

**Vegetation survey of Menie Estate sand dunes including part of Foverans Links SSSI,  
Mike Smedley, 25 October – 1 November 2007**

**Part 1: Pettens Links**

**Description**

Pettens Links is located between the Menie and Blairton Burns and divided equally between undulating dunes and a more or less flat expanse of dune grassland and heath (almost all acidic).

The dunes are mainly fixed or semi-fixed, fronted by a relatively narrow band of mobile dune. Two small dune slacks are found: a young, but species-rich dune slack in the dunes, and a smaller slack near to the Menie Burn. Small areas of scrub are present near the burns.

*Ammophila* is frequent to abundant over the fixed/semi-fixed dunes in mixture with *Carex arenaria*, grasses, and mosses and/or lichens. Lichens are frequent to locally dominant over much of these dunes, which have recently been mapped by Brian Coppins as an "area of lichen interest". *Empetrum nigrum* is locally dominant on dune ridges on the landward side of these dunes forming about 2.5 ha of H11b heath (these areas mapped by Dargie as H11b with SD12z in 1999, and as SD12yy, apparently without HD11 or SD11, in 2006). A small area (0.3 ha) of mesotrophic SD9 dune grassland is present by the Menie Burn (not mapped by Dargie).

Species of vascular plant of interest recorded included *Viola canina*, *Ligusticum scoticum* and *Ophioglossum azoricum*.

Management

Pettens Links is a relatively secluded part of the estate. Access is via a bridge over the Menie Burn. Two grassy tracks run through the flat expanse of grassland and heath. A further track through the dunes appears to have recently been extended to the dune slack (see below). Localised disturbance (pits dug and infilled) was also noted at several locations (for example on the heath at NJ9849138). No signs of stock were noted but a rabbit population is present on the dunes.

## Pettens Links, Menie – selected photos and quadrats

25/65

### View over the Blairton Burn to Pettens Links

The foreground shows the northern margins of the main dome of bare sand on Blairton Links. NJ98091909. 25 October 2007.

Extensive *Calluna*-dominated H11b heath on Pettens Links. To right, acidic *Ammophila* dune (Q9 below), with H11b *Empetrum* heath on ridges (see Q10, below). Over the first ridge the *Ammophila* dune is variably rich in lichens (see following photo). S5 *Glyceria maxima* swamp along the burn.



Q9: Ama 6 (25%), Cxa 2 (25%), Fo 2, Fl 4, Fr 5, Gsx 4, Ver.off 3, Pe, 2, Ao 2, Pleur.shreb 5, Rhyt.triq 4, Rhyt.sq 4, Hylo.sp 4.

Q10: En 8 (55%), Cv 2, Ama 4 (7%), Cxa 4 (7%), Ao 3, Camp.rot 2, At 1, Dic.scop 5, Plagiothecium und 3, Pleur.shreb 5, Hylo.sp 2, Loph.bid 2, Peltig.sp 2

1/75

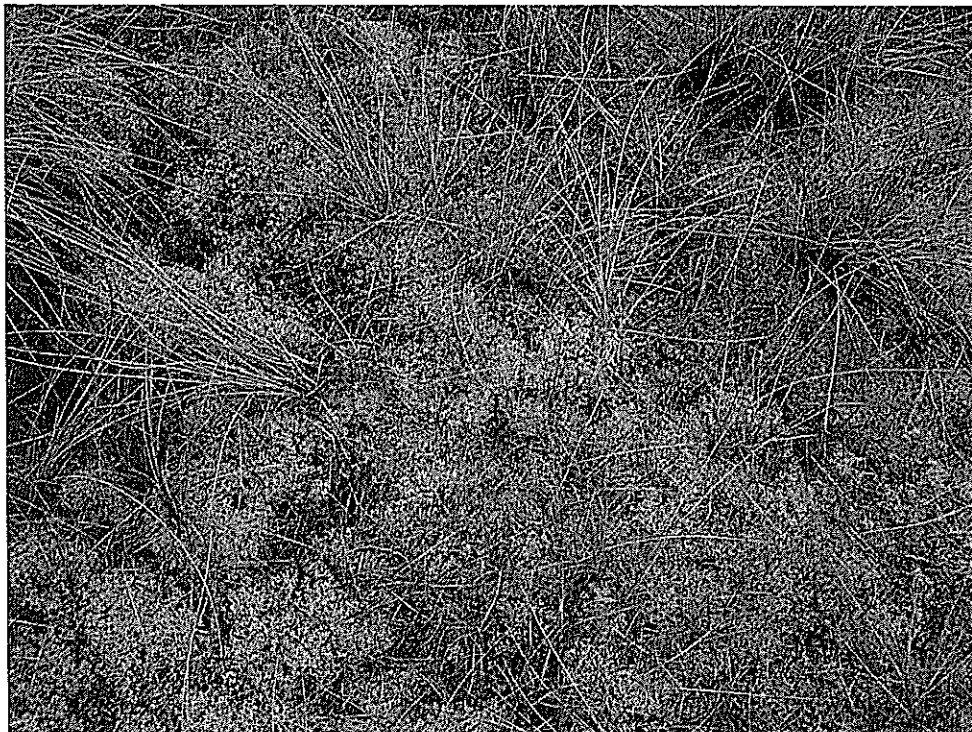
***Ammophila* dune, Pettens Links**

NJ98491953. 1 November 2007. Moderately lichen-rich. Recently disturbed (continuation of track from Menie Burn?). Margins of young dune slack in foreground.



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**Lichen-rich *Ammophila* dune, Pettens Links. Quadrat 15. NJ9854319709.**  
1 November 2007.



Q15: Ama 4, Cxa 4, Cha 2, Luz.camp 2, Viola.tric 1, Cerast.font 1, Veron.off 2, Viola can 2, Fo 2, HI 1, Poa prat sl 1, At 1. Occasional Corn.aculeata.

30/74 Young, peaty dune slack, Pettens Links (site of hole 3 green).

Clipboard shows location of quadrat 16, cf SD13, at NJ9850919567. 1 November 2007. Recent damage to margins of dune slack in foreground (re-filled pit?, for hole 3). New colony of *Ophioglossum azoricum* (about a hundred plants, many with spikes!) 8 o'clock from clipboard towards lobe of *Ammophila* dune, at NJ9850219556. H11b *Empetrum* heath at back of dune slack.

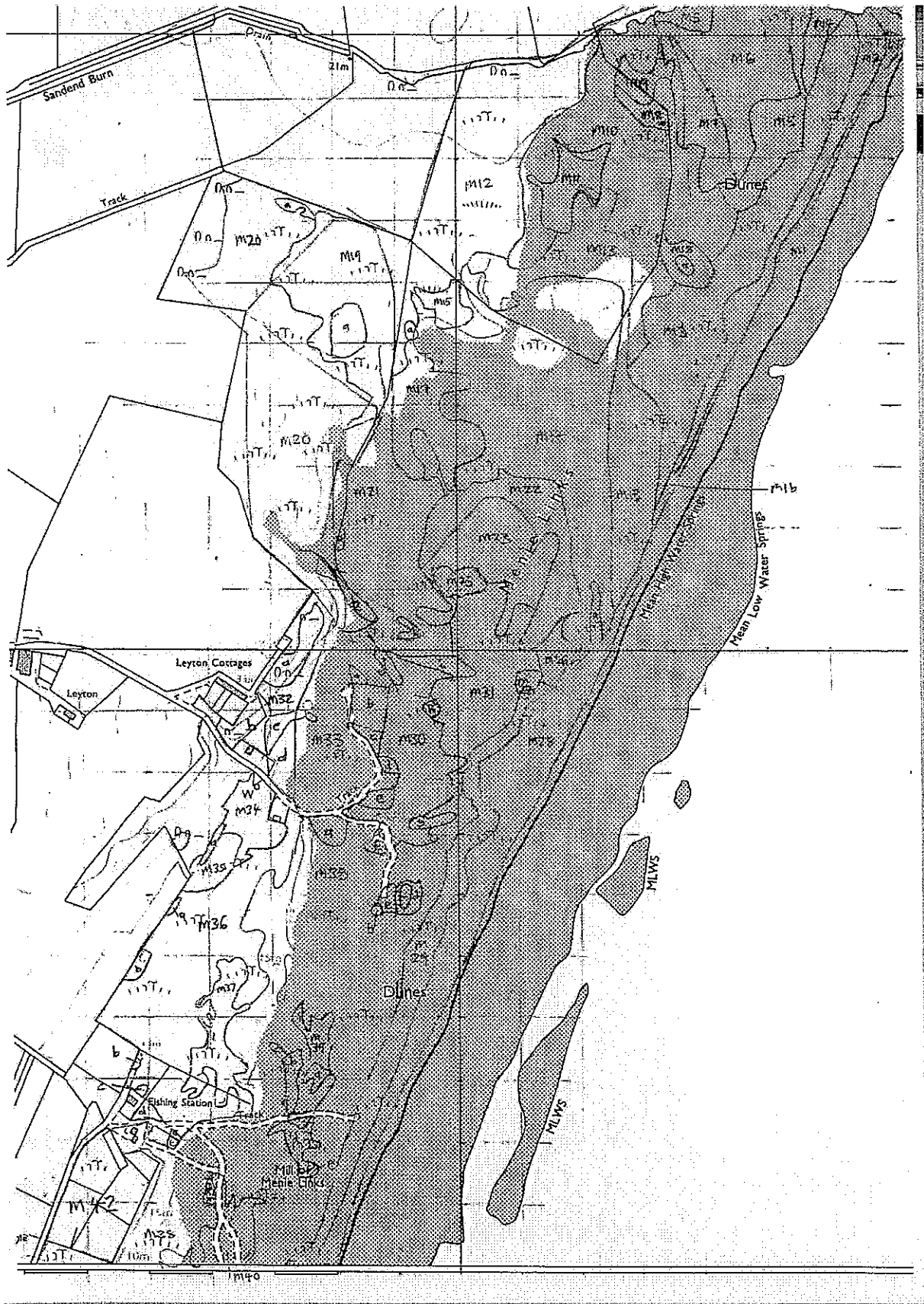


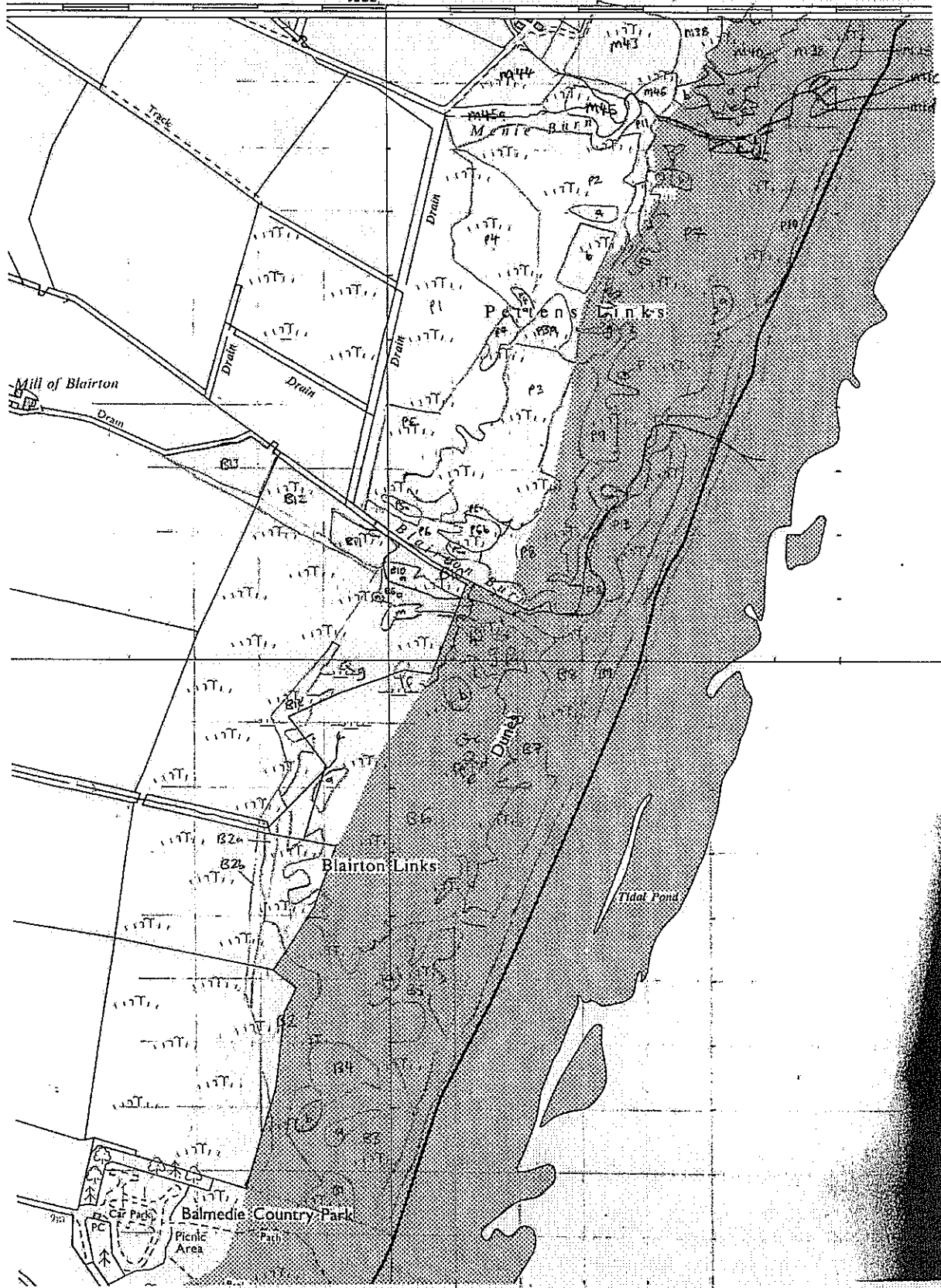
Q16: Salix sp. 2, Cxa 5, Hl 3, Pans 5, Ep.brun 5, Rep 2, Viol.pal 2, Aira cary 4, Sag.nod 3, Gal.pal 3, En 2, Sj 2, Hydro.pal 2, Jar 2, Ca 1, Byrum pseudo 4, Rtriq +

30/72 *Ophioglossum azoricum*, in young dune slack, Pettens Links. cf SD13. NJ9850219556. Near quadrat 16. 1 November 2007.



# Vegetation maps





## Description of Polygons

Polygon codes begin M, P and B for Menie, Pettens and Blairton Links and are shown in lower case in the report.

<i>Polygon</i>	<i>Description</i>		<i>NVC</i>	<i>Q</i>
<b>M1</b>	<b>Bare sand</b>	<b>N/S</b>		
a, b	Acidic <i>Ammophila</i> dune	N/S	SD12z?	
c	<i>Glyceria maxima</i> swamp		S5	
d	Mobile <i>Ammophila</i> dune	N/S	SD6	Q12
<b>M2</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>N/S</b>	<b>SD6a</b>	
<b>M3</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD6e</b>	<b>Q4-6</b>
<b>M4</b>	<b>Dune slack</b>	<b>N/S</b>	<b>SD16</b>	
<b>M5</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>N/S</b>	<b>SD6d</b>	
<b>M6</b>	<b>Bare sand</b>	<b>N/S</b>		
<b>M7</b>	<b>Young dune slack</b>	<b>P/S</b>	<b>SD13</b>	
<b>M8</b>	<b>Dune slack</b>		<b>SD16</b>	<b>Q2</b>
<b>M9</b>	<b>Dune grassland and heath</b>		<b>SD12 (H11b)</b>	<b>Q3</b>
<b>M10</b>	<b>Acidic <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD12z</b>	
<b>M11</b>	<b>Dune slack</b>	<b>P/S</b>	<b>SD16</b>	
<b>M12</b>	<b>Dune grassland with <i>Cirsium arvense</i></b>	<b>P/S</b>	<b>SD12</b>	
a	<i>Salix</i> scrub	P/S		
<b>M13</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD6d</b>	
<b>M14</b>	<b>Bare sand</b>	<b>P/S</b>		
a	Mobile <i>Ammophila</i> dune	N/S	SD6d	
<b>M15</b>	<b>Mobile <i>Ammophila</i> dune</b>		<b>SD6</b>	
<b>M17</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD6</b>	
<b>M18</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>N/S</b>	<b>SD6d</b>	
a	Young dune slack	N/S	SD13	
<b>M19</b>	<b>Marshy grassland</b>	<b>N/S</b>	<b>MG10?</b>	
a	Open water	N/S		
<b>M20</b>	<b>Dune grassland</b>	<b>N/S</b>	<b>SD12</b>	
a	<i>Ulex</i> scrub	N/S	W23	
b	<i>Juncus effusus</i>	P/S		
<b>M21</b>	<b>Acidic <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD12z</b>	
a	Dune heath	N/S	H11b	
b	Dune slack		SD16	
<b>M22</b>	<b>Young dune slack</b>	<b>N/S</b>	<b>SD13</b>	
<b>M23</b>	<b>Dune slack</b>	<b>N/S</b>	<b>SD16</b>	
<b>M25</b>	<b><i>Juncus effusus</i> swamp</b>	<b>N/S</b>		
<b>M26</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>N/S</b>	<b>SD6d</b>	
<b>M27</b>	<b>Dune slack</b>	<b>N/S</b>	<b>SD16</b>	
<b>M28</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD6a (SD6b)</b>	<b>Q12</b>
<b>M29</b>	<b>Mobile <i>Ammophila</i> dune</b>	<b>P/S</b>	<b>SD6e</b>	<b>Q11</b>

<b>M30</b>	<b>Dune heath</b>		<b>H11b</b>	<b>Q8</b>
a, i	<i>Juncus squarrosus</i> grassland			
c	Dune slack		SD16	
d-h, j	<i>Salix</i> scrub	P/S		
b	Recent conifer plantation			
<b>M31</b>	<b>Acidic <i>Ammophila</i> dune, locally moderately-rich in lichens</b>	P/S	<b>SD12z (SD12yy)</b>	<b>Q1</b>
<b>M32</b>	<b>Mesotropic dune grassland</b>	P/S	<b>SD9</b>	
a, b	<i>Ulex</i> scrub	P/S	W23	
c	Grassland			
d	Dune grassland	N/S	<b>SD12</b>	
<b>M33</b>	<b>Acidic <i>Ammophila</i> dune with small stands of <i>Ulex</i> scrub</b>	P/S	<b>SD12z (+W23)</b>	
<b>M34</b>	<b><i>Festuca-Holcus</i> grassland</b>			
<b>M35</b>	<b><i>Juncus effusus</i> grassland</b>		<b>MG10</b>	
a	<i>Ulex</i> scrub		W23	
b	Clumps of <i>Ulex</i> scrub	NS	W23 (+SD12)	
<b>M36</b>	<b>Dune grassland</b>		<b>SD12</b>	
a	<i>Ulex</i> scrub	PS	W23	
b, d	Mesotropic dune grassland		<b>SD9</b>	
c	Grassy dune slack		SD16	
e	Dune grassland		SD12	
f	Dune slack		SD16	
<b>M37</b>	<b>Grassy dune slack</b>		<b>SD16</b>	
<b>M38</b>	<b>Acidic <i>Ammophila</i> dune</b>	P/S	<b>SD12z</b>	
a	Acidic <i>Ammophila</i> dune with stands of <i>Ulex</i> scrub	P/S	<b>SD12z (+W23)</b>	
b, c	<i>Salix</i> scrub	P/S		
d	Dune slack		SD16	
e	Dune grassland with stands of <i>Chamaenerion</i> and heath		<b>SD12 (OV27, H11b)</b>	
<b>M39</b>	<b>Dune slack</b>		<b>SD16</b>	
a, d	Dune heath		H11b	
b	<i>Salix</i> scrub	P/S		
e	Dune slack		SD16	
<b>M40</b>	<b>Dune heath with slack and <i>Salix</i> scrub</b>		<b>H11b</b>	<b>Q13</b>
a	Dune slack and <i>Salix</i> scrub		SD16	
b, c	Dune heath		H11b	
d	<i>Salix</i> scrub	P/S		
<b>M42</b>	<b>Weedy field</b>	P/S		
<b>M43</b>	<b>Dune grassland</b>	N/S	<b>SD12</b>	
<b>M44</b>	<b>Conifer plantation</b>	N/S		
<b>M45</b>	<b>Pond</b>	N/S		
a		ND	N/S	

M46	Mesotropic dune grassland	P/S	SD9	
P1	Arable	N/S		
P2	Acidic dune grassland		SD12	
	b Recent conifer plantation			
	a Mixture of dune heath and grassland		H11b+SD12	
P3	Dune heath		H11b (SD12)	
	a Mixture of dune heath and grassland		H11b+SD12	
P4	Dune grassland with <i>Ammophila</i>	P/S	SD12z (SD12)	
	a Mixture of dune grassland, heath and wet grassland		SD12 (H11, M23, SD16, MG10)	
P5	Dune grassland		SD12	
	a Mixture of dune heath and grassland		H11b+SD12	
P6	<i>Juncus effusus</i> grassland		MG10	
	a Dune grassland		SD12	
	b Open water			
P7	Acidic <i>Ammophila</i> dune, variably lichen-rich	P/S	SD12yy (SD12z, SD11, H11).	Q15
	a Young dune slack		SD13 (H11b)	Q16
	c Marshy dune slack		M23 (SD17)	Q17
	b, d, e, f, g Dune heath with <i>Ammophila</i>		H11b	
	h <i>Salix</i> scrub			
	i <i>Glyceria maxima</i> swamp		S5	
P8	Acidic <i>Ammophila</i> dune		SD12z	Q9
P9	Dune heath with <i>Ammophila</i>		H11b	Q10
P10	Mobile <i>Ammophila</i> dune	P/S	SD6	Q14
P11	Mesotropic dune grassland		SD9	
P12	<i>Glyceria maxima</i> swamp	P/S	S5	
P13	Dune grassland with <i>Ammophila</i>	N/S	SD12z	
B1	Bare sand	N/S		
B2	Mesotropic dune grassland	N/S	SD9	
	a Mesotrophic dune grassland	N/S	SD9	
	b Dune grassland	N/S	SD12	
B3	Mobile <i>Ammophila</i> dune	N/S	SD6b	
	a Dune slack	N/S		
	b Bare sand	N/S		
B4	Dune slack	N/S		
	B5 Bare sand	N/S		
	a Young dune slack	N/S	SD13	
B6	Bare sand	P/S		
	a-n Mobile <i>Ammophila</i> dune	P/S	SD6b	
	o <i>Equisetum</i> amongst otherwise bare sand			
B7	Mobile <i>Ammophila</i> dune	N/S	SD6d	
B8	Mobile <i>Ammophila</i> dune	N/S	SD6e	

B9	Mobile <i>Ammophila</i> dune	N/S	SD6a	
B10	<i>Glyceria maxima</i> swamp		S5 (S4)	
	<i>Equisetum</i> , <i>Glyceria maxima</i> and bare a sand	P/S		
B11	<i>Juncus effusus</i> grassland		MG10	
B12	Dune grassland	N/S	SD12	
B13	Stand of <i>Chamaenerion</i>	N/S	OV27	
B14	Mobile <i>Ammophila</i> dune	N/S	SD6d	

## **Vegetation survey of Menie Estate sand dunes including part of Foverans Links SSSI, Mike Smedley, October 2007**

### **Background**

The Menie dunes were surveyed by Tom Dargie for the Sand Dune Vegetation Survey of Scotland as part of Site 7: Newburgh to Bridge of Don (Dargie 2001)<sup>1</sup>.

A further survey was carried out by Dargie in 2006 (Anon. 2007)<sup>2</sup>, which is available as a 1:20 000 map.

A review of consents and SSSI documentation is required in relation to the Nature Conservation Act 2004.

### **Objective**

To undertake a survey of the Menie dunes, comprising areas inside and outside Foveran Links SSSI, and produce detailed maps of the vegetation.

### **Method**

Field work was carried out over 3 ½ days between 24 October and 1 November 2007<sup>3</sup>. Aerial photos used by Dargie in 2006 were not available to SNH. SNH aerial photos of Foveran Links SSSI from 1994 were available and extended beyond the SSSI boundary to Mill of Menie Links, but proved to be of limited use. Following the first day of field mapping, Tom Dargie's 2006 1: 20 000 polygon maps were re-drawn onto a base map at 1: 5 000 and vegetation mapping was carried in the field at 1: 5 000 with the aid of a GPS. Sketch maps at 1: 1 000 or 1: 2 000 were also drawn of selected habitats, with most attention being given to heath and slacks (see notebook). Field work was divided between Menie Links (2 ¼ days), and Pettens Links (1 ¼ days). The surveyor also walked through Blairton Links (from Balmedie Country Park). GPS accuracy was good, often within a few metres. GPS grid references were recorded to 1m. Photographs were taken of the many of the quadrats using a digital camera.

After the field work was completed, neat polygon maps were re-drawn at 1: 5 000 (SNH Objective files A132627 and t A145871<sup>4</sup>). Polygons have been allocated to NVC types (Rodwell 2000, and previous volumes), or new subtypes described by Dargie (2001)<sup>5</sup>. Where little or no field mapping was undertaken this is indicated for the polygon as follows.

N/S= no field survey in 2007

P/S= partial field survey in 2007

Photo-based reports have been produced for Menie and Petterns (A145872 & A133625; additional photos are available on CD). These reports include respective quadrat data, which has also been tabulated on two Excel worksheets (A166212), but exclude target notes. The Pettens report also includes an overall description of the links and its vegetation. Previous quadrat data, including data collected by Dargie and by Doarks C et al (1993), has not been added to the 2007 table.

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<sup>1</sup> Annotated map reproduced at 1: 14 000 as Sheet 3 of Volume 3

<sup>2</sup> colour-coded map reproduced at 1: 20 000 map (Figure 7.3)

<sup>3</sup> 24 October, 25 October (pm), 29 October and 1 November

<sup>4</sup> Polygons on Menie Links, Pettens and Blairton Links are prefixed M, P and B resp..

<sup>5</sup> Mosaics are indicated by the "+" symbol.

## Results

A list of the main vegetation types and Annex 1 equivalents is shown in the following table.

Table 1: Main vegetation types

Description of the vegetation type	NVC type/subtype	Habitats & Species Directive: Annex 1 habitat type
<b>Mobile <i>Ammophila</i> dune</b>	SD6a/b/d	Shifting dunes with <i>Ammophila</i> (white dunes)
<b>Acid, semi-fixed <i>Ammophila</i> dune</b>	SD12z/SD7a	*Fixed dunes with herbaceous vegetation (grey dunes)
<b>Acid <i>Ammophila</i> dune, moderately lichen-rich</b>	SD12yy	
<b>Lichen-dominated dune</b>	SD11	
<b>Mesotrophic dune grassland with <i>Ammophila</i> and <i>Arrhenatherum</i></b>	SD9	
<b>Dune heath</b>	H11b	*Decalcified fixed dunes with <i>Empetrum nigrum</i>
<b>Dune heath with <i>Ammophila</i></b>	H11b	
<b>Young dune slack</b>	SD13	Humid dune slacks
<b>Dune slack</b>	SD16	
<b>Marshy dune slack</b>	SD17	
<b>Dune <i>Salix</i> scrub</b>		Wooded dunes of the Atlantic, Continental and Boreal region
<b><i>Juncus effusus</i> grassland</b>	MG10	

### Comparison with previous surveys

The survey confirmed the much reduced extent of heath remaining in the Menie part of Foveran Links SSSI, which was previously estimated at 2.6 ha (Borthwick 1986). Within the SSSI the only area mapped in the field in 2007 was about 0.05 ha in slacks at the north end of the estate (not far from the Sandend Burn, polygon M9). Dargie also mapped a patch of heath of about 0.1 ha on Menie Links (polygon M21a).

The low current extent of heath on the SSSI contrasts with the situation off the SSSI, with about 4 ha of H11 heath to the south of the SSSI boundary, as far as Mill of Menie Links, and a further 6 ha on Pettens Links, of which about 2 ha occurs on sand hills. None of these areas of heath are shown by Dargie on his 2006 1: 20 000 survey map but the areas on the Pettens sand hills were indicated as part of a (much) larger heath mosaic in his national survey.

Both the Blairton and Menie Links sand domes would appear to be continuing to creep north - in particular the finger of bare sand at NJ99012161 (as shown on photo 24/60), has grown since that indicated in 2006, and is extending into the adjacent field. The northern margins of the main dome of bare sand on Blairton Links can be seen in photo 25/65 (Pettens Links).

Other points:-

- Mobile dunes were not extensively surveyed but were mapped as a mixture of SD6a and SD6d with SD6e noted at one locality (Q12, m28). Other subtypes of SD6 were not seen.
- The 2007 survey reluctantly followed Dargie in mapping acidic *Ammophila* dune as SD12z, though the affinities with SD7 were noted (see quadrats 1 and 9). The survey carried out by Doarks in 1990 (Doarks C et al. 1993), mentions that the SD6 communities are backed by SD7a, maps a 5 ha area of SD7a at the rear of the dunes in the NW of Menie (now part of m10), and presents three SD7a quadrats with constant *Holcus lanatus* and patchy U4/SD12 species. The NVC conspectus (Rodwell 2000), describes Dargie's SD12z as an "*Ammophila* (form) of semi-fixed dune developing without an SD7 phase". And, for SD7 it describes "a type with a thick carpet of pleurocarpous mosses, notably *Hylocomium splendens* and *Rhytidiadelphus triquetrus*, which seems to provide a link with Boreal dunes".
- A moderately extensive lichen-rich *Ammophila* dune was mapped on Pettens and included SD12yy and some lichen-dominated SD11, which was sampled (see photos 1/75 and 1/70, and Q15, p7).
- Other subtypes of SD12 were not seen and SD12 grassland was not allocated to any sub-communities.
- An additional area of SD13 on Pettens was mapped by Dargie as SD16 (p7a).
- A tiny area of SD17 on Pettens was not mapped by Dargie (p7c).
- Additional, small areas of SD9 were mapped either side of the Menie Burn and by the Fishing Station (M36b&d, p11 and m46)
- Two small features were noted along the Blairton Burn but were not mapped. Firstly, a small area of *Phragmites* swamp (S4) along the ditched section. Secondly a small area of *Alnus* scrub on the margins of the river terrace not far from the mouth of the burn (north end of *Glyceria* swamps that form P12).

## Management

Historically, the links by the tracks from Leyton Cottages appears to have been affected by the most disturbance (reports mentions shooting and vehicle use), resulting in localised encroachment by *Ulex* and *Chamaenerion*.

A number of pits and pipes and new tracks were noted at various localities across the site, presumably associated with the proposed golf resort (see photos of Pettens Links). Some digger activity was noted on 30 October 2007 near the mouth of the Menie Burn. Some burning of plastic garden waste was noted on the grassland by the track from Leyton Cottages (north of m36).

Little or no signs of livestock were noted on the links but a rabbit colony was noted on the Pettens dunes. In the north of the site (within the SSSI), the field with dune grassland that would appear to be beginning to be inundated by sand from the main sand dome on Menie Links is infested with *Cirsium arvense* (m12). This would appear to be associated with cattle grazing, which is a long-established, and may have led to a reduction in abundance of dwarf shrubs in the hollow to the east (see photos 24/62-63, corresponding with Q9, and m9). To the south of the Fishing Station, the enclosed fields were weedy with much *Senecio jacobaea*. The ploughing of an inland part of Pettens Links appeared to have largely been undertaken since 2000 (p1).

Small, recently established blocks of conifer plantation were noted on Menie and Pettens Links (m30b, m44 & p2b).

Ponds by the Menie and Blairton Burns (m45 and p6b), appeared to be of recent origin.

Public access appeared to be concentrated on the beach, plus some dog walking to the south of the Blairton Burn. Trespassing quadbikes were seen on both the Menie and Blairton Links.

## References

Doarks C et al. 1993. Sand Dune Survey of Great Britain. Site report No. 98. JNCC report No. 38.

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Dargie T. 2001. Sand Dune Vegetation Survey of Scotland. Report for SNH (RSM 179).

Anon. 2007. Golf and Lesire Development, Menie Estate, Balmedie, Aberdeenshire. Environmental Statement.

Rodwell, JS et al. 2000. British Plant Communities. Vol 5. Maritime communities and vegetation of open habitats. For JNCC. Cambridge University Press.

Rodwell, JS et al. 2000. Review of coverage of the National Vegetation Classification JNCC Report, No. 302.

Quadrat number	Q12	Q14	Q4	Q5	Q6	Q11	Q1	Q9	Q15	Q2	Q16	Q17
Date /2007	30-Oct	01-Nov	24-Oct	24-Oct	24-Oct	30-Oct	24-Oct	25-Oct	01-Nov	24-Oct	01-Nov	01-Nov
Type	SD6b	SD6d	SD6e	SD6e	SD6e	SD6e	SD12z	SD12z	SD11a	SD16	SD13	SD17d
Grid ref	98714	98659	99514	99502	99348	98778	99000	9827	98543	9933	98509	98447
/NJ	19943	19785	21739	21643	21327	20072	21015	1925	19709	2188	19567	19806
Photo in report	60					59						
Ammophila arenaria Ama	5 (15%)	6 (30%)	7 (40%)	6 (305)	7 (40%)	5 (20%)	7 (40%)	6 (25%)	4	5	5	4
Carex arenaria Cxa	2						6 (35%)	6 (25%)	5 (15%)			
Elytrigia juncea (Elyn) Elf	3											
Leymus arenaria La												
Salix repens Sxr									5 (20%)			
Salix (cinerea) Sxci											2	
Cakile maritima	4											
Empetrum nigrum En												2
Agrostis capillaris At							1		1	2		
Aira caryophylla												4
Anthoxanthum odoratum												
Festuca ovina Fo									2			
Festuca rubra Fr									5	2		
Holcus lanatus HI					3				4	5	3	
Poa pratensis							5 (20%)		1			
Juncus (articulatus)												5
Juncus squarrosus Jsq										5		
Luzula campestris									2			

Luzula (multiflora)	1	2	
Cerastium fontanum			2
Chamanerion angustifolium			2
Cirsium arvense			5
Epilobium brunnescens			3
Galium palustre			4
Galium saxatile			2
Hypochoeris radicata			2
Hydrocotyle vulgaris			1
Potentilla erecta			4
Potentilla anserina			2
Ranunculus flammula			2
Ranunculus repens			2
Prunella vulgaris			1
Sagina sp			3
Sagina (nodosa)			2
Senecio jacobaea			4
Trifolium repens			3
Veronica officinalis			2
Viola canina			2
Viola tricolor			1
Viola palustris			2
Bryum pseudotriquetrum			6
Calliargon cuspidatum			8
Hylocomium splendens			4
Brachyhectium albicans			2
Rhytidiadelphus squarrosus			4
Rhytidiadelphus triquetrus			1 +

Eurynchium praelongum	2	
Plagiothecium undulatum	2	
Pleurozium shreberi	5	
Pseudoscleropodium purum	2	
Lophocolea bidentata sl	2	
Dicranum scoparium	1	4
Cladonia portentosa (impexa)		9 (80%)
Cornicularia corniculata		+

NVC type		H11b +HI, Cxf, Pv	H11b 24-Oct	H11b 24-Oct	H11b +Ver.off +Jsq	H11b 25-Oct	H11b 25-Oct	
Date /2007		24-Oct	24-Oct	25-Oct	25-Oct			
Q.No		Q3	Q8	Q9	Q13			
Photo in report		62				61		
Other photo		63				64, 66		
NGR		9930	9895	98342		98642		
	/NJ	2191	2078	19426		20052		
<i>Calluna vulgaris</i>		4	2	2		4		V
<i>Erica cinerea</i>		2	2					III
<i>Empetrum nigrum</i>	En	7 (40%)	7 (40%)	8 (55%)		7 (40%)		V
<i>Erica tetralix</i>						4		II
<i>Ammophila arenaria</i>	Ama			4 (7%)				II
<i>Carex arenaria</i>	Cxa	1		3 4 (7%)		3		V
<i>Salix repens</i>	Sxr					1		II
<i>Agrostis capillaris</i>	At	4	3	1		2		V
<i>Anthoxanthum odora</i>	Ao		1	3				III
<i>Deschampsia flexuosa</i>								
<i>Festuca (ovina)</i>		4						II
<i>Festuca rubra</i>	Fr		2					II
<i>Holcus lanatus</i>	HI	4						II
<i>Poa pratensis</i>		1	2					III
<i>Carex flacca</i>	Cxf	2						II
<i>Juncus squarrosus</i>	Jsq					4		II
<i>Luzula (campestris)</i>		1	2					III
<i>Campanula rotundifolia</i>						2		II
<i>Chamaenerion angustifolium</i>		+						
<i>Cerastium fontanum</i>		1						II
<i>Galium saxatile</i>								
<i>Hypochoeris radicata</i>		+						
<i>Lotus corniculatus</i>		5						II
<i>Potentilla erecta</i>								
<i>Prunella vulgaris</i>	Pv	1						II
<i>Senecio jacobaea</i>	Sj	1						II
<i>Veronica officinalis</i>						2		II
<i>Viola riviniana</i>		+						
<i>Viola canina</i>								
<i>Hylocomium splendens</i>		4				2	4	IV
<i>Hypnum cupressiforme</i> sl							1	II
<i>Dicranum scoparium</i>		2	6	5		1		V
<i>Plagiothecium undulatum</i>				3 +				II
<i>Pleurozium shreberi</i>		1		5		7		IV
<i>Pseudoscleropodium purum</i>		4	2	2				IV
<i>Rhytidiadelphus triquetrus</i>		4					1	III
<i>Lophocolea bidentata</i> sl						2		II
<i>Cladonia portentosa</i> (impe)		1	2					III
<i>Peltigera</i> sp		1		2		1		IV
Vegetation height /cm		5						