Scottish Natural Heritage
Research Report No. 1079

Sheigra-Oldshoremore SSSI – vegetation survey 2016

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RESEARCH REPORT

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RESEARCH REPORT

Summary

Sheigra-Oldshoremore SSSI – vegetation survey 2016

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Keywords

Sheigra-Oldshoremore SSSI; vegetation survey; sand dunes; machair; EUNIS; NVC

Background

Sheigra-Oldshoremore Site of Special Scientific Interest (SSSI) lies on the west coast of Sutherland, 3 km north-west of Kinlochbervie. It is notified for two coastal habitat features, *Sand dunes* and *Machair*. These interests are also part of Oldshoremore and Sandwood SAC. The SSSI comprises a series of three bays, at Oldshoremore, Oldshore Beg and Sheigra, each with extensive windblown sand supporting sand dune and machair vegetation. The SSSI also includes areas of fen, rocky headlands and slopes with wet and dry heath and maritime cliff vegetation.

The current vegetation survey updates previous two surveys of this site.

Main findings

- This site includes an outstanding range of sand dune and machair vegetation, for which it is notified as an SSSI and SAC. It also has fine representation of certain wetland habitats and maritime cliff/heath vegetation.
- Vegetation mapping was done using the National Vegetation Classification (NVC) and European Nature Information System (EUNIS) classification systems.
- A total of 34 vegetation communities were mapped.
- The SSSI *Sand dune* interest covered 32.9 ha, comprising 19.4 ha of fixed dunes, 12.2 ha of dune slacks and 1.3 ha of strand, embryo and mobile dunes. The SSSI and SAC *Machair* interest covered 71.6 ha. The SAC *Dune grassland* interest covered 18.0 ha and the SAC *Shifting dunes with marram* interest covered 0.6 ha.
- Each habitat was assigned to the main SSSI or SAC qualifying interest represented.

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1. BACKGROUND

1.1 Site description

Sheigra-Oldshoremore SSSI lies on the west coast of Sutherland, 3 km north-west of Kinlochbervie. It is notified for two coastal habitat features, *Sand dunes* and *Machair*. It comprises a series of three bays, at Oldshoremore, Oldshore Beg and Sheigra, each with extensive windblown sand supporting sand dune and machair vegetation. The SSSI also includes areas of fen, rocky headlands and slopes with wet and dry heath and maritime cliff vegetation, and a tidal island, Eilean na h-Aiteig.

The SSSI citation describes the notified habitat interests as follows:

Sand dunes (vegetation)
The bays at Oldshoremore and Oldshore Beg have mature dune ridges with marram grass *Ammophila arenaria* while the very exposed beach at Sheigra is backed by a boulder storm beach. Plants such as sea rocket *Cakile maritima* and common orache *Atriplex patula* grow near the strandline on these beaches. Behind the dune ridge, more stable low sand hills and hollows support tussocks of marram grass with grasses and sedges, such as sand couch grass *Elytrigia juncea subsp. boreoatlantica* and sand sedge *Carex arenaria*. A range of plants including purple milk vetch *Astragalus danicus* and bird's-foot-trefoil *Lotus corniculatus*, common mouse-ear *Cerastium fontanum subsp. holosteoides*, northern marsh-orchid *Dactylorhiza purpurella*, red fescue *Festuca rubra* and lady's bedstraw *Galium verum* can also be found in this area.

Machair
Machair occurs inland of the dune habitats where the shell-rich sand has a major influence on the vegetation. The machair on this site is of very high quality and is species-rich, with at least 220 species of flowering plants. These herb-rich grasslands contain a wealth of locally unusual species, including globe flower *Trollius europaeus,* moss campion *Silene acaulis,* moonwort *Botrychium lunaria* and the nationally scarce hair sedge *Carex capillaris . A*t least eight species or varieties of orchid grow in this habitat, including uncommon species such as frog orchid *Coeloglossum viride.*

The SSSI also forms part of Oldshoremore and Sandwood SAC, which is designated for three Annex I habitats:

- H2120 Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`)
- H2130 Fixed dunes with herbaceous vegetation (`grey dunes`)
- H21A0 Machairs

The purpose of the present survey was to map the vegetation of the whole SSSI, using NVC National Vegetation Classification (NVC) and European Nature Information System (EUNIS) classification systems, focusing on the SSSI and SAC qualifying features. The survey also allocated surveyed polygons to Annex I habitats[1] where appropriate.

1.2 Previous survey

The dunes and machair within the SSSI were surveyed and mapped in 1987 by Radley *et al.* (1989) using draft NVC categories. Dargie (1998) converted ('harmonised') this survey to vegetation categories used in the Sand Dune Vegetation Survey of Scotland (SDVSS) but also extended the survey to cover additional areas of wind-blown sand (mostly outside the

[1] Annex I of the Habitats Directive comprises a list of 189 habitat types, 78 of which are believed to occur in the UK. Member States must consider designation of SACs for each of the features which occurs in their European territory.

SSSI boundary). However he commented that ‘the harmonised map should not be regarded as a precise up-to-date record for this site and new mapping should be considered, especially since the area is part of a cSAC and much local change is observable’.

2. METHODS

The site was surveyed from 29 August to 3 September 2016 by Ian Strachan and Gary Servant. The aim was to survey the entire SSSI, including Eilean na h-Aiteig, although the focus of effort was on the notified features i.e. sand dune and machair. In the time available it was not feasible to map the seacliffs comprehensively, which in places would require boat and/or rope access. Some cliff survey was done with binoculars from vantage points.

Aerial photographs were marked and annotated in the field, then digitised later using 'Mapmaker' GIS software. As far as possible, polygons were drawn to avoid mosaics, at least for SSSI features/Annex I habitats. Where this was not possible due to the fine scale of mosaics, the proportion of each type in a polygon was recorded. To characterise the vegetation types a series of sample quadrats (2 x 2 m) were recorded across the site to obtain a good representation of the vegetation types present, following Rodwell (2006).

In general five samples were taken of each widespread sand dune/machair vegetation type (NVC sub-community), with fewer for types of more restricted occurrence and for other habitats. In some cases the number of samples per type changed as a result of later re-assignments. Full species lists with DOMIN cover values were made for each quadrat (Annexes 3 and 4). Target notes were made to supplement the plot data as necessary (Annex 1). Photographs were taken of all sample plots and to illustrate other target notes (Annex 5). The locations of sample quadrats are shown in Figures 3 and 4.

Quadrat data were tabulated and sorted to enable comparison with the published National Vegetation Classification (NVC) descriptions and tables (Rodwell, 1991, 1992, 1995, 2000), and the additions proposed by Dargie (2000) as part of the sand dune vegetation survey of Scotland. Analysis was done 'manually' using the surveyors' experience and expertise rather than software such as MATCH or TABLEFIT which is of limited value.

For recording purposes the SSSI was divided into three sections: Sheigra (SH) to the north-west, Oldshoremore (OM) to the south-east and Oldshore Beg (OB) inbetween. The Oldshore Beg section extends from the west end of the cliffs at Port Chaligaig to the headland north-west of Eilean na h-Aiteig. The latter island is included in the Oldshoremore section.

3. VEGETATION

We recorded and mapped 34 vegetation communities, and a similar number of sub-communities, as listed in Table 1. These vegetation types are described individually in Annex 2. Table 2 lists additional codes used for the mapping. The mapped area is 198 ha, made up of 187 polygons, supplied separately in GIS format.

The SSSI includes an outstanding range of sand dune and machair vegetation, for which it is notified, but also has fine representation of certain wetland habitats and maritime cliff/heath vegetation. Eilean na h-Aiteig supports a particularly fine area of maritime heath. The SSSI forms part of the Oldshoremore-Sandwood Coast Nature Conservation Review site (Ratcliffe, 1977) which is a Grade 1 coastal site for cliffs as well as dunes, although this aspect is not mentioned in the SSSI citation. The species-rich *Molinia* grassland (M26) is also of especially note and is a rare habitat in (northern) Scotland.

Table 3 lists the quadrat sample codes recorded by NVC type in each section of the SSSI. The sample locations are listed in Annex 1 and shown in Figures 1 and 2. Tables of floristic data for each NVC type are given in Annexes 3 and 4. For SD7 and SD8 the data are presented as constancy tables in the standard NVC format; the original data are available separately in Excel (Annex 4). Descriptions of the vegetation types and their distribution are given in Annex 2, together with the rationale for assignments where difficulties were encountered.

Table 1 also gives the corresponding EUNIS categories for each NVC type (based on Strachan, 2016). SD10 has been assigned to B1.4x rather than B1.41 as listed in the manual as it is not included in the Annex I type H2130. Table 4 indicates how the NVC types correspond to the SSSI features (including sub-features for sand dunes) and to Annex I habitats. As well as the three qualifying Annex I habitats for the SAC, another 11 types were identified within the SSSI. These are listed in full in Table 5.

Some uncertainties were associated with assigning mire/swamp polygons (M23, M25, M26, Mx, S4, S25) to the dune slacks sub-feature, where these occupied transitional locations between sand dunes and the surrounding slopes. Reference was made to the limits of windblown sand as mapped by Dargie (1998) as well as experience in the field in making a judgement about which polygons could be considered to be dune slacks.

EUNIS, Annex I and SSSI feature/subfeature types were added to the data table for the polygon layer, with associated proportions for mosaics (Annex 6). For each polygon the area of the corresponding EUNIS type(s) was calculated. These were then totalled for the SSSI and are given in Table 6. These were also used to estimate the total extent of each notified SSSI feature and sub-feature and each SAC qualifying interest within the SSSI (Table 7).

The SSSI Sand dune feature covers 32.9 ha, comprising 19.4 ha of fixed dunes, 12.2 ha of dune slacks and 1.3 ha of strand, embryo and mobile dunes. The SSSI and SAC Machair feature/interest covers 71.6 ha. The SAC Dune grassland interest covers 18.0 ha and the SAC Shifting dunes with marram interest covers 0.6 ha. See Annex 6 for details of calculations.

In addition, each polygon was assigned to the main SSSI feature/sub-feature and SAC qualifying interest represented, to produce maps showing the distribution of these features within the SSSI. These are given in Figures 3-5. The GIS data file on which these maps are based is in Annex 7.

Table 1. List of NVC types (alphabetical) recorded at Sheigra-Oldshoremore SSSI in 2016 together with corresponding types in the EUNIS and Annex 1 classification systems. Proposed types in Dargie (2000) and elsewhere are indicated by an asterisk.

code	NVC name	EUNIS	Annex I
CG10	*Festuca ovina-Agrostis capillaris-Thymus polytrichus grassland*		
	b. *Carex pulicaris-Carex panicea* sub-community	B1.9	H21A0
FH*	*Festuca rubra-Holcus lanatus* grassland*	E2.13	none
H7	*Calluna vulgaris-Scilla verna* heath	B3.31	H1230
	c. *Erica tetralix* sub-community		
H10	*Calluna vulgaris-Erica cinerea* heath	B3.31/ F4.25	H1230/ H4030
	c. *Fesuca ovina-Anthoxanthum odoratum* sub-community		
	d. *Thymus polytrichus-Carex pulicaris* sub-community		
M1	*Sphagnum denticulatum* bog-pool community	D1.21	H7130
M5	*Carex rostrata-Sphagnum squarrosum* mire	D2.33	H7140
M6	*Carex echinata-Sphagnum fallax/denticulatum mire*		
	c. *Juncus effusus* sub-community	D2.22	none
M9	*Carex rostrata-Calliergonella cuspidata/Calliergon giganteum* mire		
	a. *Campylium stellatum-Scorpidium scorpioides* sub-community	B1.83/ D4.1C	H2190/ H7230
M10	*Carex dioica-Pinguicula vulgaris* mire	D4.15	H7230
M15	*Trichophorum germanicum-Erica tetralix* wet heath	F4.11	H4010
	a. *Carex panicea* sub-community		
	b. Typical sub-community		
M23	*Juncus effusus/acutiflorus-Galium palustre* mire		
	a. *Juncus acutiflorus* sub-community	B1.84/ E3.42	H2190/ none
	b. *Juncus effusus* sub-community	B1.84/ E3.41	H2190/ none
M25	*Molinia caerulea-Potentilla erecta* mire	B1.84/ E3.512	H2190/ none
	b. *Anthoxanthum odoratum* sub-community		
	c. *Angelica sylvestris* sub-community		
M26	*Molinia caerulea-Crepis paludosa* mire	B1.84/ E3.511	H2190/ H6410
Mx*	*Carex nigra* machair fen*	B1.84/ E3.41	H2190/ none
MC3	*Sedum rosea-Armeria maritima* maritime cliff-ledge community	B3.31	H1230
MC8	*Festuca rubra-Armeria maritima* maritime grassland	B3.31	H1230
	e. *Plantago coronopus* sub-commmunity		
MG1	*Arrhenatherum elatius* grassland	E2.21	none
	c. *Filipendula ulmaria* sub-community		
	e. *Centaurea nigra* sub-community		
MG6	*Lolium perenne-Cynosurus cristatus* grassland	E2.111	none
	a. Typical sub-community		
MG10	*Holcus lanatus-Juncus effusus* rush pasture	E3.44	none
	a. Typical sub-community		
	c. *Iris pseudacorus* sub-community		
MG11	*Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland	B1.9/E3.44	H21A0/none
	a. *Lolium perenne* sub-community		
S4	*Phragmites australis* swamp and reed-beds	B1.85/ C3.21	H2190/ none
	b. *Galium palustre* sub-community		

code	NVC name	EUNIS	Annex I
S25 (SxTHF*	*Phragmites australis-Eupatorium cannabinum* tall-herb fen *Phragmites australis-Calliergon cordifolium* tall-herb fen)	B1.83/ D4.1I	H2190/ none
SD2	*Honkenya peploides-Cakile maritima* strandline community	B1.31	H2110
SD4	*Elytrigia juncea* ssp. *boreoatlantica* foredune community	B1.31	H2110
SD6	*Ammophila arenaria* mobile dune community		
	a. *Elytrigia juncea* sub-community	B1.32	H2110
SD7	*Ammophila arenaria-Festuca rubra* semi-fixed dune community		
	a. Typical sub-community	B1.41	H2130
	x. *Galium verum* sub-community*	B1.41	H2130
SD8	*Festuca rubra-Galium verum* fixed dune grassland		
	a. Typical sub-community	B1.9	H21A0
	c. *Syntricia ruralis*sub-community	B1.9	H21A0
	d. *Ranunculus acris-Bellis perennis* sub-community	B1.9	H21A0
	e. *Prunella vulgaris* sub-community	B1.9	H21A0
	x. *Centaurea nigra-Daucus carota* sub-community*	B1.9	H21A0
	z. *Thymus polytrichus* sub-community*	B1.9	H21A0
SD9	*Ammophila arenaria-Arrhenatherum elatius* dune grassland		
	a. *Arrhenatherum elatius* sub-community	B1.4x	none
SD10	*Carex arenaria* dune community	B1.4x	none
SD17	*Potentilla anserina-Carex nigra* dune-slack community		
	c. *Caltha palustris* sub-community	B1.84	H2190
	x. *Agrostis stolonifera* sub-community*	B1.9	H21A0
SDx*	*Potentilla anserina* strandline community	B2.12	H1210
SM16	*Festuca rubra* saltmarsh	A2.53	H1330
	c. *Festuca rubra-Glaux maritima* sub-community		
U4	*Festuca ovina-Agrostis capillaris-Galium saxatile* grassland	E1.72x	none
	b. *Holcus lanatus-Trifolium repens* sub-community		
U20	*Pteridium aquilinum-Galium saxatile* community	E5.31	none

Table 2. Additional codes used for mapping at Sheigra-Oldshoremore SSSI in 2016 with corresponding EUNIS codes.

code	description	EUNIS code	Annex I
RO	Rock outcrops and slabs	H3.51x	none
RC	Unvegetated rock sea-cliffs and ledges	B3.2	none
CEM	Cemetery	J2	none
CP	Car park	J4	none
BS	Bare sand within dunes	B1.21	none

Table 3. List of sample quadrats recorded by NVC type. For NVC codes see Table 1. For locations see Figures 1 & 2. For plot data see Annex 1.

NVC type	no. of plots	Sheigra	Oldshore Beg	Oldshoremore
SD2	1		50	
SD4	5	13, 14	31, 53	70
SDx	1			65
SD6a	1			69
SD6d	1		51	
SD7a	5		27, 36, 52	68, 71
SD7x	6		26, 34, 38	72, 75, 85
SD8a	4		41, 62	81, 94
SD8c	4	06, 15	40, 46	
SD8d	5	04, 05	44, 48, 49	
SD8e	4			78, 84, 97, 98
SD8x	7		28, 30, 39	66, 73, 77, 86
SD8z	8	12	29, 32, 33, 54	74, 76, 87
SD9a	1		35	
SD10	1		37	
CG10b	2	03		99
SD17c	4	25	45	90, 93
SD17x	1	07		
Mx	7	08, 20	56, 58, 60	80, 88
S25x	4	21, 22	61	91
M26	4			83, 89, 92, 95
M23b	2	23	57	
M6c	1			101
M10	2	02, 18		
M15a	4	16	55	67, 100
H7c	5	17, 19		63, 64, 79
MC3	1		42	
MC8	1		43	
MG1c	2		47	96
MG6a	1			82
MG11	3	09, 10, 24		
FH	1		59	
total	**99**	**23**	**37**	**39**

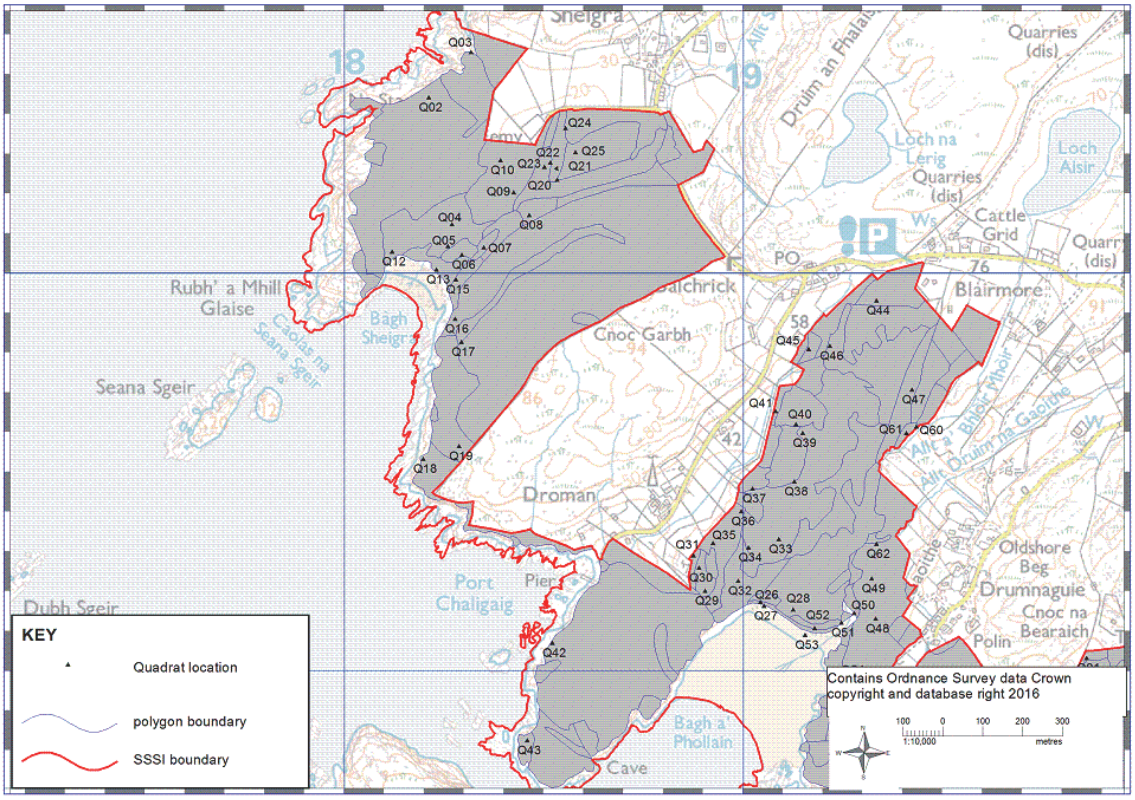

Figure 1. Quadrat sample locations, Sheigra-Oldshoremore SSSI west.
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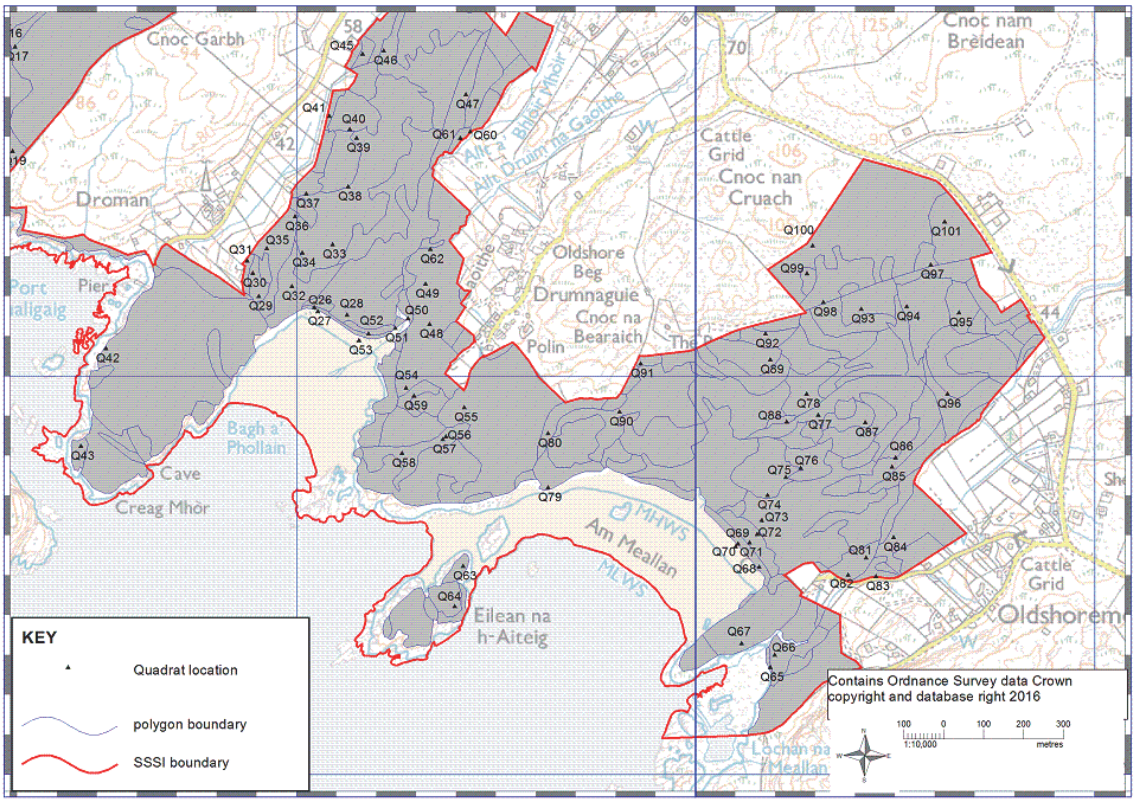

Figure 2. Quadrat sample locations, Sheigra-Oldshoremore SSSI east.
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Table 4. Correspondence between SSSI features/sub-features, Annex I habitats and mapped NVC vegetation types for Sheigra-Oldshoremore SSSI. Qualifying Annex I types for the SAC are shown in bold. A full list of NVC types is given in Table 1. Annex I habitat names are given in Table 5.

SSSI feature/sub-feature	**Annex I code**	**NVC codes**
Sand dunes: Strand, embryo and mobile dune	H2110	SD2, SD4
Sand dunes: Strand, embryo and mobile dune	**H2120**	SD6
Sand dunes: fixed dunes	**H2130**	SD7a, SD7x
Sand dunes: fixed dunes	none	SD9a, SD10
Sand dunes: dune slacks	H2190	SD17c and associated stands of mire and swamp (Mx, M23, M25, M26, S4, S25)
Machair	**H21A0**	SD8a, SD8c, SD8d, SD8e, SD8x, SD8z, CG10b, MG11pp, SD17x
none	H1210	SDx
	H1230	MC3, MC8, H7c, H10 pp
	H1330	SM16
	H4010	M15
	H4030	H10 pp
	H6410	M26
	H7130	M1
	H7140	M5
	H7230	M10

Table 5. Annex I habitats recorded at Sheigra-Oldshoremore SSSI, 2016. Qualifying Annex I types for the SAC are shown in bold. See Table 1 for component NVC types.

Annex 1 code	**Annex I habitat name**	**EUNIS code[1]**
H1210	Annual vegetation of drift lines	B2.12
H1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	B3.31€
H1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	A2.54€
H2110	Embryonic shifting dunes	B1.31
H2120	**Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`)**	**B1.32**
H2130	**Fixed dunes with herbaceous vegetation (`grey dunes`)**	**B1.41€**
H2190	Humid dune slacks	B1.8
H21A0	**Machairs**	**B1.9**
H4010	Northern Atlantic wet heaths with *Erica tetralix*	F4.11
H4030	European dry heaths	F4.2
H6410	*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	E3.511
H7130	Blanket bogs	D1.21
H7140	Transition mires and quaking bogs	D2.33€
H7230	Alkaline fens	D4.15€

[1] The € symbol indicates Annex 1 habitat types that do not have a single equivalent in the EUNIS classification. See Strachan (2016) for detailed explanation of correspondence between Annex 1 habitat types and EUNIS codes.

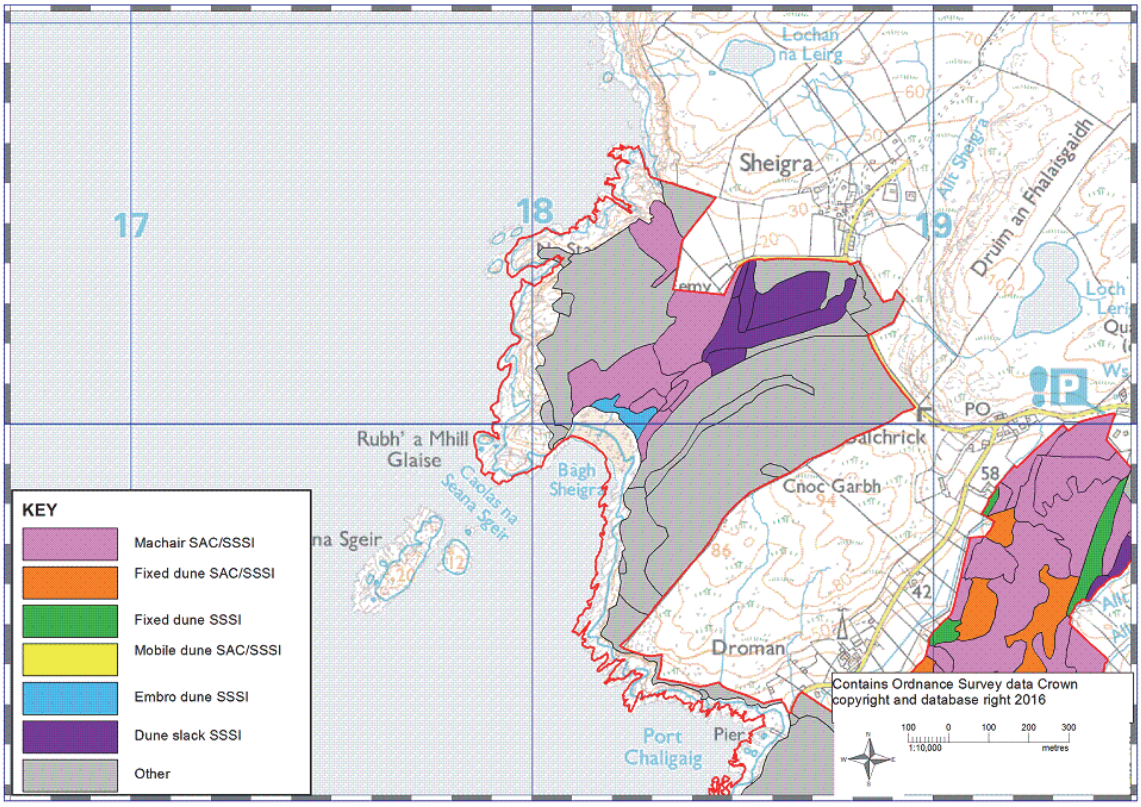

Figure 3. Map of SAC qualifying interests and SSSI features/sub-features for the Sheigra section of the SSSI. Crown copyright [and database rights] 2016 OS 100017908.

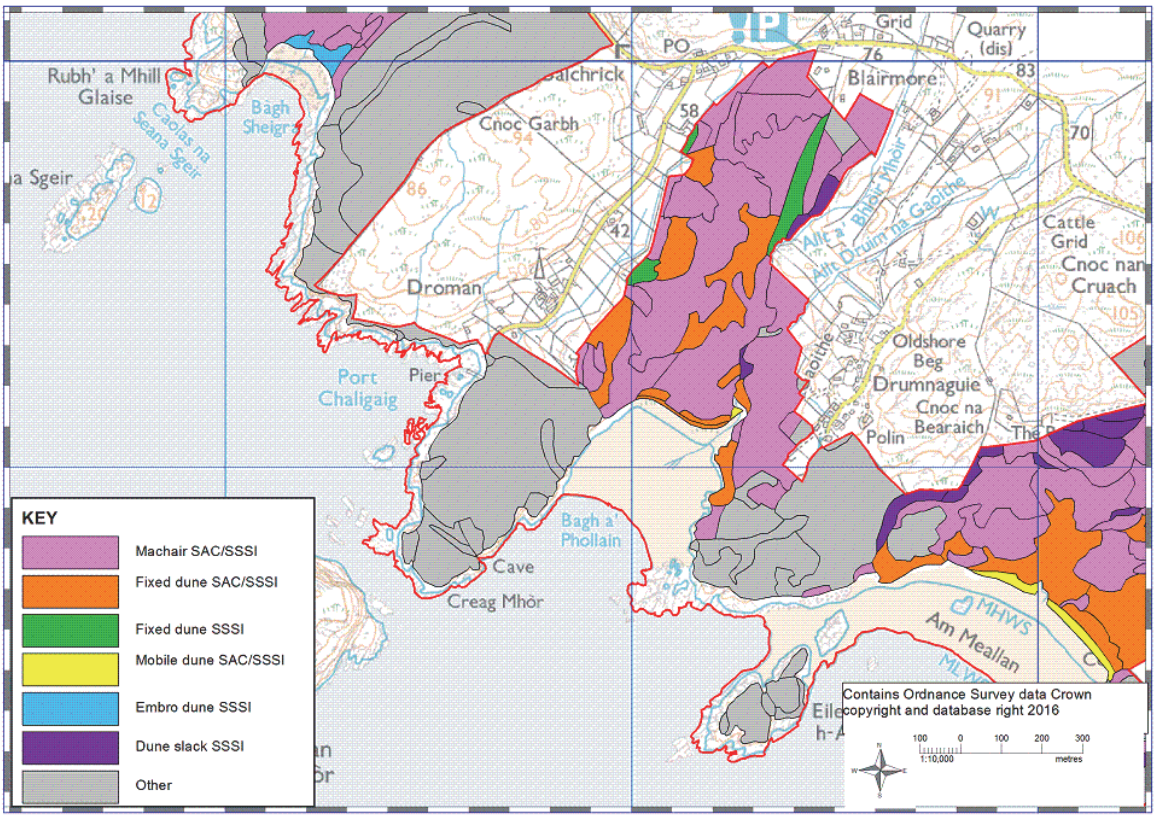

Figure 4. Map of SAC qualifying interests and SSSI features/sub-features for the Oldshore Beg section of the SSSI. Crown copyright [and database rights] 2016 OS 100017908.

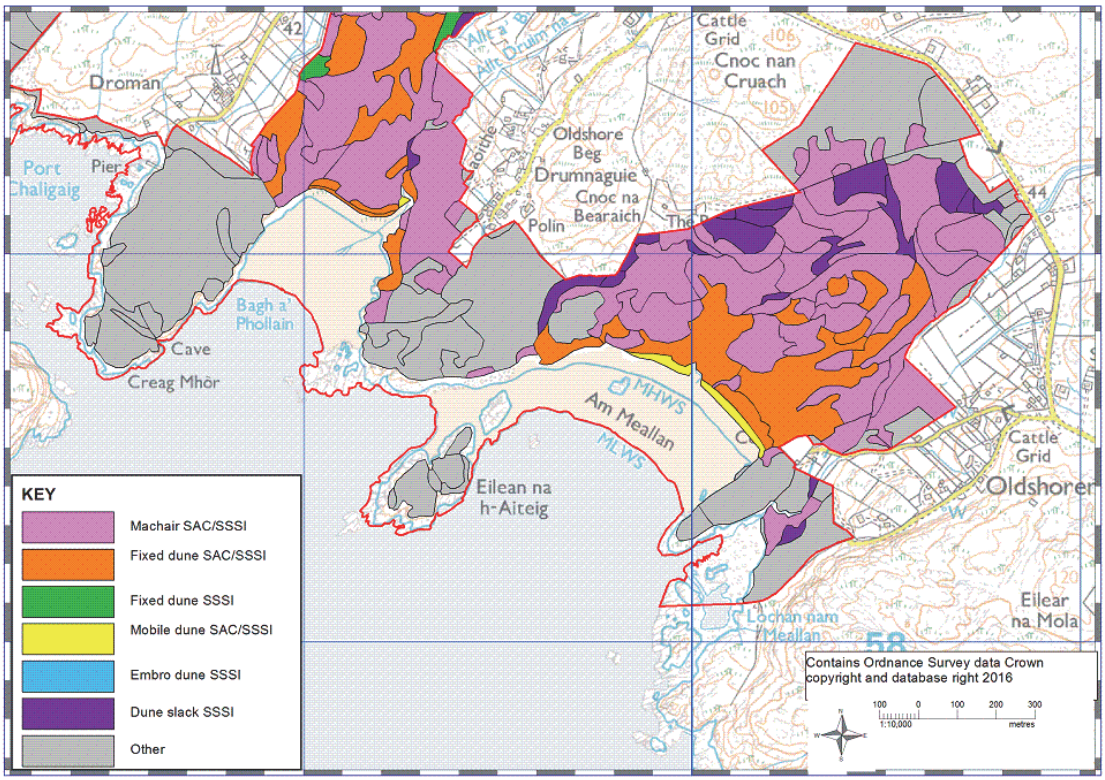

Figure 5. Map of SAC qualifying interests and SSSI features/sub-features for the Oldshoremore section of the SSSI. Crown copyright [and database rights] 2016 OS 100017908.

Table 6. Total mapped extent of each EUNIS type with corresponding Annex I habitat, SSSI feature/sub-feature and NVC/other codes. SAC qualifying interests are shown in bold. NVC codes are mostly at community level only (see Table 1 for fuller details). Asterisk against NVC code indicates that only part corresponds with the EUNIS/Annex I code. See Annex 6 for habitat extent calculations.

EUNIS code	Annex I code	SSSI feature/sub-feature	Extent (ha)	Corresponding NVC/other mapping codes
A2.53	H1330		0.00	SM16
B1.21			0.05	BS
B1.31	H2110	Strand, embryo & mobile dunes	0.66	SD4
B1.32	**H2120**	Strand, embryo & mobile dunes	0.60	SD6
B1.41	**H2130**	Fixed dunes	17.99	SD7
B1.4x		Fixed dunes	1.43	SD9 SD10
B1.83	H2190	Dune slacks	0.19	M9 S25
B1.84	H2190	Dune slacks	11.89	SD17 M23* M25* M26* Mx*
B1.85	H2190	Dune slacks	0.14	S4*
B1.9	**H21A0**	Machair	71.62	SD8 MG11* SD17x
B2.12	H1210		0.06	SDx
B3.2			0.29	RC
B3.31	H1230		5.58	MC3 MC8, H7 H10*
C3.21			0.35	S4*
D1.21	H7130		0.20	M1
D2.22			1.03	M6
D2.33	H7140		0.19	M5
D4.15	H7230		2.14	M10
D4.1I			0.00	S25
E1.72x			3.39	U4
E2.111			1.50	MG6
E2.13			0.38	FH
E2.21			2.61	MG1
E3.41			4.69	M23b Mx*
E3.42			0.10	M23a
E3.44			0.23	MG10 MG11*
E3.511			0.79	M26*
E3.512			1.03	M25*
E5.31			0.16	U20
F4.11	H4010		57.71	M15
F4.25	H4030		5.16	H10*
H3.51x			5.61	RO
J2			0.05	CEM
J4			0.05	CP

Table 7. Extent of SSSI notified features and sub-features and SAC qualifying interests within Sheigra-Oldshoremore SSSI in 2016. See Annex 6 for habitat extent calculations.

SSSI/SAC feature/sub-feature	**Extent (ha)**
SSSI Sand dunes: Strand, embryo and mobile dune	1.26
SSSI Sand dunes: Fixed dunes	19.43
SSSI Sand dunes: Dune slacks	12.22
SSSI Sand dunes (total)	32.91
SSSI Machair	71.62
SAC Shifting dunes with marram (H3120)	0.60
SAC Dune grassland (H2130)	17.99
SAC Machair (H21A0)	71.62

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ANNEX 1: LISTS OF QUADRAT SAMPLES AND TARGET NOTES

a. Quadrat sample list with grid reference, date and SSSI section

Key - Sheigra (SH), Oldshore Beg (OB) and Oldshoremore (OM). For locations see Figs 4-5. For NVC codes see Table 1.

Quadrat code	NVC code	X	Y	date	section
Q02	M10	218217	960445	31/08/2016	SH
Q03	CG10b	218323	960559	31/08/2016	SH
Q04	SD8d	218275	960126	31/08/2016	SH
Q05	SD8d	218265	960071	31/08/2016	SH
Q06	SD8c	218300	960049	31/08/2016	SH
Q07	SD17x	218355	960068	31/08/2016	SH
Q08	Mx	218469	960149	31/08/2016	SH
Q09	MG11	218430	960206	31/08/2016	SH
Q10	MG11	218397	960287	31/08/2016	SH
Q12	SD8z	218125	960057	31/08/2016	SH
Q13	SD4	218236	960012	31/08/2016	SH
Q14	SD4	218273	900014	31/08/2016	SH
Q15	SD8c	218285	959987	31/08/2016	SH
Q16	M15a	218283	959888	31/08/2016	SH
Q17	H7c	218299	959830	31/08/2016	SH
Q18	M10	218203	959536	31/08/2016	SH
Q19	H7c	218293	959568	31/08/2016	SH
Q20	Mx	218539	960238	31/08/2016	SH
Q21	S25x	218539	960265	31/08/2016	SH
Q22	S25x	218522	960281	31/08/2016	SH
Q23	M23b	218507	960270	31/08/2016	SH
Q24	MG11	218560	960368	31/08/2016	SH
Q25	SD17c	218585	960307	31/08/2016	SH
Q26	SD7x	219049	959176	01/09/2016	OB
Q27	SD7a	219058	959166	01/09/2016	OB
Q28	SD8x	219131	959157	01/09/2016	OB
Q29	SD8z	218910	959204	01/09/2016	OB
Q30	SD8x	218895	959262	01/09/2016	OB
Q31	SD4	218881	959293	01/09/2016	OB
Q32	SD8z	218993	959229	01/09/2016	OB
Q33	SD8z	219095	959334	01/09/2016	OB
Q34	SD7x	219019	959313	01/09/2016	OB
Q35	SD9a	218930	959324	01/09/2016	OB
Q36	SD7a	219001	959404	01/09/2016	OB
Q37	SD10	219029	959461	01/09/2016	OB
Q38	SD7x	219134	959479	01/09/2016	OB
Q39	SD8x	219155	959601	01/09/2016	OB
Q40	SD8c	219138	959623	01/09/2016	OB
Q41	SD8a	219087	959656	01/09/2016	OB
Q42	MC3	218527	959073	01/09/2016	OB
Q43	MC8	218464	958828	01/09/2016	OB
Q44	SD8d	219340	959934	01/09/2016	OB
Q45	SD17c	219170	959812	01/09/2016	OB
Q46	SD8c	219223	959820	01/09/2016	OB

Quadrat code	NVC code	X	Y	date	section
Q47	SD9	219429	959710	01/09/2016	OB
Q48	SD8d	219338	959134	02/09/2016	OB
Q49	SD8d	219328	959235	02/09/2016	OB
Q50	SD2	219284	959148	02/09/2016	OB
Q51	SD6d	219252	959124	02/09/2016	OB
Q52	SD7a	219185	959110	02/09/2016	OB
Q53	SD4	219161	959093	02/09/2016	OB
Q54	SD8z	219279	958974	02/09/2016	OB
Q55	M15a	219425	958925	02/09/2016	OB
Q56	Mx	219379	958852	02/09/2016	OB
Q57	M23b	219371	958845	02/09/2016	OB
Q58	Mx	219269	958810	02/09/2016	OB
Q59	FH	219299	958954	02/09/2016	OB
Q60	Mx	219440	959617	01/09/2016	OB
Q61	S25x	219415	959601	01/09/2016	OB
Q62	SD8a	219340	959322	01/09/2016	OB
Q63	H7c	219422	958527	02/09/2016	OM
Q64	H7c	219401	958426	02/09/2016	OM
Q65	SDx	220192	958273	30/08/2016	OM
Q66	SD8x	220203	958304	30/08/2016	OM
Q67	M15a	220120	958333	30/08/2016	OM
Q68	SD7a	220164	958525	30/08/2016	OM
Q69	SD6a	220111	958583	30/08/2016	OM
Q70	SD4	220105	958576	30/08/2016	OM
Q71	SD7a	220140	958586	30/08/2016	OM
Q72	SD7x	220159	958607	30/08/2016	OM
Q73	SD8x	220171	958641	30/08/2016	OM
Q74	SD8z	220185	958705	30/08/2016	OM
Q75	SD7x	220231	958750	30/08/2016	OM
Q76	SD8z	220268	958773	30/08/2016	OM
Q77	SD8x	220312	958906	30/08/2016	OM
Q78	SD8e	220283	958959	30/08/2016	OM
Q79	H7c	219635	958724	02/09/2016	OM
Q80	Mx	219635	958860	02/09/2016	OM
Q81	SD8a	220432	958548	03/09/2016	OM
Q82	MG6a	220387	958505	03/09/2016	OM
Q83	M26	220457	958501	03/09/2016	OM
Q84	SD8e	220501	958599	03/09/2016	OM
Q85	SD7x	220497	958776	03/09/2016	OM
Q86	SD8x	220506	958799	03/09/2016	OM
Q87	SD8z	220430	958887	03/09/2016	OM
Q88	Mx	220233	958889	03/09/2016	OM
Q89	M26	220192	959045	03/09/2016	OM
Q90	SD17c	219814	958914	03/09/2016	OM
Q91	S25x	219867	959035	03/09/2016	OM
Q92	M26	220180	959110	03/09/2016	OM
Q93	SD17c	220420	959172	03/09/2016	OM
Q94	SD8a	220534	959178	03/09/2016	OM
Q95	M26	220665	959163	03/09/2016	OM
Q96	MG1c	220636	958959	03/09/2016	OM

Quadrat code	NVC code	X	Y	date	section
Q97	SD8e	220594	959283	02/09/2016	OM
Q98	SD8e	220325	959189	02/09/2016	OM
Q99	CG10b	220284	959261	02/09/2016	OM
Q100	M15a	220298	959331	02/09/2016	OM
Q101	M6c	220629	959391	02/09/2016	OM

b. Target Notes

date	X	Y	notes
30/08/2016	20332	58293	M15a Wet Heath, *Myrica* with M10 Flushes (<5%)
30/08/2016	20286	58272	*Carex nigra* mire, With M6 tendencies - Mx
30/08/2016	20244	58268	S27 Patch/M5 wettest part with *Phragmites* And *Sphagnum contortum*, M15 mosaic further up slope.
30/08/2016	20131	58313	*Antennaria*, *Salix repens* heath H7
30/08/2016	20023	58301	M9 Maritime Cliff Grassland With *Pot ans, Primula vulg, Anthox odo, Lotus, Scilla verna, Gentianella campestris, Trollius, Salix repens,* Also H7 Mosaic.
30/08/2016	19965	58268	Perched Saltmarsh SM16 On tip of peninsula, *Glaux Triglochin, Carex distans Plantago coronopus.* Approx 50m sq.
30/08/2016	20231	58465	*Thalictrum alpinum* and *Salix repens* with many red galls.
30/08/2016	20101	58572	View along front of dunes SD4 etc
30/08/2016	20185	58694	View across site and quadrat 10 location
30/08/2016	20310	58848	Large blowout near top of dunes
31/08/2016	18045	60020	H7 heath with *Erica tetralix, Silene acaulis, Calluna, Carex flacca, Agr stolon, Thymus*
31/08/2016	18048	60199	Views east and north over sheigra site from point
31/08/2016	18073	60262	View NNE over perched sm and towarsd cliffs
31/08/2016	18064	60343	Erosion (sheep?) On mire/perched saltmarsh habitats on flat terrace.
31/08/2016	18218	60436	View NE over eroding M15 a mires
31/08/2016	18327	60556	View up flushed SD vegetation with *P. anserina, F. rubra*
31/08/2016	18395	60557	Mc with *Ligusticum, Armeria, Primula vulg* and view of *Pot anserina* flushed veg with *Ran flammula* etc
31/08/2016	18327	60055	Mire habitat 25x5m with *Carex nigra, Caltha, Ran flamm, Eri vag* and *Achillea ptarmica*. Also large sphagnum good cover. Also thallose liverwort, E*pilobium, Galium, Molinia*
31/08/2016			Swamp along burn with *Mentha Caltha, Eleocharis* etc
31/08/2016	18355	60058	View west across ridge
31/08/2016	18615	60357	
31/08/2016	18739	60300	View east across grassland on SW edge of SSSI. U4
31/08/2016			View north along fence grazed vs ungrazed grassland - ponies grazing over fence
31/08/2016	18861	59119	Mire with *Fil ulm Sal rep Car nig Iris.*
31/08/2016	19042	59156	Views w-n-e from here over OB site.
31/08/2016	19257	58946	Views E and W along front face of dunes. Large hawkweed(pic), *Rumex crispus, Elymus farctus, Ammophila, Senecio, Centaurea, Atriplex glab, Cakile* present on strandline/eroding dune face.
31/08/2016	19291	58994	View S across small field, and view N across SD7/SD8.
31/08/2016	19252	59141	Bare sand area with SD7d etc
31/08/2016	18677	58946	Eroded dune flat beside burn with *Glaux*, mayweed, sand sedge, *Junc artic, Holcus,. Atriplex, Agr stolon, Cirsium*

date	X	Y	notes
31/08/2016	18041	60019	top of headland, sparse vegetation (H7) with *Thymus, Calluna, E tetralix, Silene acaulis, Plantago maritima, F rubra, A stolonifera, Cochlearia, Armeria, Carex flacca, Empetrum* L
31/08/2016	18215	60014	stream mouth - fragments of vegetation with *Potentilla anserina, F rubra, A stolonifera, Sonchus arvensis*
31/08/2016	18321	59847	crags with *Sedum rosea*, CG10 locally below
31/08/2016	18264	59777	stony M10 flush 10 x 2 m
31/08/2016	18264	59777	MC3 on seacliffs
31/08/2016	18247	59678	MC3 and MC8 on cliff ledges and broken clifftops, with *Salix repens, Angelica, Anemone, Caltha, Succisa, Thymus*
31/08/2016	18203	59526	*Silene acaulis* LF in H7 and MC3 on cliffs
31/08/2016	18206	59448	*Silene uniflora* narrow band on top of cliff
31/08/2016	18287	59411	*Salix repens* LF
31/08/2016	18276	59527	*Dryopteris expansa* in rock crevice
31/08/2016	18373	60088	SD4 fringe round blowout
31/08/2016	19570	59849	Unusual and varied area of fen - S4 *Phragmites-Filipendula*, Mx *Carex nigra-Angelica, Carex rostrata* locally, with much *A. ptarmica*, *Silene flos-cuculi, Sphagnum squarrosum* L
31/08/2016	18794	59074	Mx type fen, *Carex nigra-E.angustifolium-Caltha-Filipendula-Molinia-J articulatus-Iris*
01/09/2016	18981	59265	SD8z with many stones and *Ditrichum* sp?
01/09/2016	18919	59233	old blowout with scattered *P coronopus, C glomeratum, S acre, C scabiosa, S jacobea.* SD8z/c and SD6 patches also present
01/09/2016	19247	59853	*Gentianella amarella* LF
01/09/2016	19171	59807	*Juncus balticus* in SD17
01/09/2016	19241	59745	SD10 patch 10 x 2 m at head of blowout with water erosion
01/09/2016	19282	59793	*Trollius* abundant in SD8z
01/09/2016	19346	59820	*Listera ovata* LF
01/09/2016	19339	59784	large eroded bowl with remnants of SD8z turf, boulders and gravel colonising with SD8z spp, SD19 type below
01/09/2016	19558	59794	Phalaris patch
02/09/2016	19416	59175	field quite rank with *Arrhenatherum, Urtica, Heracleum* and patches of SD9, wet corner with *Mimulus* agg
02/09/2016	19266	59063	small blowout with *C arenaria* in SD8c
02/09/2016	19259	59053	gully with lush *Ranunculus repens, Urtica* etc
02/09/2016	19228	59112	*Ligusticum scoticum* in SD8x
02/09/2016	19231	58710	MC3 in geo, also MC8
02/09/2016	19253	58736	*Scilla verna*
02/09/2016	19413	58493	*Salix repens LD* with *F rubra, Primula, P erecta, Empetrum*
02/09/2016	19383	58373	*Ligusticum scoticum and Asplenium maritimum*, also MC8
02/09/2016	19228	58317	rock pavement with MC10 in crevices
02/09/2016	19274	58337	*Scilla verna* on clifftop
02/09/2016	19390	58503	*Anthyllis*
02/09/2016	19585	58736	SD8x with *Salix repens* abundant on cliffs, *Tussilago* and *Filipendula* dominant at base
02/09/2016	19622	58797	M10 flush with *Schoenus, Pinguicula vulgaris, Carex flacca, J articulatus, Triglochin palustris, Campylium stellatum* etc
03/09/2016	20607	58600	*Cratoneuron* spring M37 10 x 5 m

date	X	Y	notes
03/09/2016	20526	58699	island in river with SD8x/z with *Rosa spinosissima*
03/09/2016	20393	58848	blowouts on summit with *V tricolor, C glomeratum, Gentianella* and mossy SD8z
03/09/2016	20141	58976	*Carex capillaris & Listera ovata* in SD8z, spp rich turf, *Salix repens* LF
03/09/2016	20697	59106	pool with *Chara virgata* and *E fluviatile* in M9 with *J articulatus, Carex nigra, E fluviatile, Carex lepidocarpa, Pedicularis palustris, Molinia, Pot poly, Chara, Drepanocladus sp, Philonotis calcarea, Caltha, F ulmaria*
03/09/2016	20820	59091	*Phragmites* bed along stream
03/09/2016	20760	59013	Fine SD8a/e with abundant *Trollius, Anthyllis, Daucus, Thalictrum minus*
03/09/2016	20248	58257	pool with *Pot poly, Scorpidium, Carex demissa*, in MxPp
03/09/2016	20421	59201	enriched area with much *Potentilla anserina* and cattle dung beside track, more *Lolium* also

ANNEX 2: DESCRIPTIONS OF VEGETATION TYPES

a. Strand, embryo and mobile dune

SD2 *Honkenya peploides-Cakile maritima* strandline community

SD2 *Honkenya peploides-Cakile maritima* strandline community is rare and fragmentary, recorded at both Oldshoremore and Oldshore Beg. *Cakile maritima* is characteristic with other species sparse (Q50).

SD4 *Elytrigia juncea ssp. boreoatlantica* foredune community

Relatively large stands of SD4 *Elytrigia juncea ssp. boreoatlantica* foredune community occur at Sheigra, forming the outer part of the dunes. Smaller stands occur along the dune front at Oldshoremore and in blowouts at Oldshore Beg. *Elytrigia juncea* is dominant, usually with few associates, such as *Senecio jacobea,* although *Cakile maritima* is locally abundant in transitions to SD2 (Q70). However the community is more diverse in blowouts, with *Carex arenaria* and other species present.

SD6 *Ammophila arenaria* mobile dune community

a. *Elytrigia juncea* sub-community
d. *Ammophila arenaria* sub-community

SD6 *Ammophila arenaria* mobile dune community mainly occurs on the steep dune front at Oldshoremore, with a small stand at the stream mouth at Oldshore Beg. *Ammophila arenaria* is the overwhelming dominant, growing vigorously, with a characteristically large proportion of bare sand. SD6a *Elytrigia juncea* sub-community is distinguished from SD6d *Ammophila arenaria* sub-community by the presence of *E. juncea.* Other associates are characteristically sparse, with species such as *Sonchus arvensis, Cirsium arvense* and *Vicia* spp. Bryophytes and lichens are mostly absent.

SDx *Potentilla anserina* strandline community

A small but well-developed stand of SDx *Potentilla anserina* strandline community (Dargie, 2000) occurs on the small shingle beach at the south end of Oldshoremore (Q65). *Potentilla anserina* is dominant with *Rumex crispus, G. aparine, Atriplex glabriuscula* and other strandline species.

b. Fixed dune grassland

SD7 *Ammophila arenaria-Festuca rubra* semi-fixed dune community

a. Typical sub-community
x. *Galium verum* sub-community

SD7 *Ammophila arenaria-Festuca rubra* semi-fixed dune community is much more extensive than SD6, covering large areas at Oldshoremore and Oldshore Beg, though is not present at Sheigra. *Ammophila* is still abundant though generally less vigorous than SD6 with less or no bare ground and a richer associated flora. *Festuca rubra* is constant and often abundant, with other grasses well represented including *Poa pratensis.* Bryophytes such as *Syntrichia ruralis* and *Rhytidiadelphus squarrosus* are typically present, with variable cover. SD7a typical sub-community occurs near the front of the dunes - on the dune face at Oldshore Beg and behind the front crest at Oldshoremore. The flora is relatively poor with *S. jacobea, Vicia cracca* and *Bryum pallens* preferential. Further inland SD7x *Galium verum* sub-community (Dargie, 2000) is much more extensive. It is more species-rich with preferential species including *G. verum, Centaurea nigra, Holcus lanatus, Ranunculus acris, Heracleum*

sphondylium and *Vicia sepium. Festuca rubra* is usually more abundant than in SD7a and may exceed *Ammophila* in cover. Dargie (2000) considers SD7x to be the 'precursor' to SD8 machair grassland. Over much of the site it occurs in mosaic with SD8. Generally it was feasible to map the two communities separately, but at Oldshoremore a large area to the north of the cemetery has been mapped as a mosaic because of its complexity.

SD9 *Ammophila arenaria-Arrhenatherum elatius* dune grassland

a. Typical sub-community

Arrhenatherum elatius occurs occasionally at low cover in SD7 but is more abundant, rivalling *Ammophila,* in small stands of SD9a *Ammophila arenaria-Arrhenatherum elatius* dune grassland, typical sub-community on the western edge of the dunes at Oldshore Beg. The associated flora is similar to that of SD7 (Q35).

SD10 *Carex arenaria* dune community

A single stand of SD10 *Carex arenaria* dune community dominated by *C. arenaria* occurs in a blowout on the western edge of the dunes at Oldshore Beg (Q37). The associated flora is quite diverse with elements of both SD10a and SD10b, making it difficult to assign to a single sub-community.

c. Dry machair grassland (SD8, CG10)

SD8 *Festuca rubra-Galium verum* fixed dune grassland

a. Typical sub-community
c. *Syntrichia ruralis ssp. ruraliformis* sub-community
d. *Ranunculus acris-Bellis perennis* sub-community
e. *Prunella vulgaris* sub-community
x. *Centaurea nigra-Daucus carota* sub-community
z. *Thymus polytrichus* sub-community

SD8 *Festuca rubra-Galium verum* fixed dune grassland is the most extensive dune community and all forms here correspond to machair grassland. *Ammophila* is absent or present only as scattered tufts. *Festuca rubra* is the dominant grass with *Holcus lanatus* usually present but at low cover. Other constants across the community are *Trifolium repens, Plantago lanceolata, Ranunculus acris, Lotus corniculatus, Bellis perennis* and *G. verum.* Another 12 species are frequent and diversity is generally high, with an average of 21 species per quadrat (including bryophytes). Sward height is generally low though is consistently taller in SD8x. Polygons have been assigned to sub-communities, although some include two or three different types. The distinction between sub-communities a, d and e can be difficult and intermediates undoubtedly occur, but have been avoided for mapping purposes.

SD8a typical sub-community is widespread but not extensive, characterised by constants such as *G. verum* and *T. repens,* with only *Rumex acetosa* and *Arrhenatherum elatius* as slight preferentials. Sward height tends to be taller than other sub-communities except SD8x. The main areas occur at Oldshoremore, to the south and east, in mosaic with other SD8 sub-communities.

SD8c *Syntrichia ruralis ssp. ruraliformis* sub-community is more distinctive though variable, with a rather open sward and high cover of bryophytes and/or bare ground, with *S. ruralis* most characteristic as well as *Homalothecium lutescens* and various acrocarps. Preferential vascular plants include *Sedum acre, Pilosella officinarum, Carex arenaria* and *Achillea millefolium* with occasional dune annuals such as *Cerastium diffusum,* though annuals may have been under-recorded because of the time of year. *Galium verum* and *Ranunculus acris*

are rare. Some stands appear transitional to SD19 *Phleum arenarium-Arenaria serpyllifolia* dune annual community. SD8c is uncommon in the SSSI but occurs behind SD4 stands at Sheigra and in blowouts and other eroded areas (particularly associated with rabbits) at Oldshore Beg.

SD8d *Ranunculus acris-Bellis perennis* sub-community is found in all three sections and is fairly extensive, notably in the enclosed fields at Oldshore Beg and at Sheigra. *Bellis perennis* and *Trifolium repens* are typically prominent in the short sward, which is relatively well-drained so lacking the 'wet' indicators of SD8e. *Taraxacum officinale* agg. is more frequent than in other sub-communities. *Thymus polytrichus* is not found.

SD8e *Prunella vulgaris* sub-community is damper with significant cover (>5%) of *Prunella vulgaris,* and other indicators such as *Juncus articulatus* and *Cardamine pratensis.* Other preferential species include *Cynosurus cristatus, Plantago maritima, Vicia cracca* and *Rhinanthus minor.* It is well represented at Oldshoremore, uncommon at Oldshore Beg and absent from Sheigra.

SD8x *Centaurea nigra-Daucus carota* sub-community (Dargie, 2000) is very extensive at Oldshoremore and Oldshore Beg. *Centaurea nigra* is particularly characteristic in the taller sward, with the community constants all well represented and others such as *Thalictrum minus, Heracleum sphondylium* and *Vicia sepium*. It often occurs in mosaic with other SD8 types or with SD7x.

SD8z *Thymus polytrichus* sub-community is the commonest 'climbing dune' type (Dargie, 2000) and is well represented throughout the SSSI. It typically occurs on steeper slopes with rock and stones near the surface and is the most species-rich sub-community, with a fairly short sward. *Thymus polytrichus* is the most characteristic preferential, with significant cover, and other associates in addition to the community constants include *Koeleria micrantha, Plantago maritima* and *Carex flacca* as well as *Gentianella amarella, Thalictrum minus* and *Succisa pratensis* in places. This type has affinities to CG10 on the highest tops (see above).

CG10 *Festuca ovina-Agrostis capillaris-Thymus polytrichus* grassland

b. *Carex pulicaris-Carex panicea* sub-community

CG10 *Festuca ovina-Agrostis capillaris-Thymus polytrichus* grassland was mapped on the highest tops at Oldshoremore and Oldshore Beg by Radley *et al* (1989). Here the sand is very thin and there is much rock and stony gravel visible. Dargie (2000) emphasises that CG10 even on dunes has a mix of calcicole and calcifuge species, a feature which is lacking in SD8 types. Quadrats were taken from open summit areas previously mapped as CG10 (Q33, Q76 and Q87) but comparison of the species composition with other SD8z quadrats revealed no real differences, with calcifuges such as *F. ovina* and *Potentilla erecta* practically absent. *Carex capillaris, Coeloglossum viride, Salix repens* and *Persicaria vivipara* are notable species recorded in this vegetation but are not calcifuges and are not inconsistent with SD8, therefore these three samples and the vegetation they represent has been assigned to SD8z. However two stands of grassland have been assigned to CG10b *Carex pulicaris-Carex panicea* sub-community. These occur north of the track to the Bard House at Oldshoremore (Q99) and at the northernmost end of the SSSI (Q03). The flora includes abundant *Festuca rubra, Carex panicea* and/or *C. flacca* with calcifuges such as *Calluna vulgaris, Potentilla erecta* and *Molinia caerulea* as well as calcicoles including *Thymus polytrichus* and other characteristic species of SD8z.

Both stands are small and are associated with SD8 so have been classified as machair in accordance with Angus (2015).

d. Dune slack, mire and swamp

SD17 *Potentilla anserina-Carex nigra* dune-slack community

c. *Caltha palustris* sub-community
x. *Agrostis stolonifera* sub-community

Several mostly small stands of SD17 *Potentilla anserina-Carex nigra* dune-slack community occur at Sheigra and Oldshoremore. *Carex nigra* is abundant with variable amounts of *P. anserina* and a wide range of associates, including *Agrostis stolonifera, Holcus lanatus* and *Scorzoneroides autumnalis*. Bryophytes include *Calliergonella cuspidata* and *Plagiomnium undulatum.* Most stands resemble SD17c *Caltha palustris* sub-community with species such as *C. palustris, Equisetum fluviatile* and *Vicia cracca*. The largest area occurs in the NE part of the Oldshoremore section, with *Phragmites australis* and *F.ulmaria* also present at low cover. One stand at Sheigra has much *Juncus articulatus* and *Juncus balticus* and matches the SDx *Agrostis stolonifera* sub-community proposed by Dargie (2000).

Mx *Carex nigra* machair fens (Dargie, 2000)

Several *Carex nigra*-dominated mires resembling the proposed Mx mires of Dargie (2000) occur. Without detailed descriptions for Mx types any assignments must be provisional, but some stands appear close to Mxbd *Carex nigra-Prunella vulgaris-Molinia caerulea* mire, with constant species including *M. caerulea, P. vulgaris, F. ulmaria, Ranunculus acris, Holcus lanatus* and *Calliergonella cuspidata.* Other associates include *Juncus articulatus* and *Pedicularis palustris; Eleocharis palustris* is locally abundant. Other stands resemble M27 *Filipendula ulmaria-Angelica sylvestris* mire, but with *Carex nigra* dominant or co-dominant with *F. ulmaria.* These occur quite extensively in the NE part of the Oldshore Beg section, along the northern margin of the Oldshoremore section and on the headland between the two. Associates include *Angelica sylvestris, Caltha palustris* and a scattering of grasses and rushes including much *Molinia caerulea* in one stand (floristically close to M26). Such vegetation also has similarities to M26 *Molinia caerulea-Crepis paludosa* mire (below).

M1 *Sphagnum denticulatum* bog-pool community

A small pool perched above the cliffs north of Sheigra has an unusual mix of species representing a form of M1 *Sphagnum denticulatum* bog-pool community heavily affected by seaspray with *Eleocharis* and *Triglochin* species as well as *Eriophorum angustifolium* and *S. denticulatum.*

M6 *Carex echinata-Sphagnum fallax/denticulatum* mire

c. *Juncus effusus* sub-community

M6c *Carex echinata-Sphagnum fallax/denticulatum* mire, *Juncus effusus* sub-community, occurs above the track at the north-east corner of the Oldshoremore section in mosaic with M23b. *Juncus conglomeratus* is abundant with associates including *Carex echinata, Viola palustris* and *Sphagnum* spp.

M9 *Carex rostrata-Calliergonella cuspidata/Calliergon giganteum* mire

a. *Campylium stellatum-Scorpidium scorpioides* sub-community

A small stand of M9a *Carex rostrata-Calliergonella cuspidata/Calliergon giganteum* mire, *Campylium stellatum-Scorpidium scorpioides* sub-community, occurs around a shallow calcareous pool to the north-east of the Oldshoremore section. The flora includes *Juncus articulatus, Carex nigra, Equisetum fluviatile, Carex lepidocarpa, Pedicularis palustris, Molinia caerulea, Potamogeton polygonifolius, Chara virgata, Drepanocladus* sp*, Philonotis calcarea, Caltha palustris* and *F. ulmaria.*

M10 *Carex dioica-Pinguicula vulgaris* mire

Several flushes with M10 *Carex dioica-Pinguicula vulgaris* mire occur in areas of rocky wet heath and coast. The flora includes *Schoenus nigricans, Pinguicula vulgaris, Carex flacca, Juncus articulatus, Triglochin palustris* and *Campylium stellatum.* There is no clear fit to an existing sub-community.

M23 *Juncus effusus/acutiflorus-Galium palustre* mire

a. *Juncus acutiflorus* sub-community
b. *Juncus effusus* sub-community

M23 *Juncus effusus/acutiflorus-Galium palustre* mire is represented in a few places, mainly on the site margins. M23a *Juncus acutiflorus* sub-community is scarce whereas M23b *Juncus effusus* sub-community occurs more widely, notably at Sheigra in mosaic with SD17 and other mire types. *Juncus effusus* is dominant with associates including *F. ulmaria, Galium palustre, Epilobium palustre* and *Holcus lanatus.*

M25 *Molinia caerulea-Potentilla erecta* mire

b. *Anthoxanthum odoratum* sub-community
c. *Angelica sylvestris* sub-community

Small stands of M25 *Molinia caerulea-Potentilla erecta* mire occur on the margins of the Oldshoremore section, with M25b *Anthoxanthum odoratum* sub-community and M25c *Angelica sylvestris* sub-community both represented.

M26 *Molinia caerulea-Crepis paludosa* mire

Vegetation with abundant *Molinia* and a rich calcicolous flora is a striking feature of the Oldshoremore section to the north and east. This is richer than M25 mire and a much better match to M26 *Molinia caerulea-Crepis paludosa* mire. Although *C. paludosa* was not recorded, the Northern montane species *Trollius europaeus* is constant together with *Carex nigra, Succisa pratensis, F. ulmaria* and *Ranunculus acris,* all constants of M26 (Rodwell, 1992). Other associates include *Carex flacca, C. pulicaris, C. capillaris, Thalictrum alpinum, Prunella vulgaris, Thymus polytrichus* and many others. It is a poor match to either of the sub-communities described by Rodwell but these are based on samples from England only; M26 has subsequently been more widely recorded from Scotland (Averis *et al,* 2004). This vegetation is amongst the richest on the site with more than 30 species per quadrat in places.

S4 *Phragmites australis* swamp

S4b *Galium palustre* sub-community

SxTHF *Phragmites australis-Calliergon cordifolium* tall-herb fen (Dargie, 2000)

Several beds of *Phragmites australis* occur along streams and in hollows, mainly at Sheigra and Oldshoremore, but also locally at Oldshore Beg. A few stands correspond to S4b *Phragmites australis* swamp, *Galium palustre* sub-community, such as at to the east of the public road at Sheigra, where dense reed has an understorey of *Filipendula ulmaria, Carex rostrata, Mentha aquatica* and *Kindbergia praelonga.* Other stands correspond more closely to the proposed SxTHF *Phragmites australis-Calliergon cordifolium* tall-herb fen (Dargie, 2000). The reed is less dense with a high cover of fen bryophytes such as *Calliergonella cuspidata, Calliergon cordifolium, Pellia epiphylla* and *Rhizomnium punctatum.* Associates include *F. ulmaria, Caltha palustris, Carex nigra* and *Cardamine pratensis.* Such vegetation could alternatively be proposed as a new sub-community of S25 *Phragmites australis-Eupatorium cannabinum* tall-herb fen and has been labelled as S25x on the maps.

e. Heaths and maritime cliff vegetation

MC3 *Sedum rosea-Armeria maritima* maritime cliff-ledge community

Small open stands of MC3 *Sedum rosea-Armeria maritima* maritime cliff-ledge community occur in crevices on cliffs around the coast. Typical species include *Plantago maritima* and *Sagina procumbens* as well as *S. rosea and A. maritima*. MC3 is difficult to map and easily missed from above, so mapping is not comprehensive.

MC8 *Festuca rubra-Armeria maritima* maritime grassland

e. *Plantago maritima* sub-community

Patches of MC8e *Festuca rubra-Armeria maritima* maritime grassland, *Plantago maritima* sub-community, occur on cliff tops and ledges subject to salt spray, on Eilean na h-Aiteig and elsewhere. Many stands are too small to map. Associates of *F. rubra* and *A maritima* include *Plantago maritima, P. lanceolata* and *Carex flacca.*

H7 *Calluna vulgaris-Scilla verna* heath

c. *Erica tetralix* sub-community

Maritime/sub-maritime heath of type H7c *Calluna vulgaris-Scilla verna* heath, *Erica tetralix* sub-community, occurs widely on rocky cliff-tops and slopes. Stands are typically small, but extensive stands occur on Eilean na h-Aiteig. Constants include *Calluna vulgaris, Erica tetralix, Plantago maritima, Succisa pratensis* and *Potentilla erecta,* but the appearance of this typically prostrate heath is variable. *Calluna* is often dominant but *Empetrum nigrum* may also dominate as it does on Eilean na h-Aiteig. In places *Salix repens* is a distinctive dominant or associate. The associated flora is typically rich and includes *Lotus corniculatus, Trifolium repens, Carex flacca, C. pulicaris* and *Frullania tamarisci. Scilla verna* was noted occasionally, but is inconspicuous in late summer.

H10 *Calluna vulgaris-Erica cinerea* heath

c. *Festuca rubra-Anthoxanthum odoratum* sub-community
d. *Thymus polytrichus-Carex pulicaris* heath

H10 *Calluna vulgaris-Erica cinerea* heath occurs on crags and rocky slopes in less maritime situations than H7, although transitions do occur. Calluna is typically dominant with varying amounts of *E. cinerea* and a variety of associates, including *Salix repens* in places. Both H10c *Festuca rubra-Anthoxanthum odoratum* sub-community and H10d *Thymus polytrichus-Carex pulicaris* heath were recorded but both are mapped as H10.

M15 *Trichophorum germanicum-Erica tetralix* mire

a. *Carex panicea* sub-community
b. Typical sub-community

Extensive areas of M15 *Trichophorum germanicum-Erica tetralix* mire occur on rocky slopes, clifftops and headlands throughout the site. *Molinia caerulea* is dominant with variable amounts of *E. tetralix* and *Calluna vulgaris* and associates such as *Festuca ovina, Nardus stricta* and *Potentilla erecta.* M15a *Carex panicea* sub-community is the most widespread type, reflecting the degree of mineral flushing and/or seaspray. Sedges are well represented including *Carex panacea, C pulicaris* and *C. demissa*, with other species such as *Succisa pratensis, Pinguicula vulgaris, Thymus polytrichus* and *Narthecium ossifragum.* M15b typical sub-community occurs in hollows with abundant *Sphagnum* spp.

f. Other vegetation

MG1 *Arrhenatherum elatius* grassland
c. *Filipendula ulmaria* sub-community
e. *Centaurea nigra* sub-community

Several stands of MG1 *Arrhenatherum elatius* grassland occur, notably in the north-east of the Oldshore Beg and Oldshoremore sections. Here the *Centaurea nigra* sub-community is prevalent, dominated by *A. elatius, Dactylis glomerata* and *Festuca rubra* with tall herbs including *Centaurea nigra, Heracleum sphondylium* and smaller species such as *Plantago lanceolata* and *Galium verum.* The *Filipendula ulmaria* sub-community is present in the field to the south of the cemetery at Oldshoremore, and differs from MG1e in the abundance of *F. ulmaria* and *Ranunculus repens. Urtica dioica* and *Pteridium aquilinum* are locally abundant in this stand. *Ammophila arenaria* is not present in MG1. MG1 has probably developed on areas of SD8-type grassland which have been cultivated then left ungrazed.

MG6 *Lolium perenne-Cynosurus cristatus* grassland
a. Typical sub-community

A single stand of MG6 *Lolium perenne-Cynosurus cristatus* grassland, Typical sub-community, occurs at Oldshoremore, south of the cemetery. *Lolium perenne* is dominant, with abundant *Trifolium repens* and *Holcus lanatus* and associates such as *Bellis perennis* and *Rumex acetosa.*

MG10 *Holcus lanatus-Juncus effusus* rush pasture
a. Typical sub-community
b. *Iris pseudacorus* sub-community

A small stand of MG10a *Holcus lanatus-Juncus effusus* rush pasture, Typical sub-community, occurs beside the public road at Sheigra. It is dominated by *J. effusus* with *H. lanatus* but lacks the fen flora of M23b. Small grassy stands of MG10b *Iris pseudacorus* sub-community dominated by *I. pseudacorus* occur beside the carpark at Droman and at Oldshore Beg on the Allt Druim na Gaoithe.

MG11 *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland

MG11 *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland occurs in several parts of the site. At Sheigra it occupies a large area to the southwest of the cemetery, with smaller areas to the east in mosaic with Mx and M23 mires. At Oldshore Beg and Oldshoremore it is scarce, with only a few small patches round the margins of the dunes. Species composition is variable, but *P. anserina* is typically abundant with *A. stolonifera, Holcus lanatus* and/or *F. rubra,* with *Lolium perenne* in places, and herbs such as *Trifolium repens, Rumex acetosa* and *Cerastium fontanum.* Some stands resemble MG11a *Lolium perenne* sub-community but the fit is poor, as noted by Dargie (2000).

FH *Festuca rubra-Holcus lanatus* grassland

This vegetation type, first described by Cooper & MacIntosh (1996), occurs as two stands to the south-east of Oldshore Beg. Rank *Holcus lanatus* is dominant with abundant *F. rubra,* together with much *Trifolium repens* and other species of semi-improved grassland.

U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland
b. *Holcus lanatus-Trifolium repens* sub-community

U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland occurs locally in mosaic with M15/H10, mainly on the hill to the south of Sheigra (Cnoc Garbh) and on Am Meall (south of Droman). U4b *Holcus lanatus-Trifolium repens* sub-community is the main type with *T.repens, H lanatus* and *Cerastium fontanum* along with the community constants *Agrostis capillaris, Potentilla erecta, Galium saxatile* and *Hylocomium splendens.*

U20 *Pteridium aquilinum-Galium saxatile* community

A small stand of U20 *Pteridium aquilinum-Galium saxatile* community occurs with U4 grassland on Am Meall. Sacttered bracken occurs very locally elsewhere.

SM16 *Festuca rubra* saltmarsh
c. *Festuca rubra-Glaux maritima* sub-community

Fragments of saltmarsh occur very locally around the rocky coast at HWM or as perched saltmarsh where there is much saltspray. SM16c *Festuca rubra* saltmarsh, *Festuca rubra-Glaux maritima* sub-community occurs here with *F. rubra, G. maritima, Triglochin maritima, Carex distans, Plantago maritima* and *P. coronopus*.

ANNEX 3: FLORISTIC TABLES

Following the convention in Rodwell, these tables use numbers (range 1 to 10) to refer to the DOMIN level of abundance/cover of each species in each quadrat. The Roman numbers (range I to V) refer to the constancy of each species (i.e., proportion of quadrats in which each species occurred) for NVC types where at least 5 quadrats were assessed. The 'count' column refers to the number of quadrats in which a species was found for NVC types where 3-4 quadrats were assessed. Large numbers of quadrats were assessed in NVC types SD7 and SD8, so only constancy of each species is presented here. Data for the individual SD7 and SD8 quadrats can be downloaded as a separate document (Annex 4).

SD4 *Elytrigia juncea ssp. boreoatlantica* foredune community

Quadrat code	Q13	Q14	Q31	Q53	Q70	constancy
section	SH	SH	OB	OB	OM	
NVC	**SD4**	**SD4**	**SD4**	**SD4**	**SD4**	
sward height cm	10	10	15	30	30	
bare sand %	80	80	60	60	70	
Elytrigia juncea	5	5	7	7	6	V
Senecio jacobea	1	2	3			III
Carex arenaria	3	3				II
Cakile maritima				1	6	II
Cirsium arvense	3	2				II
Taraxacum officinale	1	1				II
Trifolium repens		3				II
Ammophila arenaria					4	I
Arrhenatherum elatius			1			I
Atriplex glabriuscula				1	x	I
Cerastium glomeratum			1			I
Lotus corniculatus		4				I
Plantago lanceolata		4				I
Ranunculus repens			2			I
Rumex acetosa			1			I
Rumex crispus			1			I
Sedum acre			3			I
Viola tricolor			1			I

SD6 *Ammophila arenaria* mobile dune community

a. *Elytrigia juncea* sub-community

d. *Ammophila arenaria* sub-community

SD2 *Honkenya peploides-Cakile maritima* strandline community

SDx *Potentilla anserina* strandline community

Quadrat code	Q69	Q51	Q50	Q65
section	OM	OB	OB	OM
NVC	**SD6a**	**SD6d**	**SD2**	**SDx**
sward ht	80	80		15
bare shingle/sand%	70	80		30
GRASSES SEDGES RUSHES				
Ammophila arenaria	8	8		
Elytrigia juncea	3			
Agrostis stolonifera				2
HERBS				
Atriplex glabriuscula			4	x
Atriplex praecox				1
Cakile maritima			3	
Cerastium glomeratum				
Cirsium arvense		3		
Cirsium vulgare				1
Galium aparine			1	1
Glaux maritima			1	
Potentilla anserina				8
Rumex crispus				5
Senecio jacobea		2		
Sonchus arvensis		1		
Stellaria media				2
Tripleurospermum			1	
Vicia cracca		1		
Vicia sepium		2		

SD7 *Ammophila arenaria-Festuca rubra* semi-fixed dune community
a. Typical sub-community, x. *Galium verum* sub-community

NVC	SD7a	SD7x	SD7
Ammophila arenaria	V	V	V
Festuca rubra	V	V	V
Plantago lanceolata	III	V	V
Centaurea nigra	II	V	IV
Holcus lanatus	II	V	IV
Vicia sepium	II	V	IV
Poa pratensis	III	IV	IV
Senecio jacobea	V		III
Bryum sp	II		I
Elymus farctus	II		I
Homalothecium lutescens	II		I
Sonchus arvensis	II	I	II
Syntrichia ruralis	II	I	II
Vicia cracca	II		I
Agrostis capillaris	I		I
Agrostis stolonifera	I		I
Cirsium arvense	I		I
Cirsium vulgare	I		I
Galium verum	I	III	III
Ranunculus acris	I	III	III
Thalictrum minus	I	III	III
Trifolium repens	II	III	III
Heracleum sphondylium	I	III	II
Rhytidiadelphus squarrosus	I	III	II
Scleropodium purum	I	III	II
Cerastium fontanum		III	II
Rhytidiadelphus triquetrus		III	II
Rumex acetosa		III	II
Prunella vulgaris	I	II	II
Achillea millefolium	I	II	II
Angelica sylvestris	I	II	II
Calliergonella cuspidata	I	II	II
Viola riviniana	I	II	II
Thymus polytrichus		II	I
Brachythecium albicans		I	I
Campanula rotundifolia		I	I
Centaurea scabiosa		I	I
Dactylis glomerata		I	I
Euphrasia sp		I	I
Linum catharticum		I	I
Polygala vulgaris		I	I
Tragopogon pratensis		I	I
Viola tricolor		I	I
Arrhenatherum elatius	II	II	II
Lotus corniculatus	II	II	II
Bellis perennis	I	I	I
Taraxacum officinale	I	I	I

SD9 *Ammophila arenaria-Arrhenatherum elatius* dune grassland

a. Typical sub-community

SD10 *Carex arenaria* dune community

Quadrat code	Q35	Q37
section	OB	OB
NVC	**SD9a**	**SD10**
sward ht (cm)	80	30
Bryophyte cover %	90	50
bare shingle/sand	0	0
GRASSES SEDGES RUSHES		
Ammophila arenaria	7	
Arrhenatherum elatius	7	
Holcus lanatus	5	3
Carex arenaria		8
Festuca rubra		5
Agrostis capillaris		2
HERBS		
Galium verum	3	
Ranunculus acris	2	
Rumex acetosa	1	
Viola riviniana	3	
Campanula rotundifolia	1	
Cerastium fontanum	1	
Plantago lanceolata	4	2
Achillea millefolium	3	3
Centaurea nigra	2	2
Cirsium vulgare	1	1
Trifolium repens	3	5
Senecio jacobea	2	2
Lotus corniculatus		2
Bellis perennis		4
Prunella vulgaris		1
Ranunculus repens		4
Sonchus asper		1
Taraxacum officinale		1
BRYOPHYTES		
Rhytidiadelphus squarrosus	8	
Hylocomium splendens	4	
Rhytidiadelphus triquetrus	1	
Scleropodium purum	4	
Calliergonella cuspidata		6
Dicranum scoparium		4
Homalothecium lutescens		3
Kindbergia praelonga		3
Syntrichia ruralis		3

SD8 *Festuca rubra-Galium verum* fixed dune grassland

a. Typical sub-community
c. *Syntrichia ruralis ssp. ruraliformis* sub-community
d. *Ranunculus acris-Bellis perennis* sub-community
e. *Prunella vulgaris* sub-community
x. *Centaurea nigra-Daucus carota* sub-community
z. *Thymus polytrichus* sub-community

NVC	a	c	d	e	x	z	SD8
Mean sward ht (cm)	19	5	11	12	25	8	
Mean bryophyte cover %	13	65	16	25	17	10	
Mean spp count	14	19	18	24	23	25	
Festuca rubra	V	V	V	V	V	V	**V**
Trifolium repens	V	IV	V	V	V	IV	**V**
Plantago lanceolata	V	I	IV	IV	V	V	**V**
Galium verum	V	I	II	III	V	IV	**IV**
Ranunculus acris	V	I	II	IV	V	IV	**IV**
Holcus lanatus	III	III	V	IV	V	III	**IV**
Lotus corniculatus	II	IV	III	III	V	V	**IV**
Bellis perennis	III	IV	V	III	II	IV	**IV**
Rumex acetosa	IV	I	I		III	I	**II**
Arrhenatherum elatius	III	I			I		**I**
Filipendula ulmaria	II						**I**
Achillea millefolium	II	V	III	III	II	II	**III**
Syntrichia ruralis		V	I			II	**II**
Carex arenaria	II	IV	I	II			**I**
Agrostis stolonifera		III	I		I	II	**II**
Ditrichum sp		III				III	**I**
Pilosella officinarum		III	I			II	**I**
Sedum acre		III					**I**
Acrocarp spp		I					**I**
Cerastium diffusum		I					**I**
Cirsium vulgare		I					**I**
Elymus farctus		I					**I**
Taraxacum officinale	II	I	III	II	I	I	**II**
Ranunculus repens			II				**I**
Carex leporina			I				**I**
Cirsium arvense			I				**I**
Trifolium dubium			I				**I**
Urtica dioica			I				**I**
Prunella vulgaris	II	III	II	V	II	IV	**III**
Koeleria micrantha		III	II	V	II	V	**III**
Linum catharticum	III	I	I	V	II	V	**III**
Scorzoneroides autumnalis	II	I	III	IV	II	II	**II**
Scleropodium purum	II			IV	IV		**II**
Cynosurus cristatus	III		II	IV		I	**II**
Plantago maritima		I		IV		III	**II**
Vicia cracca	II			IV			**I**
Juncus articulatus				IV			**I**
Rhinanthus minor	II			III			**I**
Cardamine pratensis				II			**I**
Carex nigra				II			**I**

NVC	a	c	d	e	x	z	SD8
Carex panicea				II			**I**
Juncus conglomeratus				II			**I**
Listera ovata				II			**I**
Carex capillaris				II		II	**I**
Centaurea nigra	II	I	I	III	V	IV	**III**
Thalictrum minus	II			II	V	IV	**III**
Vicia sepium				II	V	I	**II**
Agrostis capillaris					II		**I**
Angelica sylvestris					I		**I**
Dactylorhiza purpurella					I		**I**
Triglochin maritima					I		**I**
Vicia sativa					I		**I**
Galium aparine					I		**I**
Pellia spp					I		**I**
Gentianella amarella		III		II	II	V	**II**
Carex flacca			II	III		V	**II**
Thymus polytrichus						V	**II**
Viola riviniana				II	I	IV	**II**
Campanula rotundifolia		I				III	**I**
Succisa pratensis					I	III	**I**
Barbula spp						II	**I**
Ctenidium molluscum						II	**I**
Salix repens						II	**I**
Anthyllis vulneraria						I	**I**
Armeria maritima						I	**I**
Astragalus danicus						I	**I**
Avenula pubescens						I	**I**
Andraea sp						I	**I**
Peltigera canina						I	**I**
Persicaria vivipara						I	**I**
Hieracium spp						I	**I**
Hypochaeris radicata						I	**I**
Leontodon spp						I	**I**
Luzula sp						I	**I**
Cerastium fontanum	III	I	III	IV	IV	III	**III**
Euphrasia sp	IV		II	IV	III	IV	**III**
Heracleum sphondylium	IV	III	II	II	IV		**III**
Senecio jacobea	II	V	IV		III	IV	**III**
Poa pratensis	II	IV	III	III	IV	II	**III**
Rhytidiadelphus squarrosus	IV		II	III	IV	II	**III**
Brachythecium albicans	IV	IV	II	II			**II**
Homalothecium lutescens		III	I		III	I	**II**
Trifolium pratense	III			III	II	II	**II**
Calliergonella cuspidata		I	II	II	II		**I**
Dactylis glomerata	II			II	II	I	**I**
Daucus carota	III			III	I	I	**I**
Plagiomnium undulatum	II		III		I	I	**I**
Lolium perenne	II		II	II	I		**I**
Centaurea scabiosa					II	II	**I**
Coeloglossum viride					I	II	**I**
Plantago coronopus		I				II	**I**

NVC	a	c	d	e	x	z	SD8
Crepis capillaris			I	II		I	**I**
Hylocomium splendens				II	I	I	**I**
Hypnum sp		I		II		I	**I**
Odontites verna			II		I		**I**
Ammophila arenaria					I	I	**I**
Campylopus sp		I				I	**I**
Leucanthemum vulgare		I	I				**I**
Lophocolea bidentata					I	I	**I**
Polygala vulgaris	II				I		**I**
Rhytidiadelphus triquetrus					I	I	**I**
Viola tricolor		I			I		**I**

CG10 *Festuca ovina-Agrostis capillaris-Thymus polytrichus* grassland
b. *Carex pulicaris-Carex panicea* sub-community

Quadrat code	Q03	Q99
section	SH	OM
NVC	CG10b	CG10b
sward ht cm	4	
bare shingle/sand %	5	0
Bryophyte cover %	1	5
species count	18	21
GRASSES SEDGES RUSHES		
Agrostis stolonifera	1	
Carex demissa	2	
Carex flacca	5	
Carex panicea		6
Cynosurus cristatus		5
Festuca rubra	6	5
Holcus lanatus		4
Koeleria micrantha	3	
Molinia caerulea		3
HERBS		
Bellis perennis		2
Cerastium fontanum	2	1
Gentianella amarella		3
Lotus corniculatus	4	4
Plantago coronopus	2	
Plantago lanceolata	3	2
Plantago maritima	3	4
Potentilla erecta	2	1
Prunella vulgaris		3
Scorzoneroides autumnalis		4
Succisa pratensis		3
Taraxacum officinale	1	
Thymus polytrichus	4	2
Trifolium repens	2	2
SHRUBS		
Calluna vulgaris	3	1
BRYOPHYTES		
Brachythecium albicans	1	
liverwort sp		2
Syntrichia ruralis	1	3

SD17 *Potentilla anserina-Carex nigra* dune-slack community

c. *Caltha palustris* sub-community

x. *Agrostis stolonifera* sub-community

Quadrat code	Q45	Q90	Q25	Q93	Q07	Constancy
section	OB	OM	SH	OM	SH	
NVC	**SD17c**	**SD17c**	**SD17c**	**SD17c**	**SD17x**	**SD17**
sward ht (cm)	40	30	70	40-70	30/60	
Bryophyte cover %	5	10	10	10	90	
Carex nigra	9	7	9	7	2	V
Potentilla anserina	5	8	4	7	2	V
Holcus lanatus		3	4	3	4	IV
Rumex acetosa	3		3	1	2	IV
Scorzoneroides autumnalis	2	1		1	2	IV
Agrostis stolonifera		4		4	4	III
Calliergonella cuspidata		4	4		6	III
Plagiomnium undulatum	4		3	3		III
Ranunculus acris	2		2	1		III
Cardamine pratensis	1				2	II
Centaurea nigra		3		5		II
Cerastium fontanum			1	1		II
Equisetum fluviatile	2	1				II
Eriophorum angustifolium			2		2	II
Filipendula ulmaria		2		5		II
Juncus articulatus			1		8	II
Lathyrus pratensis			3	3		II
Plantago lanceolata		2		3		II
Poa pratensis		2	3			II
Ranunculus repens			3		3	II
Scleropodium purum		4		4		II
Trifolium repens	3	3				II
Vicia cracca		1		3		II
Anthoxanthum odoratum			4			I
Bellis perennis					1	I
Brachythecium albicans	1					I
Bryum sp					4	I
Caltha palustris			2			I
Carex arenaria	2					I
Dactylis glomerata	1					I
Drepanocladus sp					6	I
Epilobium palustre					4	I
Festuca rubra		4				I
Juncus balticus					4	I
Juncus effusus			4			I
Kindbergia praelonga			2			I
Lophocolea bidentata			2			I
Lotus corniculatus		2				I
Luzula sp		1				I
Molinia caerulea		2				I
Pellia spp					2	I
Phragmites australis				4		I
Plantago maritima		3				I

Quadrat code	Q45	Q90	Q25	Q93	Q07	Constancy
Potentilla erecta			2			I
Prunella vulgaris		2				I
Rhinanthus minor				2		I
Rhytidiadelphus squarrosus				4		I
Sagina nodosa					3	I
Salix repens		3				I
Stachys palustris			3			I
Succisa pratensis		2				I

Mx *Carex nigra* machair fens (Dargie, 2000)

quadrat code	Q08	Q20	Q56	Q58	Q60	Q80	Q88	constancy
section	SH	SH	OB	OB	OB	OM	OM	
NVC	**Mx**	**Mx**	**Mx**	**Mx**	**Mx**	**Mx**	**Mx**	**Mx**
sward ht (cm)	40	60	50	50	40	40	50	
Bryophyte cover %	50	60	5	50	3	30	90	
Carex nigra	5	8	8	8	4	8	2	V
Caltha palustris		1	4	2	1	4	4	V
Filipendula ulmaria	4	6	8	6	5	2	x	V
Angelica sylvestris	3	2	1	3		1		IV
Calliergonella cuspidata	4	5			2	5	9	IV
Ranunculus acris	2		1	3	1	3		IV
Holcus lanatus	3	3	4		x	4		III
Molinia caerulea	8			5	6	3	x	III
Rhytidiadelphus squarrosus	5		4	4		3		III
Scleropodium purum	5	5	3			5		III
Achillea ptarmica	1	2	2					III
Agrostis stolonifera			1			4	3	III
Equisetum fluviatile					2	2	3	III
Eriophorum angustifolium	1	2		3				III
Juncus articulatus			4		8	2	x	III
Juncus conglomeratus	3	4		2				III
Potentilla erecta	2	2		3				III
Prunella vulgaris	1				1	2		III
Succisa pratensis	1			3		3		III
Epilobium palustre						3	4	II
Galium palustre	2		3					II
Juncus effusus	1	3						II
Lathyrus pratensis		3	1					II
Pedicularis palustris					1	1	x	II
Peltigera canina	1		1					II
Phragmites australis	3	2			x			II
Plantago lanceolata	2					1		II
Poa pratensis			1			2		II
Rumex acetosa		3					3	II
Thuidium tamariscinum			1	4				II
Vicia cracca	1			1				II
Agrostis canina		4						I
Cardamine pratensis			1					I
Carex echinata	x		1					I
Carex flacca							2	I
Carex panicea	4							I
Carex pulicaris	1							I
Cirsium palustre		2						I
Dactylorhiza fuchsii						2		I
Dactylorhiza purpurella			1					I
Eleocharis palustris							8	I
Festuca rubra						2		I
Hydrocotyle vulgaris	3							I
Hylocomium splendens		5						I
Kindbergia praelonga			2					I

quadrat code	Q08	Q20	Q56	Q58	Q60	Q80	Q88	constancy
Lophocolea bidentata			1					I
Lotus corniculatus	1							I
Luzula sp				2				I
Marchantia polymorpha				5				I
Plagiomnium undulatum	2							I
Ranunculus repens			2					I
Rhizomnium punctatum					2			I
Rhytidiadelphus triquetrus						3		I
Sagina nodosa						2		I
Stachys palustris		2						I

M26 *Molinia caerulea-Crepis paludosa* mire

quadrat code	Q83	Q92	Q89	Q95	count
section	OM	OM	OM	OM	
NVC	**M26**	**M26**	**M26**	**M26**	**M26**
sward ht (cm)	40	50	15		
species count	33	14	34	24	
Bryophyte cover %	70	20	20		
Molinia caerulea	7	8	7	8	4
Succisa pratensis	4	3	3	4	4
Trollius europaeus	1	2	4	3	4
Carex flacca	4	3	3		3
Carex pulicaris	2		1	1	3
Prunella vulgaris	3		2	2	3
Scleropodium purum	1	3	5		3
Vicia cracca	1		1	1	3
Angelica sylvestris	2	5			2
Anthoxanthum odoratum	2			1	2
Campanula rotundifolia			2	1	2
Carex capillaris			4	3	2
Euphrasia sp			2	3	2
Festuca ovina			3	4	2
Filipendula ulmaria	4	6			2
Linum catharticum			3	3	2
liverwort spp	3		1		2
Lotus corniculatus	1		2		2
Luzula sp	1	1			2
Plantago lanceolata			3	2	2
Plantago maritima			3	3	2
Potentilla erecta	3			3	2
Ranunculus acris	3	2			2
Thalictrum alpinum			4	3	2
Thymus polytrichus			3	3	2
Trifolium pratense	2		1		2
Trifolium repens	2		2		2
Viola riviniana			3	3	2
Agrostis canina				3	1
Agrostis stolonifera				3	1
Anthyllis vulneraria				3	1
Calliergonella cuspidata	8				1
Caltha palustris	1				1
Campylium stellatum	2				1
Carex echinata	1				1
Carex nigra		3			1
Carex panicea				3	1
Centaurea nigra		3			1
Cynosurus cristatus	2				1
Danthonia decumbens				1	1
Eriophorum angustifolium	2				1
Festuca rubra			4		1
Galium verum			2		1
Gentianella amarella			1		1

quadrat code	Q83	Q92	Q89	Q95	count
Holcus lanatus	3				1
Hypnum sp			2		1
Isolepis setacea	3				1
Juncus articulatus	5				1
Koeleria micrantha			2		1
Lathyrus pratensis			1		1
Listera ovata			1		1
Pedicularis palustris	3				1
Pedicularis sylvatica				1	1
Pilosella officinarum			1		1
Pinguicula vulgaris			1		1
Potentilla anserina		2			1
Ranunculus flammula	1				1
Rhinanthus minor			2		1
Rhizomnium punctatum	2				1
Rhytidiadelphus squarrosus	2				1
Schoenus nigricans			3		1
Thuidium tamariscinum		5			1
Triglochin palustris	1				1

M23 *Juncus effusus/acutiflorus-Galium palustre* mire
b. *Juncus effusus* sub-community
M6 *Carex echinata-Sphagnum fallax/denticulatum* mire
c. *Juncus effusus* sub-community

quadrat code	Q23	Q57	Q101
section	SH	OB	OM
NVC	**M23b**	**M23b**	**M6c**
sward ht (cm)	80	100	
Bryophyte cover %	20		5
species count	20	5	18
GRASSES SEDGES RUSHES			
Juncus effusus	8	9	
Holcus lanatus	6		4
Juncus articulatus	4		
Juncus acutiflorus	1		
Juncus conglomeratus			7
Molinia caerulea			7
Carex echinata			4
Carex nigra			1
HERBS			
Epilobium palustre	1	3	3
Filipendula ulmaria	7	4	
Galium palustre	3	3	
Achillea ptarmica	1		2
Angelica sylvestris	2		
Caltha palustris	2		
Hydrocotyle vulgaris	3		
Ranunculus repens	4		
Ranunculus flammula	1		
Rumex acetosa	3		
Trifolium repens	2		
Vicia sepium	1		
Stellaria media		4	
Potentilla erecta			3
Succisa pratensis			2
Viola palustris			3
SHRUBS			
Calluna vulgaris			2
Erica tetralix			1
BRYOPHYTES			
Calliergonella cuspidata	5		
Lophocolea bidentata	2		
Rhytidiadelphus squarrosus	4		
Sphagnum capillifolium			2
Sphagnum denticulatum			2
Polytrichum sp			2
Hylocomium splendens			3
Brachythecium sp			2

M15 *Trichophorum germanicum-Erica tetralix* mire

a. *Carex panicea* sub-community

code	Q67	Q16	Q55	Q100	count
section	OM	SH	OB	OM	
NVC	**M15a**	**M15a**	**M15a**	**M15a**	**M15a**
sward ht (cm)	10	30	40		
Bryophyte cover %		15	10	35	
species count	3	22	12	13	
SHRUBS					
Erica tetralix	3	5	2	3	4
Calluna vulgaris	5				1
Myrica gale			7		1
GRASSES SEDGES RUSHES					
Carex panicea	7	3	2	3	4
Molinia caerulea	6	9	8	9	4
Carex demissa	4	2			2
Carex pulicaris	1	1			2
Festuca ovina	5	4			2
Nardus stricta	2	3			2
Carex echinata		3			1
Carex flacca	2				1
Danthonia decumbens	2				1
Koeleria micrantha	2				1
Schoenus nigricans	x		4		1
HERBS					
Potentilla erecta	2	3	3	2	4
Succisa pratensis	5	5	4	4	4
Prunella vulgaris	2	1		1	3
Euphrasia sp	1	1			2
Narthecium ossifragum		4	3		2
Pedicularis sylvatica	2	2			2
Pinguicula vulgaris	1	1			2
Selaginella selaginoides	1			2	2
Thymus polytrichus	2	2	x		2
Angelica sylvestris	1				1
Antennaria dioica	2				1
Dactylorhiza maculata			1		1
Drosera rotundifolia		1			1
Lotus corniculatus	2				1
Plantago maritima	2				1
Ranunculus flammula		2			1
Thalictrum alpinum			3		1
Thalictrum minus				4	1
Viola riviniana				4	1
BRYOPHYTES					
Scleropodium purum		2	4	6	3
Rhytidiadelphus squarrosus	2			4	2
Breutelia chrysocoma		2			1
Frullania tamarisci	1				1
Hylocomium splendens				1	1
Plagiomnium undulatum	1				1
Sphagnum denticulatum		4			1

H7 *Calluna vulgaris-Scilla verna* heath

c. *Erica tetralix* sub-community

code	Q17	Q19	Q63	Q64	Q79	constancy
section	SH	SH	OM	OM	OM	
NVC	**H7c**	**H7c**	**H7c**	**H7c**	**H7c**	**H7c**
sward ht	20	20	8	5-15	10	
Bryophyte cover %	30	5	30	5	2	
species count	27	17	26	14	29	
SHRUBS						
Calluna vulgaris	8	8	3	8	5	V
Erica tetralix	4	4	6	3	3	V
Empetrum nigrum			8	6	1	III
Salix repens		7			7	II
Erica cinerea		4				I
GRASSES SEDGES RUSHES						
Carex flacca	4		4		3	III
Carex pulicaris	1	1			2	III
Festuca rubra		4	3		3	III
Holcus lanatus	2	3			2	III
Molinia caerulea	3	3			2	III
Agrostis canina	3		2			II
Agrostis stolonifera		3			3	II
Festuca ovina	5			3		II
Luzula sp			2		1	II
Nardus stricta		3	3			II
Anthoxanthum odoratum	4					I
Carex capillaris					1	I
Carex nigra			2			I
Carex panicea			2			I
Danthonia decumbens	3					I
Eriophorum angustifolium				4		I
Koeleria micrantha	?				1	I
HERBS						
Plantago maritima	2		2	1	2	V
Potentilla erecta	3	3	3	3	3	V
Succisa pratensis	4	4	4	3	5	V
Lotus corniculatus		3	4		3	III
Trifolium repens	2		2		2	III
Dactylorhiza purpurella			1	1		II
Plantago lanceolata	3				2	II
Primula vulgaris	3		1			II
Angelica sylvestris					1	I
Anthyllis vulneraria					1	I
Hypericum pulchrum					2	I
Pedicularis sylvatica					3	I
Persicaria vivipara					1	I
Rhinanthus minor					1	I
Solidago virgaurea				2		I
Thalictrum alpinum					3	I
Thymus polytrichus	3					I
Trifolium pratense			1			I

code	Q17	Q19	Q63	Q64	Q79	constancy
Trollius europaeus					1	I
Viola riviniana	2					I
BRYOPHYTES						
Frullania tamarisci	2		4	2		III
Scleropodium purum	4	4			3	III
Brachythecium albicans			4	4		II
Hypnum sp	2		1			II
Breutelia chrysocoma	4					I
Campylopus sp			1			I
Dicranum scoparium		1				I
Hylocomium splendens	4					I
liverwort spp	5					I
Rhytidiadelphus squarrosus			4			I
Rhytidiadelphus triquetrus		2				I
LICHENS						
Peltigera canina	1		1	2		III
Cladonia portentosa	1		2			II

M10 *Carex dioica-Pinguicula vulgaris* mire

code	Q02	Q18
section	SH	SH
NVC	**M10**	**M10**
Bryophyte cover %	1	15
sward ht	5/30	40
species count	2	5
GRASSES SEDGES RUSHES		
Carex flacca	5	2
Molinia caerulea	2	7
Festuca rubra	5	3
Schoenus nigricans	6	
Juncus squarrosus	2	
Nardus stricta	3	
Eriophorum angustifolium		2
Agrostis stolonifera		5
HERBS		
Plantago lanceolata	4	
Plantago maritima	4	
Potentilla erecta	2	
Prunella vulgaris	1	
Ranunculus acris	2	x
Selaginella selaginoides	2	
Succisa pratensis	x	3
Thymus polytrichus	3	
Viola riviniana	2	
Primula vulgaris		1
Narthecium ossifragum		3
Pedicularis palustris		3
Pinguicula vulgaris		3
SHRUBS		
Erica tetralix	3	4
BRYOPHYTES		
Breutelia chrysocoma		3
Calliergonella cuspidata		3
Campylium stellatum		2
Drepanocladus sp		4
Fissidens sp		1
Rhytidiadelphus triquetrus	1	
Scleropodium purum	1	

MC3 *Sedum rosea-Armeria maritima* maritime cliff-ledge community
MC8 *Festuca rubra-Armeria maritima* maritime grassland
e. *Plantago maritima* sub-community

code	Q42	Q43
section	OB	OB
NVC	**MC3**	**MC8e**
sward ht	15	15
rock	60	5
species count	6	16
Bryophyte cover %		2
GRASSES SEDGES RUSHES		
Agrostis stolonifera	4	3
Ammophila arenaria	3	
Carex demissa		3
Carex flacca		4
Festuca rubra		8
Holcus lanatus		5
Koeleria micrantha		3
Poa pratensis		3
HERBS		
Plantago maritima	3	3
Sedum rosea	4	
Sagina procumbens	3	
Rumex crispus	1	
Armeria maritima		4
Cerastium fontanum		1
Euphrasia sp		2
Plantago lanceolata		4
Potentilla erecta		3
Scorzoneroides autumnalis		4
Trifolium repens		4
BRYOPHYTES		
Barbula sp		3

MG11 *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland

code	Q24	Q09	Q10	count
section	SH	SH	SH	
NVC	**MG11**	**MG11**	**MG11**	**MG11**
sward ht (cm)	30	30		
species count	9	10	8	
Bryophyte cover %	0	0	10	
GRASSES SEDGES RUSHES				
Festuca rubra	5	6	5	3
Holcus lanatus	6	5	4	3
Agrostis stolonifera	6			1
HERBS				
Potentilla anserina	9	8	9	3
Trifolium repens	6	4	4	3
Cerastium fontanum	1	2	2	3
Rumex acetosa	3	3		2
Cirsium arvense		4	4	2
Ranunculus acris		3	3	2
Bellis perennis		2		1
Cirsium palustre		1		1
Ranunculus repens	4			1
Stachys palustris	1			1
BRYOPHYTES				
Calliergonella cuspidata			4	1

MG1 *Arrhenatherum elatius* grassland
e. *Centaurea nigra* sub-community
MG6 *Lolium perenne-Cynosurus cristatus* grassland
a. Typical sub-community
FH *Festuca rubra-Holcus lanatus* grassland

code	Q96	Q47	Q82	Q59
section	OM	OB	OM	OB
NVC	**MG1**	**MG1**	**MG6a**	**FH**
sward ht (cm)	80	50	15	20
species count	10	11	9	10
Bryophyte cover %	0	0	0	0
GRASSES SEDGES RUSHES				
Arrhenatherum elatius	8	6		
Cynosurus cristatus				3
Dactylis glomerata		5		
Festuca rubra		6		7
Holcus lanatus	4		5	8
Lolium perenne			9	
HERBS				
Bellis perennis			6	2
Centaurea nigra	6	6	x	
Cerastium fontanum			1	
Cirsium arvense			3	2
Dactylorhiza purpurella		1		
Galium verum		3		
Heracleum sphondylium	4	4		
Lathyrus pratensis	2			
Plantago lanceolata	2	3	3	4
Prunella vulgaris		1		
Ranunculus acris	3			4
Ranunculus repens		3	3	
Rumex acetosa	3		3	4
Scorzoneroides autumnalis				2
Senecio jacobea		2		
Stachys palustris	4			
Trifolium repens			8	5
Urtica dioica	3			x

ANNEX 4: QUADRAT DATA AND FLORISTIC TABLES FOR SD7 AND SD8 HABITATS

This Annex can be downloaded as a separate document.

ANNEX 5: PHOTOGRAPHS

This Annex can be supplied electronically on request.

ANNEX 6: NVC, EUNIS AND ANNEX 1 TYPES RECORDED IN EACH POLYGON AND HABITAT EXTENT CALCULATIONS

This Annex can be downloaded as a separate document.

ANNEX 7: GIS DATA FILE

This Annex can be downloaded as a separate document.

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