common all round the coast on rocks and bare ground. Very variable. 43.
 GALIUM VERUM L. Only in the south-east. 15.
 GALIUM SAXATILE L. Scattered on the moors, not common. 24.
 GALIUM PALUSTRE L. Uncommon. Mostly in damp grassland in the south-east. 16.
 GALIUM APARINE L. Uncommon. Under bracken and on shingle. 13.
 LONICERA PERICLYMENUM L. Rare. On a cliff in the south, a stack in the east and between rocks in the centre of the island. 5.

- SUCCISA PRATENSIS Moench. Very common on the moors. 65.
SENECIO JACOBAEA L. Common in the south-east. 23.
ANTENNARIA DIOICA (L.) Gaertn. Rare. In turf in the south-east. 1.
SOLIDAGO VIRGAUREA L. Not common. Cliff edges and rocks. 4.
BELLIS PERENNIS L. Uncommon. Only in the south-east. 22.
ACHILLEA MILLEFOLIUM L. Locally common in south-east. 14.
ACHILLEA PTARMICA L. Rare. One locality on an eastern cliff. 1.
TRIPLEUOSPERMUM MARITIMUM (L.) Koch subsp. MARITIMUM. On cliffs in the north and west. 12.
ARCTIUM MINUS Bernh. Uncommon. South-east only. 9.
CIRSIUM VULGARE (Savi) Ten. Dunes and machair. 20.
CIRSIUM PALUSTRE (L.) Scop. Uncommon. Mostly in the south-east. 12.
CIRSIUM ARVENSE (L.) Scop. Uncommon. Also in the south-east. 10.
†CENTAUREA CYANUS L. Few plants in front of the bothy. 1.
CENTAUREA NIGRA L. Rare. In the south-east and on south-eastern stacks. 4.
HYPOCHAERIS RADICATA L. Rare. Cliffs in the south. 1.
LEONTODON AUTUMNALIS L. Locally common on cliffs and in grassland. 35.
SONCHUS OLERACEUS L. Dunes and machair. 2.
SONCHUS ASPER (L.) Hill. Dunes and machair. 8.
HIERACIUM sp. Not common. On cliffs. 32.
TARAXACUM LAEVIGATUM (Willd.) DC. Uncommon. In south-east. 13.
TRIGLOCHIN PALUSTRIS L. Occasional in wet grassy places. 13.
POTAMOGETON NATANS L. In two lochans. 2.
POTAMOGETON POLYGONIFOLIUS Pourr. Peaty pools and drainage channels. 25.
NARTHECIUM OSSIFRAGUM (L.) Huds. Plentiful, but absent from the south-east and the extreme north-west. 68.
ENDYMION NON-SCRIPTUS (L.) Garcke. On cliffs and a stack in the east. Rare. 2.
†ALLIUM CEPA L. Rare. Three plants near the bothy. 1.
JUNCUS SQUARROSUS L. Scattered on the moors. 33.
JUNCUS BUFONIUS L. Occasional on bare peat. 13.
JUNCUS EFFUSUS L. By burns. Not common except near the bothy. 56.
JUNCUS CONGLOMERATUS L. As above, but less common. 40.
JUNCUS ARTICULATUS L. Scattered in wet places. 54.
JUNCUS BULBOSUS L. Common in peaty pools. 35.
LUZULA CAMPESTRIS (L.) DC. Uncommon. In grassland in the south-east. 1.
LUZULA MULTIFLORA (Retz.) Lej. Common on the moors. 68.
IRIS PSEUDACORUS L. Only in the south-east. 8.
DACTYLORCHIS MACULATA subsp. ERICETORUM (E. F. Linton) Vermeul. Common on the moors. 69.
DACTYLORCHIS PURPURELLA (T. & T. A. Stephenson) Vermeul. Very rare. Near a burn in the south. 1.
SPARGANIUM ANGUSTIFOLIUM Michx. In lochans. 6.
ERIOPHORUM ANGUSTIFOLIUM Honck. In wet bog. Common and widespread. 78.
ERIOPHORUM VAGINATUM L. With the preceding species but less common. 38.
SCIRPUS CESPITOSUS L. Dominant on the windswept moors. 74.

- ELEOCHARIS PAUCIFLORA (Lightf.) Link. } Distribution of species not determined. As a genus; uncommon,
 ELEOCHARIS MULTICAULIS (Sm.) Sm. } in wet places on the moors. 11
 ELEOCHARIS PALUSTRIS (L.) R.Br. } (for genus).
- SCHOENUS NIGRICANS L. Local. Damp grassland in the south. 20.
- REYNCHOSPORA ALBA (L.) Vahl. Very rare. On disturbed peat in the east. 3.
- CAREX BINERVIS Sm. Common on the moors. 63.
- CAREX FLAVA L. agg. Frequent on bare wet peat. 23.
- CAREX PANICEA L. Occasionally on the moors. 44.
- CAREX FLACCA Schreb. Uncommon, on the moors. 10.
- CAREX PILULIFERA L. Very uncommon, on the moors. 6.
- CAREX NIGRA (L.) Reichard. Grassy places. 49.
- CAREX PANICULATA L. Rare. On small islands in one lochan. 1.
- CAREX ARENARIA L. Common on the dunes only. 8.
- CAREX ECHINATA Murr. Common in some grassland. 46.
- CAREX OVALIS Good. Only occasionally, near the old crofts and the bothy. 5.
- CAREX PULICARIS L. Grassland in the south. 9.
- CAREX DIGICA L. Very rare. One locality found in the centre of the island. 1.
- PHRAGMITES COMMUNIS Trin. Rare. On cliffs near the dunes in the east and on shingle in the south-west. 2.
- MOLINIA CAERULEA (L.) Moench. Abundant and widespread. Dominant in wet sheltered places. 85.
- SIEGLINGIA DECUMBENS (L.) Bernh. Well distributed in grassland. 52.
- FESTUCA RUBRA L. Widespread and common. 87.
- FESTUCA OVINA L. As above. 92.
- FESTUCA VIVIPARA (L.) Sm. Uncommon. 6.
- LOLIUM PERENNE L. Uncommon. Only in the south-east. 11.
- POA ANNUA L. Frequent in grassland in the west and south-east. 29.
- POA PRATENSIS L. Occasional in the south-east. 13.
- CATABROSA AQUATICA var. LITTORALIS Parn. Rare. Between dunes and the sea. 3.
- DACTYLIS GLOMERATA L. Uncommon. In south-east only. 10.
- CYNOSURUS CRISTATUS L. Common, but only in the south-east. 14.
- BRACHYPODIUM SYLVATICUM (Huds.) Beauv. Very rare. Only one plant on cliff near the dunes in the east. 1.
- AGROPYRON JUNCEIFORME (A. & D. Löve) A. & D. Löve. Uncommon. On the dunes. 4.
- HELICOTRICHON PUBESCENS (Huds.) Pilger. Rare. Grassy cliff-top in the east. 1.
- ARRHENATHERUM ELATIUS (L.) J. & C. Presl. Uncommon. Cliff flush in the east and by burns. 4.
- HOLCUS LANATUS L. Widespread and common in wet places. 89.
- DESCHAMPSIA CESPITOSA (L.) Beauv. Not at all common. 16.
- DESCHAMPSIA FLEXUOSA (L.) Trin. Abundant on the moors. 71.
- ATRA PRAEcox L. Frequent on rocks. 24.
- AMMOPHILA ARENARIA (L.) Link. Dominant on the dunes. 12.

- CALAMAGROSTIS EPIGEJOS (L.) Roth. Rare. Only on sand on the eastern cliffs. 1.
 AGROSTIS CANINA L. Widespread and common. 61.
 AGROSTIS TENUIS Sibth. More widespread but not so common as the above species. 73.
 AGROSTIS STOLONIFERA L. Widespread and abundant. 88.
 ALOPECURUS GENICULATUS L. Very rare. On a cliff in the north-east. 1.
 ANTHOXANTHUM ODORATUM L. Very common, especially in wet places. 82.
 PHALARIS ARUNDINACEA L. Rare. By burns in the east and south. 3.
 NARDUS STRICTA L. Very common on disturbed peat. 80.

A COMPARISON WITH A SIMILAR LIST PUBLISHED IN 1938.

The number of species found in the current survey was 216. Of these, 153 species occurred in a list published in 1938 (Harrison, J. W. Heslop & Harrison, H. Heslop) which also contained the following 23 species.

Cerastium glomeratum Thuill., *Callitriche intermedia* Hoffm., *Epilobium obscurum* Schreb., *Senecio aquaticus* Hill, *Crepis capillaris* (L.) Wallr., *Hieracium crocatum* Fr., *Taraxacum spectabile* Dahlst., *Sonchus arvensis* L., *Euphrasia borealis* Wettst., *Euphrasia scottica* Wettst., *Pedicularis palustris* L., *Ajuga reptans* L., *Litorella uniflora* (L.) Aschers., *Rumex obtusifolius* L., *Juncus acutiflorus* Hoffm., *Carex caryophyllea* Latourr., × *Ammocalamagrostis baltica* (Fluegge) P. Fourn., *Holcus mollis* L., *Glyceria declinata* Bréb., *Festuca tenuifolia* Sibth., *Thelypteris phegopteris* (L.) Slosson, *Equisetum arvense* L. and *Equisetum fluviatile* L.

These were not found or not confirmed.

The following 62 species are additions to the 1938 list.

Osmunda regalis L., *Asplenium marinum* L., *Athyrium filix-femina* (L.) Roth, *Dryopteris dilatata* (Hoffm.) A. Gray, *Polypodium vulgare* L., *Picea abies* (L.) Karst., *Ranunculus ficaria* L., *Nymphaea occidentalis* (Ostenf.) Moss, *Cakile maritima* Scop., *Cardamine pratensis* L., *Cardamine flexuosa* With., *Polygala vulgaris* L., *Cerastium diffusum* Pers., *Stellaria alsine* Grimm, *Oxalis acetosella* L., *Anthyllis vulneraria* L., *Lathyrus pratensis* L., *Lathyrus montanus* (L.) Bernh., *Potentilla palustris* (L.) Scop., *Geum rivale* L., *Rosa sherardii* Davies, *Sedum anglicum* Huds., *Hedera helix* L., *Hydrocotyle vulgaris* L., *Myrica gale* L., *Arctostaphylos uva-ursi* (L.) Spreng., *Trientalis europaea* L., *Glaux maritima* L., *Solanum tuberosum* L., *Scrophularia nodosa* L., *Digitalis purpurea* L., *Veronica scutellata* L., *Odontites verna* (Bellardi) Dumort. subsp. *verna*, *Utricularia minor* L., *Scutellaria galericulata* L., *Teucrium scorodonia* L., *Ajuga pyramidalis* L., *Lonicera periclymenum* L., *Antennaria dioica* (L.) Gaertn., *Arctium minus* (Hill) Bernh., *Centaurea cyanus* L., *Triglochin palustris* L., *Endymion non-scriptus* (L.) Garcke, *Allium cepa* L., *Juncus effusus* L., *Luzula campestris* (L.) DC., *Luzula multiflora* (Retz.) Lej., *Eriophorum angustifolium* Honck., *Eriophorum vaginatum* L., *Eleocharis palustris* (L.) R.Br., *Rhynchospora alba* (L.) Vahl, *Carex panicea* L., *Carex paniculata* L., *Carex flacca* Schreb., *Carex pulicaris* L., *Carex dioica* L., *Phragmites communis* Trin., *Dactylis glomerata* L., *Brachypodium sylvaticum* (Huds.) Beauv., *Deschampsia cespitosa* (L.) Beauv., *Alopecurus geniculatus* L. and *Phalaris arundinacea* L.

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