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National Sand Dune Vegetation Survey
Site Report No 42
Sker Point Dunes/Pyle & Kenfig Golf Course Dunes/Water Street Dunes
1989

P S Jones

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2. To assess the impact of major development projects on sites of national importance for nature conservation.

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If you would like any further information on this report or on the research programme please contact Dr Doody in Peterborough.

Dr Pat Doody
Coastal Ecologist
NCC (GBHQ)
Peterborough

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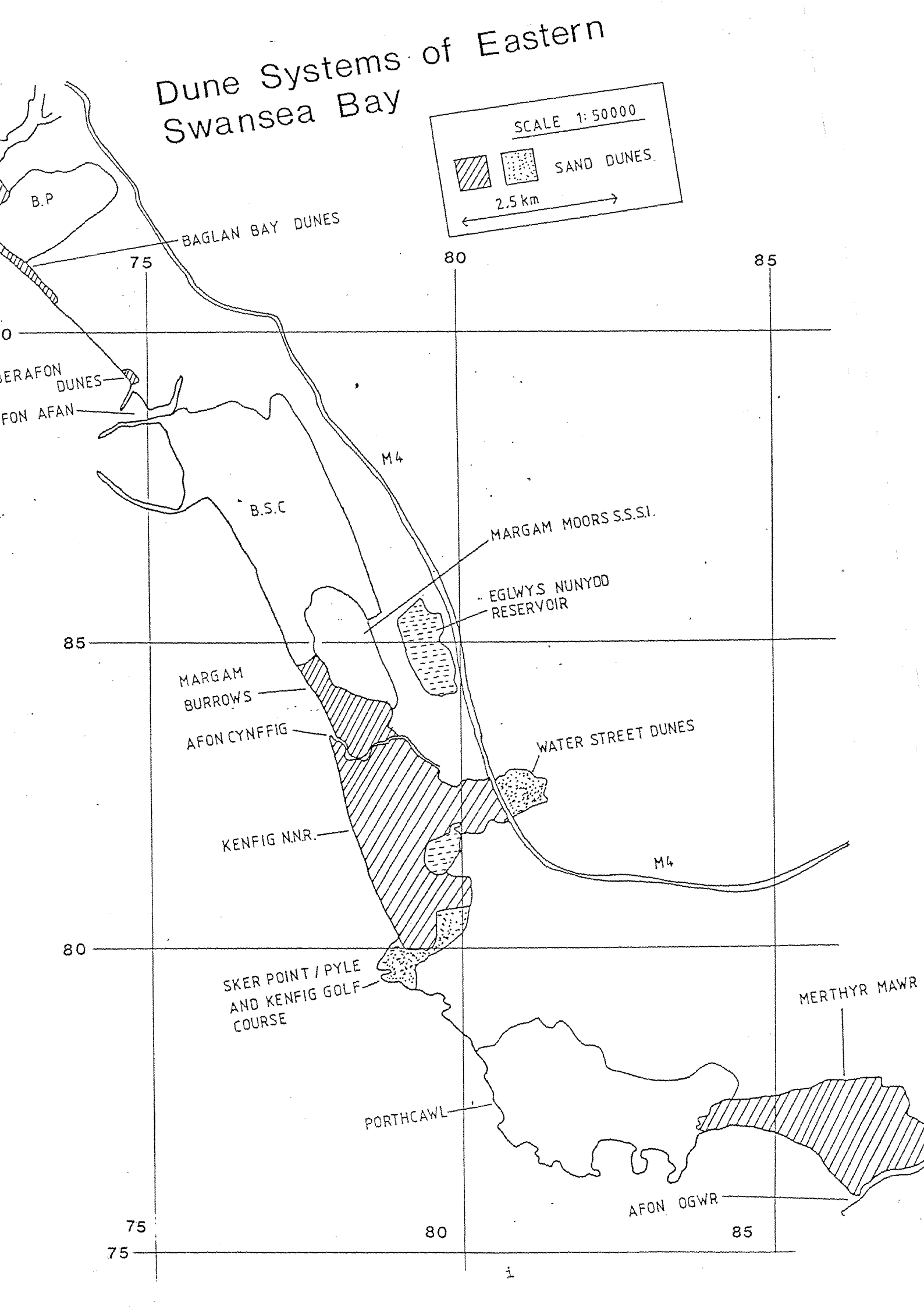
Dune Systems of Eastern Swansea Bay
SCALE 1:50000
SAND DUNES
2.5 km
B.P
BAGLAN BAY DUNES
75
80
85
0
ERAFON DUNES
FON AFAN
M4
B.S.C
MARGAM MOORS S.S.S.I.
EGLWYS NUNYDD RESERVOIR
85
MARGAM BURROWS
AFON CYNFFIG
WATER STREET DUNES
KENFIG N.N.R.
M4
80
SKER POINT / PYLE AND KENFIG GOLF COURSE
MERTHYR MAWR
PORTHCAWL
AFON OGWR
75
80
85
75

1. Background and Objectives

All areas of semi-natural sand dune vegetation peripheral to the current Kenfig Burrows National Nature Reserve/S.S.S.I. boundary were surveyed between August and September 1989 as part of the Sand Dune Survey of Great Britain. This project is one of a series of strategic surveys currently being undertaken by the Nature Conservancy Council. The survey has two aims:

i. To produce a vegetation map and description for each sand dune system which will be useful to those involved directly in its conservation.

ii. To produce a national inventory of the range and extent of sand dune habitats in Great Britain. Such an inventory will then allow the interest of any particular site or group of sites to be placed in its national context.

2. Methods

The survey of the marginal sand dune areas at Kenfig Burrows was carried out using standardised techniques employed throughout the Sand Dune Survey of Great Britain. These are based on those recommended by the National Vegetation Classification (NVC) and are detailed in Appendix 1. Collecting information in a consistent manner from a large number of sites will enable valid comparisons to be made between sites on a national basis.

3. General Description & Geomorphological background

The sand dune areas not included within the current N.N.R. or S.S.S.I. boundaries form a natural buffer zone between Kenfig N.N.R. and adjacent farm land to the east and north-east of the reserve.

There are three main areas of blown sand vegetation (Fig 1), the Sker Point, Pyle and Kenfig Golf Course and Water Street (or Ty'n-y-Twyn) dunes.

The Sker Point dunes consist of a suite of low lying sand dunes, dune plains and dune slacks covering an impermeable boulder clay base which in turn rests upon a Triassic coarse conglomerate wave cut platform. The depth of sand in this area never appears to exceed 1.0 m in the low lying slacks and sand plains, and a stiff brown boulder clay was retrieved from a series of shallow auger holes drilled at the site. The extent of the drift cover appears to be virtually complete as boulder clay is visible beneath the sand above high water mark at Sker Point.

The impermeable boulder clay base appears to support a shallow perched water table, which occasionally intersects with the ground surface to form a series of ephemeral ponds after heavy rainfall. One of these has almost certainly been extended by the excavation of sand and boulder clay and some standing water is present during the drier summer months.

It should be noted that the unconfined perched water table at Sker (and at other locations peripheral to Kenfig Burrows) is not continuous with the main Kenfig N.N.R. aquifer to the west. It is likely that spring inputs from underlying rocks of the Carboniferous Limestone series together with recharge arising from rainfall maintain a discontinuous and somewhat ephemeral water table which develops in topographic lows of the underlying drift surface.

The western part of the Sker point dunes are in places underlain by cobbles from the storm beach which separates the Triassic wave cut platform of Sker Point from the low lying dunes to the east. A soil pit dug just inland of the wave cut dune cliff above the rock platform revealed beach cobbles lying within a dune sand matrix to a depth of 0.75 m, and it is probable that in places these deposits are continuous to the boulder clay surface. Periodic storm events still throw a considerable amount of beach cobble material up onto the vegetated dune surface, and this, together with a limited amount of sand accretion, creates an interesting surface topography which is unique in the area.

Although the majority of the vegetated dune surface ranges from only 5-10 m a.o.d. occasional fragmented ridges do extend to a maximimum height of 17 m a.o.d.
A few of these ridges are poorly vegetated, and occasional sand blow still occurs during gale force winds. These dunes are, however, predominantly stable and it is unlikely that sand movement is ever responsible for more than a very slight modification of the dune morphology.

The bare rock wave cut platform of Sker point has very little beach sand available for dune nourishment. The site is very exposed to onshore westerly winds and superficial deposits and sparse vegetation are readily eroded from the rock surface. A wave eroded dune cliff characterizes the entire seaward boundary of the Sker Point dunes, rising in places to 3.0 m above the underlying drift covered surface. As only the most violent westerly or south-westerly storms result in waves which actually reach the base of this cliff (probably on only one or two occasions each year) the loss of sand is irregular and comparatively minor. However the exceptionally violent storms which occured in the first week of February 1990 resulted in the loss of between 600 and 1000 cubic metres of sand, and in the absence of any accretion this continued loss of sediment should be monitored.

It is probable that the Sker Point dunes originated later than the rest of the Kenfig system, where it appears likely that sand deposition started at about 6000 B.P (Jones 1990). The shallow depth of sand at Sker reflects both the exposed nature of the site and the occurence of Triassic bedrock and boulder clay at a height well above ordnance datum. It may even be possible that the boulder clay deposits represent the original pre-sand innundation surface of the site, although it is quite probable that succesive periods of deposition and erosion of sand have exposed the boulder clay surface on a number of occasions. Archaeological investigations by Grime (1929) revealed "signs of occupation of the old land surfaces by early (Neolithic) Man", which does suggest that at least some parts of the site remained sand free between 6000 and 3000 B.P. The possibility of a semi-intact Neolithic land surface accesible by virtue of the shallow depth of covering sand suggest that the site would repay archaeological investigation.

The Pyle & Kenfig Golf Course dunes are separated from the Sker Point system by a stock proof fence which delimits the boundary of grazing currently held by Sker farm. The Golf Course dunes are also underlain by boulder clay deposits, which dip gently to the south west from the 35m coastal plateux down to a level below O.D. in the area of Kenfig Pool, and the depth of sand ranges from just 0.3 m in topographic lows to an estimated 15 m beneath the high dune ridges. The area is hydrologically similar to the Sker Point system, with the development of a shallow perched water table during the

wetter winter months of the year.

The Pyle and Kenfig Golf Course was established in the early 1920s, and the development of the course appears to have been carried out with relatively little gross disturbance to the original dune morphology. The gently undulating landscape of this portion of the coastal plain between Kenfig and Porthcawl is ideal for golf course construction, and at the time of writing (January 1990) the club are expressing interest in purchasing the site from the Kenfig Corporation Property Trustees as part of their plans to increase the size of the course.

Most parts of the site are above 15.0 m a.o.d., although some of the dune ridges are in excess of 35.0 m a.o.d. The majority of the area consists of a gently undulating suite of dunes separated by lower lying sandy plains. Fixed dune grassland communities dominate the vegetation of the area, although very occasional areas of mobile sand do occur on the steeper dune ridges. In topographic lows, where the boulder clay is very close to the surface, depression focussed recharge leads to periodic waterlogging of the soil and this has resulted in the development of a series of communities ranging from damp mesotrophic grassland types through to wet dune heath on the older leached surfaces.

The Water Street dunes constitute the easternmost limit of blown sand in the area, and at their maximum extent are 3.0 km east of M.H.W. at Kenfig N.N.R. The dunes were formerly continuous with those at Kenfig N.N.R., but the construction of the M4 has resulted in the annexation of this part of the site. The Kenfig N.N.R./S.S.S.I. boundary runs along along the western edge of the M4, and the Water Street dunes were not included within the area scheduled as a local nature reserve in 1978.

The site is geomorphologically similar to the Sker and Pyle and Kenfig Golf Course sections, with boulder clay occuring at a shallow depth beneath sand throughout the area. The boulder clay dips to the north and north-west from a point at approximately 36.0m a.o.d at the southwest corner of the site, and groundwater flow from a seasonal shallow perched water table follows the dip of the boulder clay to form a number of small ephemeral streams at the northern boundary of the site.

The site has not been grazed in recent years (c20 years), although the owners of the site (The Kenfig Corporation Property Trustees) may grant permission to graziers. The site is unfenced along the roadside perimeter, and this, together with the extensive cover of Bracken, would seem to indicate that the future establishment of a grazing regime is unlikely.

It is likely that both the Pyle & Kenfig Golf Course and Water Street dunes originated somewhat later than the rest of the Kenfig system. Mobile dunes capable of providing sand for dune formation along the landward boundary of the system would have taken some time to reach the base of the boulder clay slope following the earliest period of sand deposition at c6000 B.P. The Water Street dunes must have been formed comparatively recently as the site of the town and Castle of the former borough of Kenfig to the west of the area were still free of sand in the 13th century.

Access to the dune areas peripheral to Kenfig N.N.R. was granted by Messrs R. and A. Evans (Sker Farm sections), the Pyle and Kenfig Golf Course and the Trustees of the Kenfig Corporation.

4 Vegetation description

The most interesting feature of the peripheral dune areas at Kenfig concerns the development of a range of communities which are either absent or uncommon in South Wales. Chief among these are the areas of leached fixed dune grassland which are probably better developed at Kenfig than elsewhere in the region. The vegetation of dune slacks is especially interesting because of the obvious relationship between vegetation and the hydro-geological character of the site.

The presence of communities rarely associated with sand dunes in South Wales is also of some interest. The maritime grassland communities at Sker Point (table 1), although species poor when compared to the NVC Festuca rubra - Armeria maritima maritime grassland type (MC8), do illustrate the transition between vegetated wave cut platform and fixed dune grassland vegetation, and the limited amount of sand accretion contributes, in places, to an interesting mosaic of MC8 and SD6g communities.

A thin band of mobile sand with beach cobbles immediately above the wave cut platform supports a range of vegetation types from mobile Ammophila arenaria mobile dune communities (SD6g, table 2) , where there is still some input of beach sand, to better stabilised semi-fixed dune communities (SD7, table 3) with no bare sand between the sparse beach cobbles. The vegetation in these areas is not typical of the NVC Ammophila arenaria - Festuca rubra type (SD7), and the occurence of such species as Sanguisorba minor and Achillea millefolium with those more typical of semi-fixed dune grassland is unusual. Table 3 seems to represent a transitional vegetation type between SD7 semi-fixed dune and the areas of maritime grassland (MC8, table 5) which occur on the boulder covered stabilised surfaces landward of the coast. These noda are not strictly typical maritime grassland communities, and the presence of Carex arenaria, Elymus farctus and Tortula ruralis reflects the sandy matrix in which the beach cobbles are embedded.

The tiny stand of Rumex crispus - Glaucium flavum shingle vegetation,(SD1), which occurs at the south-eastern corner of the site was created artificially by the extraction of shingle and beach cobbles for building purposes. Until this occured only a very few plants of Glaucium flavum had been recorded on stable storm beach material above the wave cut platform (S.J.Moon, personal communication).

Festuca rubra - Galium verum fixed dune grassland (SD8b, table 4) dominates the region to landward of the above communities. The vegetation is heavily grazed, and receives some grazing throughout the year. Some slight leaching of these low dunes is indicated by the presence of such species as Galium saxatile, Rumex acetosella and possibly Campanula rotundifolia, which are all otherwise restricted to obviously leached surfaces at Kenfig. Pteridium aquilinum does form a sparse cover in some of the SD8b communities at Sker, but grazing and wind exposure has prevented both the establishment of a dense cover of the species and the fusion of presently isolated clones. North of the stockproof fence (see map) Bracken does form large high cover colonies, and these are usually associated with more mesotrophic grassland types (SD9 and MG1).
At Sker SD8b vegetation does persist beneath canopies of Bracken, although species such as Anthoxanthum odoratum and Hyacthinthoides non-scriptus are frequent.

To landward of the haul road, and south of the Sker Farm fence line, vegetation of the Ranunculus acris - Bellis perennis SD8 subtype (SD8d, table 6) predominates, although there is an SD8b/SD8d mosaic in many places. Some of these grasslands are extremely species rich, reflecting the long established and favourable grazing regime at the site, and the presence of such species as Carex caryophyllea and Pimpinella saxifraga would seem to reflect this. These grasslands are probably slightly leached (cf the occurence of Campanula rotundifolia, and sparse Pterdium aquilinum).

To the north of the stock proof fence, and for the whole zone between the golf course and the south-eastern boundary of Kenfig N.N.R, fixed dune grassland of the NVC SD8a & SD9 types predominates. There is an obvious trend for succession from SD8a Festuca rubra - Galium verum fixed dune grassland (table 14) to the more mesotrophic Ammophila arenaria - Arrhenatherum elatius SD9 type, and in places this proceeds to typical MG1 Arrhenatherum elatius dominated mesotrophic grassland. Regular mowing by the staff of the golf course has had the beneficial effect of maintaning stands of SD8a vegetation marginal to the more closely mown drought prone fairways, and the rare Dianthus deltoides is restricted to one of these.

The lack of grazing for many years at this part of the site has resulted in the development of a dense high cover growth of Bracken (Pteridium aquilinum) in many places, (Table 15), and this is invariably associated with mesotrophic grassland vegetation (SD9 and MG1).

The dunes at Water Street are very similar, in having a strong Mesotrophic grasslands element. Arrhenatherum elatius grassland (MG1 table 16) dominates the south and east facing slopes marginal to the Kenfig - Pyle coast road, and virtually monospecific stands of Dactylis glomerata occur in a number of places. A particularly large stand of Bracken (Pteridium aquilinum) dominates the south-western corner of the site, and prior to the construction of the M4 was virtually continuous with neighbouring stands at Kenfig N.N.R. A large stand of Bracken also dominates the south-eastern coner of the Water Street dunes, occuring in association with SD9 Ammophila arenaria - Arrhenatherum elatius fixed dune grassland.

Species rich SD8a Festuca rubra - Galium verum, grassland (table 18) does still dominate many parts of the Water Street dunes, but the presence of species such as Arrhenatherum elatius does suggest that succession to more mesotrophic types is a constant theme reflecting the lack of grazing.

SD9 Ammophila arenaria - Arrhenatherum elatius fixed dune grassland is common, occuring both as isolated stands within swards of SD8a and SD12a and as the dominant vegetation type over wide areas of north facing dunes slopes.

Although relatively pure and typical examples of SD9 grassland do occur the majority of the stands appear to be somewhat transitional in nature (table 17). Quadrats 17-16 and 54-5 in table 17 represent SD9 vegetation which appears to show floristic elements typical of mesotrophic grassland. The presence of such species as Dactylis glomerata, Urtica dioica, and Artemisia vulgaris is indicative of this, and the bryophyte flora is certainly typical of mesotrophic grassland (cf. Eurynchium praelongum and Pseudoscleropodium purum).

Examples of grassland vegetation intermediate between SD9 and Carex arenaria

- Festuca ovina - Agrostis capillaris dune grassland (SD12) are also common, and are represented by quadrats 50-53 of table 17. These grassland types are more or less restricted to north or north-west facing slopes, and although the overall species compliment would appear typical of SD9 vegetation the presence of Anthoxanthum odoratum at high cover values, together with the rather open appearence of the stands is reminiscent of SD12 grassland.

SD12 grassland (mapped as the Festuca- Anthoxanthum nodum on the vegetation map) is quite widespread on the flat dune plain bordering the main Swansea - Cardiff railway line, (Table 23). Festuca ovina occurs as more or less isolated clumps within a matrix of Anthoxanthum odoratum and Agrostis capillaris, and the open nature of the vegetation is striking. Some of the areas are still quite bryophyte rich with numerous lichen species such as Peltigera canina and Diploschistes muscorum, although the stand represented in table 23 was comparatively species poor. SD12 grassland occasionally grades into noda best classifiable as calcicolous grassland (CG7), and small stands of this vegetation type are scattered throughout the area on north facing dune slopes particularly.

Mobile and semi-fixed dune communities are extremely rare, but one small blowout to the west of Water Street (the B4283) supports open Ammophila arenaria dune (SD6) and Ammophila arenaria - Festuca rubra semi-fixed dune (SD7).

Dune slack communities on the Sker Point, Pyle & Kenfig Golf Course and Water Street dunes are all characterised by their close proximity to boulder clay deposits within 1.0 m of ground level. At Sker Point these slacks are rarely flooded, and the vegetation of some of these (tables 7 and 11) clearly possess floristic elements characteristic of both Potentilla anserina - Carex nigra dune slack vegetation (SD17, Table 12) and Agrostis stolonifera - Alopecurus geniculatus innundation grassland (MG11). Salix repens dominated slacks do occur (tables 8-10), but S.repens rarely forms a very dense cover, and the vegetation is notably species rich. It is probable that the grazing regime plays some part in reducing the cover of Salix repens, which appears to be particularly sensitive to grazing.

Very few parts of the Pyle & Kenfig dunes are directly influenced by flooding. Occasional areas of wet mesotrophic grassland do occur, with species such as Pulicaria vulgaris and Cirsium palustre occuring within a thick Arrhenatherum elatius dominated sward, but the most interesting feature is a small stand of wet dune heath (table 13) just east of the Kenfig N.N.R boundary. A mosaic of Salix repens - Erica tetralix dominated vegetation types occur, with wet open Lotus uliginosus - Juncus conglomeratus elements occuring in topographic lows, and Calluna vulgaris dominating the drier sandy ridges in between. A stiff grey-blue clay occurs within 1.0 m of the ground surface, and a perched water table develops as a result of this during the winter months. Nevertheless flooding is comparatively rare, and it is evident that the occurence of species such as Calluna vulgaris in close association with Carex nigra is the result of minor differences in ground level combined with the shallow depth of flooding.

An extremely diverse range of species rich tall herb dominated dune slack vegetation types, (tables 19-22), occur on the Water Street dunes at a location where boulder clay is usually less than 0.5 m below the ground surface. The vegetation ranges from tall herb rich types which are clearly

related to NVC dune slack noda (ie SD15c vegetation, table 19), to groups which show a closer affinity to certain freshwater swamp types (table 20). The rapid lateral seepage of groundwater through the soil profile is probably the major factor influencing the species composition of these slacks, and the presence of Lychnis flos-cuculi, Eupatorium cannabinum and Carex panicea is indicative of this. At Kenfig N.N.R. these species are limited to zones of lateral groundwater seepage, and the location of the major area of dune slack vegetation at Water Street is on a streamline where groundwater flows perpendicular to the ground level contours from the high ridge of boulder clay to the south, northwards to the Afon Cynffig.

Some interesting communities occur at the northern end of the Water Street dune on ground disturbed during the construction of the M4 in the mid 1970's,(Table 18a). The vegetation is mostly intermediate between SD9 and MG1, but includes several species which are typical of damp mesotrophic grassland (cf Carex hirta and Hypericum tetrapterum).

5. Rare Plants

The only two species occuring in the surveyed area which can be regarded as at all uncommon are Glaucium flavum and Dianthus deltoides. Glaucium flavum readily colonises areas of artificially bared shingle and beach cobbles, and the creation of such areas at Sker Point would seem to be the best way to ensure the continued survival of the species in the area.

Dianthus deltoides was first recorded on the Pyle & Kenfig Golf Course in 1982. It is currently restricted to a small north facing bank adjacent to a golf course green. Approximately 15 plants are present, and this population appears to have been relatively stable since 1982. The site receives some disturbance in the form of a), regular mowing of the green margin by golf course staff and b), vehicle disturbance from an adjacent track; both these factors seem to have been succesful in maintaining a low species rich sward, (SD8).

6. Discussion, comments and suggestions

6.1. Sker Point Dunes.

The location of the Sker Point Dunes as a buffer separating the Royal Porthcawl Golf Course and adjacent farmland from the eastern boundary of Kenfig National Nature Reserve is of great significance.

Sker House, which lies on the eastern boundary of the Sker Point dunes, would appear to be ripe for development. Its unique location on the coastline of the western vale of Glamorgan has resulted in some interest being shown in its future, and any development should be carefully controlled to prevent any "overspill" onto the sensitive dune areas to the west. In particular Ogwr Borough Council, who are currently considering the imposition of a compulsory purchase order upon Sker House, should be informed of the conservational value of the neighbouring dune areas.

The presence of a range of vegetation types which are absent from the region makes the site extremely valuable from a regional conservational viewpoint, and the area should be considered as a component part of the Kenfig N.N.R. system. The long established grazing regime at the site has resulted in the development of a range of fixed dune communities which are extremely uncommon in the region. The close grazed SD8 communties (table 6) have not been encountered by the author anywhere else in South Wales, although some similar, but less diverse, types do occur on the heavily grazed fixed dunes to the south of the Ogmore Estuary (NGR SS873762). In addition the vegetation types established on mobile sand and beach cobble substrates are unique within the region, and the occurence of communites clearly allied to the NVC SD1 Rumex crispus - Glaucium flavum vegetation type on artificially bared shingle suggests that with correct managament the conservation value of the site could be greatly enhanced.

The dune slacks at Sker are unlike anything previously described in south-western Britain. The presence of a tight closed sward of grasses, sedges and rossete forming species is presumably a consequence of the long established grazing regime at the site, and is of interest when compared to the more "typical" Salix repens dominated slack noda at Kenfig N.N.R. The hydrological regime is also of some interest as perched depression fed

groundwater systems are rarely associated with dune slacks, and do not appear to have been recognized in the literature pertaining to north-west europe.

The management of the site would appear to be almost ideal in that grazing and trampling not only maintains the diversity of the species rich close cropped vegetation, but also appears to be highly succesful in preventing the spread of Bracken. This is purely a fortuitous consequence of the proximity of the site to Sker farm, and a number of other management practices would be desirable if the site could be included within the remit of Kenfig N.N.R.. These could include:

1) The creation of bare shingle areas for recolonisation by Glaucium flavum, and other species typical of the NVC SD1 vegetation type.

2) The excavation of scrapes down to a level below the winter water table to increase the value of the site for roosting waders.

3) The creation of artificial dune slacks in areas where boulder clay is close to the surface.

6.2. Pyle & Kenfig Golf Course Dunes.

The lack of grazing on these dunes is particularly apparent, and has led to the development of a range of SD9 and transitional SD9/MG1 communities, with very few areas of open herb rich dune grassland. Sker Farm have expressed considerable interest in the use of the area for grazing, but this would be dependent on the construction of a stock proof fence to separate the area from the greens of the golf course. At the time of writing it does appear that there is now a chance that this will be forthcoming, and the location of any fenceline will have to be the subject of careful negotiation between Kenfig N.N.R. and the golf club. Ideally the area should be surveyed to define those areas which would benefit most from grazing, and it may be desirable to exclude grazing altogether from the areas of wet dune heath. Control of Bracken will be required in some places, and would ideally take the form of "edge" control to prevent the fusion of currently isolated clones.

6.3. Water Street Dunes.

The lack of grazing on these dunes is particularly apparent. However there is very little chance of establishing grazing as the area is particularly open to public access, and has a busy unfenced road running through the centre of the site. In addition the extensive cover of Bracken would seem to make the site unattractive to potential graziers.

Grazing would presumably prevent the loss of open SD12 communities to coarse grassland types, and in a few areas it would be worth the expense of fencing specific areas to allow this

The dune slack areas are, in places, becoming dominated by thick growths of Salix repens, and if the site could become included within the N.N.R boundary it would be desirable to manage these areas by regular mowing. Some selective thinning of Salix cinerea would also be desirable to prevent its encroachment into areas of herb rich dune slack.

7. Site Assessment.

The wide spectrum of leached dune grassland communities is quite unique within the region. In addition the presence of a series of wetland communities which have evolved as a result of the local hydrogeological environment compliments the diverse wet slack flora of the National Nature Reserve which is of international significance.

When considered as a component part of the Kenfig N.N.R. it is clear that the whole geomorphological complex of dunes supports a wider range of communities than at any other site in the region, and it would be a logical step to include the three dune areas described here within the National Nature Reserve boundary.

Appendix 1

Methods

Introduction

The sand dune areas marginal to Kenfig Pool & Dunes N.N.R. were surveyed between August and October 1989.

Field techniques, vegetation recording.

An initial examination of the vegetation facilitated division into more or less homogeneous stands. For each surveyed stand type a "typical" sample area was chosen, and vegetation recorded from within 2*2 m quadrats. With scrub communities very little data was collected as they were readily classified using the NVC keys.

In a few cases it was not possible to sample from the minimum of 5 stands recommended by the NVC field manual, but extensive cross-referencing of collected field data against numerous examples of each stand type suggests that the data collected are both reliable and representative.

Within the quadrats all vascular plants, bryophytes and lichens were identified and recorded using the ten point Domin cover abundance scale. Information on vegetation height, aspect, slope, bare ground area, soil depth and grazing have also been collected, together with a more general description of the vegetation physiognomy, successional relationships and management requirements.

Field techniques, Vegetation mapping

The vegetation maps have been constructed from a composite tracing of aerial photographs. The photographs used in this survey were 1:5000 monochromatic vertical photographs flown in July 1971 by Clyde Surveys Limited. Vegetation boundaries were marked on a set of uncontrolled composite photocopies of the 1971 photographs produced by Mid Glamorgan County Council, as well as on permatrace overlays where appropriate. Quadrat positions and obvious physical boundaries have also been included in the vegetation map.
The dunes at Sker Point were not covered by any aerial photographs known to N.C.C. South Wales region, and these have been mapped at a scale of 1:10000 using the appropriate ordnance survey map.

Vegetation analysis.

Quadrat records were used to construct a phytosociological Table for each vegetation type. These were then carefully compared with the NVC tables to provide a basis for the vegetation mapping. Wherever possible the dune noda have been identified to NVC sub-community level.

General information.

Additional information concerning the surveyed area has been obtained from the Kenfig Pool & Dunes N.N.R. warden, Mr S.J.Moon, the Kenfig Corporation Property Trustees, and Messrs R & A Evans of Sker Farm. Further information has been extracted from the authors unpublished research work at Kenfig N.N.R..
A completed standard site survey recording form is reproduced in Appendix 2.

Appendix 2.

Site name Kenfig N.N.R, peripheral dune areas. Area approx 105 ha

Grid reference SS805805 10km square SS78

Administrative unit Mid Glamorgan Ogwr Borough Council.

Source
Field Survey

Date of record
August - September 1989

Status NIL

Marine erosion 90% Accretion 5% Blowouts 5%

Dune type
At margin of large hindshore bay dune system (Kenfig N.N.R), on areas where bedrock lies above O.D.

Watercourses.
No flowing water, one semi-permanent small pond, and several which flood only in winter.

Sea defences
NIL

Mineral extraction

Previously large amount of sand extraction from area bordering site & Kenfig N.N.R. Now re-vegetated.

Dumping.
NIL

Grazing by stock. Sheep & Cattle.

Non stock grazing
Light-moderate grazing by rabbits and hares all year round.

Stock feeding
Winter feeding of hay only, confined to areas immediately adjacent to tracks. No agricultural improvement.

Evidence of fires
NIL

Erosion damage Light.
Vehicle damage Trials bikes cause moderate to heavy damage, but only locally and sporadically.

Development NIL

Golf Course
Total area - 90 ha
Area of site within course 40 ha

Forestry NIL

Scrub control NIL

Adjacent semi-natural vegetation
Maritime Cliff Grassland
Alnus glutinosa woodland, (banks of the Afon Cynffig).

Aerial photographs used for mapping
Flown by: Cylde Surveys ltd, on contract to Glamorgan County Council.
Date Flown: July 1971
Sortie No: -
Scale: 1:5000
Print Nos: 7158

Appendix 3

Site Bibliography

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Appendix 4.

Vegetation data.

Table 1. Limestone Wave Cut Platform Community.

NVC Community MC8 Festuca rubra - Armeria maritima maritime grassland, Armeria maritima sub-community.
NGR SS 791795
Altitude (approx metres a.o.d) 3.0

Sample Number	1	2	3	4	5	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cm)	10	8	9	11	10	
Bare Rock (%)	10	20	0	10	5	
Bare Sand (%)	70	60	50	70	70	
Soil Depth (cm)	0	0	0	0	0	
Armeria maritima	4	4	3	4	3	V
Glaux maritima	4	5	5	4	4	V
Festuca rubra	4	-	5	4	6	IV
Elymus farctus	3	-	4	5	3	IV
Agrostis stolonifera	4	5	3	-	-	III
Halimione portulacoides	-	-	1	-	-	I
Plantago maritima	-	-	-	-	1	I

Table 2. Shell Sand Strandline Community.

NVC Community SD6g Ammophila arenaria mobile dune community, Carex arenaria sub-community.

NGR SS 791795
Altitude (approx metres a.o.d) 4.0

Sample Number	6	7	8	9	10	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cm)	30	30	25	35	40	
Bare Sand (%)	75	80	80	80	60	
Soil Depth (cm)	0	0	0	0	0	
Ammophila arenaria	4	4	4	3	3	V
Eryngium maritimum	4	5	5	5	6	V
Carex arenaria	5	4	4	4	5	V
Honkenya peploides	2	3	3	4	3	V
Calystegia soldanella	3	2	-	1	1	IV
Elymus farctus	-	3	3	3	4	IV
Taraxacum officinale	-	3	2	3	3	IV

Table 3. Upper Storm Beach/Foredune Community.

NVC Community SD7 *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community.

NGR SS 791796
Altitude (approx metres a.o.d) 5.0

Sample Number	11	12	13	14	15	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	5	5	10	0	0	
Aspect (degrees)	100	90	100	-	-	
Herb Height (cm)	25	20	22	20	25	
Bare Beach Cobbles (%)	2	5	0	5	5	
Bare Sand (%)	5	0	0	5	10	
Soil Depth (cm)	0	0	0	0	0	
Festuca rubra	8	8	8	8	7	V
Ammophila arenaria	5	6	5	6	5	V
Achillea millefolium	4	4	3	1	1	V
Elymus farctus	3	4	4	3	3	V
Carex arenaria	3	3	1	4	3	V
Rubus caesius	4	1	2	3	3	V
Poa subcaerulea	-	2	3	3	3	IV
Potentilla reptans	3	-	3	4	4	IV
Plantago lanceolata	1	1	4	-	4	IV
Geranium molle	-	2	1	-	3	III
Galium verum	3	2	2	-	-	III
Leontodon hispidus	-	4	1	-	-	II
Ranunculus repens	-	3	2	-	-	II
Lotus corniculatus	-	3	-	-	1	II
Sanguisorba minor	-	-	1	-	-	I
Bellis perennis	-	-	2	-	-	I
Trifolium repens	-	-	2	-	-	I
Brachythecium rutabulum	-	2	2	-	3	III
Rhytidiadelphus triquetrus	-	2	-	-	-	I
Tortula sp.	-	-	3	-	-	I

Table 4. Fixed Dune Grassland Community.

NVC Community SD8b Festuca rubra - Galium verum fixed dune community.
Luzula campestris sub-communtity.

NGR SS 792795
Altitude (approx metres a.o.d). 8.0

Sample Number	16	17	18	19	20	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	20	20	25	15	15	
Aspect (degrees)	10	10	10	10	10	
Herb Height (cm)	6	6	7	7	6	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	3.5	4.2	3.5	4.0	3.0	
Festuca rubra	6	4	6	5	6	V
Lotus corniculatus	5	5	5	5	5	V
Poa subcaerulea	4	4	3	3	4	V
Hieracium pilosella	3	3	5	4	1	V
Thymus praecox	4	4	5	5	4	V
Holcus lanatus	4	3	3	3	3	V
Luzula campestris	3	3	3	3	3	V
Ononis repens	3	3	3	1	3	V
Rubus caesius	1	3	3	4	1	V
Ammophila arenaria	3	1	1	+	1	V
Hypochaeris radicata	3	1	-	1	3	IV
Trifolium repens	3	3	1	-	-	III
Senecio jacobaea	1	2	1	-	-	III
Leontodon autumnalis	1	1	-	1	-	III
Taraxacum officinale	1	1	-	-	1	III
Galium verum	-	1	2	-	1	III
Pteridium aquilinum	-	1	+	-	+	III
Carex arenaria	-	-	2	3	2	III
Rumex acetosella	1	1	-	-	-	II
Campanula rotundifolia	3	-	-	-	-	I
Bellis perennis	1	-	-	-	-	I
Anthoxanthum odoratum	3	-	-	-	-	I
Brachypodium sylvaticum	3	-	-	-	-	I
Centaurium erythraea	-	-	1	-	-	I
Linum catharticum	-	-	-	-	1	I
Galium saxatile	-	-	-	-	1	I
Hypnum cupressiforme	7	7	7	7	7	V
Pseudoscleropodium purum	3	3	-	3	3	IV
Dicranum scoparium	1	2	-	-	-	II

Table 5. Boulder Strewn Grassland Community.

NVC Community MC8 Festuca rubra - Armeria maritima maritime grassland, Plantago coronopus sub-community.
NGR SS 789797
Altitude (approx metres a.o.d) 4.0

Sample Number	21	22	23	24	25	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	5	0	5	0	0	
Aspect (degrees)	20	-	20	-	-	
Herb Height (cm)	3.0	4.0	2.0	4.0	2.5	
Beach Cobbles (%)	45	45	40	30	30	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	1.0	0.5	2.0	1.5	1.0	
Plantago coronopus	6	8	7	6	5	V
Festuca rubra	5	3	5	6	5	V
Carex arenaria	3	3	3	4	1	V
Poa subcaerulea	-	3	3	2	3	IV
Plantago lanceolata	3	-	1	2	-	III
Sedum acre	3	3	-	-	2	III
Honkenya peploides	3	-	2	-	-	II
Lotus corniculatus	1	-	-	-	-	I
Leontodon taraxacoides	-	-	1	-	-	I
Potentilla reptans	-	-	-	1	-	I
Galium verum	-	-	-	1	-	I
Elymus farctus	-	-	-	-	1	I
Tortula ruralis	6	6	4	6	5	V
Ceratodon purpureus	4	4	4	4	5	V

Table 6. Close Grazed Fixed Dune Grassland.

NVC Community SD8d Festuca rubra - Galium verum fixed dune community.
Ranunculus acris - Bellis perennis sub-community.
NGR SS 795803
Altitude (approx metres a.o.d) 10.0

Sample Number	26	27	28	29	30	31	
Reference Number	sk89	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	10	20	15	0	30	30	
Aspect (degrees)	25	5	5	-	5	10	
Herb Height (cm)	5	5	6	7	6	5	
Bare Sand (%)	0	0	0	0	0	0	
Soil Depth (cm)	4.0	-	5.5	-	4.0	6.5	
Festuca rubra	4	5	5	5	5	4	V
Poa subcaerulea	5	4	5	4	5	4	V
Lotus corniculatus	5	5	5	6	6	6	V
Carex caryophyllea	4	5	4	5	4	5	V
Bellis perennis	3	3	4	2	2	2	V
Trifolium repens	4	4	3	4	4	3	V
Galium verum	3	3	3	4	4	4	V
Plantago lanceolata	3	2	4	1	1	-	V
Holcus lanatus	1	3	3	-	1	4	V
Hypochaeris radicata	3	1	1	-	2	-	IV
Thymus praecox	+	3	2	4	-	4	IV
Plantago coronopus	3	1	1	1	-	-	IV
Leontodon autumnalis	3	3	-	3	-	3	IV
Ranunculus acris	-	1	3	1	-	1	IV
Achillea millefolium	3	3	-	-	-	-	II
Pimpinella saxifraga	1	1	-	-	-	-	II
Senecio jacobaea	-	1	-	1	-	-	II
Sanguisorba minor	-	1	-	1	-	-	II
Pteridium aquilinum	1	-	-	-	+	+	I
Campanula rotundifolia	1	-	-	-	-	-	I
Aira praecox	1	-	-	-	-	-	I
Rosa pimpinellifolia	-	2	-	-	-	-	I
Hieracium pilosella	-	1	-	-	-	-	I
Rumex acetosella	-	1	-	-	-	-	I
Rubus caesius	-	1	-	-	-	-	I
Euphrasia officinalis	-	-	1	-	-	-	I
Leontodon taraxacoides	-	-	-	-	-	3	I
Rhytidiadelphus triquetrus	7	4	6	7	6	-	V
Hypnum cupressiforme	1	5	5	-	5	5	V
Pseudoscleropodium purum	-	-	-	-	3	4	II
Eurynchium praelongum	-	1	-	-	-	-	I
Calliergon cuspidatum	-	-	1	-	-	-	I
Dicranum scoparium	-	-	-	-	-	1	I

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Table 7.

NGR SS 795803 Trifolium repens - Carex nigra dune slack.

NVC Community SD17a/MG11, Potentilla anserina dune slack / Festuca rubra - Agrostis stolonifera inundation grassland.

Sample Number	36	37	38	39	40	41	
Reference Number	sk89	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	-	
Herb Height (cm)	4	4	6	4	5	6	
Bare Sand (%)	0	0	0	0	0	0	
Soil Depth (cm) *							
Trifolium repens	7	6	5	7	7	5	V
Carex nigra	5	6	6	5	5	5	V
Lotus uliginosus	5	5	5	5	4	5	V
Agrostis stolonifera	5	5	5	5	4	5	V
Holcus lanatus	4	5	4	5	5	4	V
Festuca rubra	4	4	4	4	4	4	V
Poa subcaerulea	4	4	4	4	4	4	V
Ranunculus repens	4	4	3	4	3	4	V
Hydrocotyle vulgaris	4	4	4	4	3	3	V
Mentha aquatica	3	3	3	3	3	3	V
Juncus articulatus	3	3	3	3	3	3	V
Galium palustre	3	3	3	1	2	3	V
Cardamine pratensis	3	3	1	1	3	3	V
Bellis perennis	3	3	3	-	3	1	V
Cirsium arvense	-	1	1	-	1	1	IV
Lotus corniculatus	3	3	3	-	-	-	III
Prunella vulgaris	-	1	-	-	3	3	III
Anagallis tenella	-	-	-	1	3	1	III
Leontodon taraxacoides	-	-	1	1	-	1	III
Plantago lanceolata	1	-	3	-	-	-	II
Sagina nodosa	2	-	-	-	-	2	II
Salix repens	-	3	-	1	-	-	II
Trifolium pratense	-	-	3	3	-	-	II
Poa annua	4	-	-	-	-	-	I
Ranunculus flammula	2	-	-	-	-	-	I
Scirpus setaceus	1	-	-	-	-	-	I
Luzula campestris	-	1	-	-	-	-	I
Rumex acetosella	-	1	-	-	-	-	I
Taraxacum officinale	-	-	-	-	-	1	I
Cirsium vulgare	-	-	-	-	-	1	I
Calliergon cuspidatum	4	4	3	4	3	3	V

* Stratigraphic description of soil and sub-soil deposits.

0-3.5	cm	Very well humified iron stained peat, with little or no sand.
3.5-34.0	"	Well humified dark peat, sparse sand throughout.
34.0-40.0	"	Dune sand with flecks of well humified organic material.
40.0-70.0	"	Sand with frequent iron mottling.
70.0-85.0	"	Wet sand becoming slightly clayey at base.
85.0-93.0	"	Dune sand with increasing clay content towards bottom.
93.0-	"	Very heavy ferruginous boulder clay with 0.5 cm Pennant Sandstone clasts throughout.

Water table not reached at 120 cm on 9.9.89.

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Table 8. Dry Dune Slack Vegetation.

NVC Community SD16a Salix repens - Holcus lanatus dune slack.
Ononis repens sub-community.
NGR SS 790801
Altitude (approx metres a.o.d) 8.0

Sample Number	42	43	44	45	46	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cm)	4	5	4	4	5	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	5.5	5.5	6.0	5.5	5.5	
Salix repens	4	5	5	5	4	V
Hieracium pilosella	6	5	6	6	6	V
Prunella vulgaris	5	5	5	5	5	V
Lotus corniculatus	5	6	5	4	5	V
Carex flacca	5	5	4	5	5	V
Leontodon autumnalis	5	5	5	5	4	V
Festuca rubra	5	4	5	5	5	V
Trifolium pratense	4	4	5	5	5	V
Euphrasia officinalis	4	4	4	4	4	V
Leontodon taraxacoides	4	4	4	4	4	V
Linum catharticum	3	3	3	3	3	V
Ranunculus repens	3	2	2	3	3	V
Plantago lanceolata	4	1	1	2	4	V
Polygala vulgaris	1	1	1	1	3	V
Anagallis tenella	-	1	3	3	3	IV
Bellis perennis	-	1	1	1	3	IV
Taraxacum officinale	-	1	1	1	2	IV
Carex arenaria	2	-	3	3	3	IV
Poa subcaerulea	3	3	-	4	4	IV
Ononis repens	1	1	-	2	4	IV
Holcus lanatus	1	1	-	-	3	III
Luzula campestris	1	1	1	-	-	III
Dactylis glomerata	2	-	-	-	1	II
Centaurium eryhtraea	-	-	1	-	1	II
Spiranthes spiralis	-	1	-	-	-	I
Achillea millefolium	-	-	-	1	-	I
Rubus caesius (seedling)	-	-	-	-	1	I
Hydrocotyle vulgaris	-	-	-	-	1	I
Juncus articulatus	-	-	-	-	1	I
Epipactis palustris	-	-	-	-	1	I
Brachythecium rutabulum	4	4	4	4	4	V
Pseudoscleropodium purum	1	3	1	-	-	III
Calliergon cuspidatum	1	-	-	4	3	III
Lophocolea bidentata	-	-	-	-	1	I

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Table 9. Salix repens Dune Slack Vegetation.

NVC Community SD15 Salix repens - Calliergon cuspidatum dune slack vegetation.

NGR SS_795803
Altitude (approx metres a.o.d) 8.0

Sample Number	32	33	34	35		36	37	38	39	40	
Reference Number	sk89	sk89	sk89	sk89		sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0		0	0	0	0	0	
Aspect (degrees)	-	-	-	-		-	-	-	-	-	
Herb Height (cm)	20	20	25	20		10	15	12	10	14	
Bare Sand (%)	0	0	0	0		0	0	0	0	0	
Soil Depth (cm)	4.5	5.5	5.0	5.0		4.5	5.5	4.5	4.5	5.0	
Salix repens	7	7	7	7	V	3	2	3	4	3	V
Carex flacca	4	4	5	5	V	5	5	6	6	7	V
Lotus corniculatus	5	5	5	4	V	7	6	6	7	1	V
Agrostis stolonifera	4	5	4	4	V	4	4	4	5	5	V
Hydrocotyle vulgaris	3	4	5	4	V	3	3	4	3	4	V
Trifolium repens	2	5	4	5	V	4	4	5	4	6	V
Poa subcaerulea	4	4	5	5	V	4	4	4	4	4	V
Juncus articulatus	3	3	3	2	V	3	3	3	3	4	V
Prunella vulgaris	2	-	3	3	IV	4	4	5	4	3	V
Carex arenaria	2	3	3	1	V	3	1	3	3	-	IV
Festuca rubra	5	2	2	-	IV	4	5	5	4	3	V
Linum catharticum	1	-	1	2	IV	3	3	3	3	1	V
Leontodon autumnalis	-	1	1	-	III	3	3	3	3	3	V
Taraxacum officinale	1	2	-	1	IV	-	1	-	2	-	III
Cardamine pratensis	2	1	-	1	IV	-	-	-	-	-	-
Rubus caesius	1	-	3	3	IV	-	-	-	-	-	-
Senecio jacobaea	1	-	-	-	I	-	-	-	-	-	-
Epipactis palustris	-	1	-	-	I	-	-	-	-	-	-
Plantago lanceolata	-	-	1	-	I	4	-	1	-	-	III
Ranunculus repens	-	-	1	-	I	2	1	-	-	-	III
Trifolium pratense	3	-	-	-	I	-	-	3	-	-	I
Cerastium fontanum	-	-	-	-	I	1	1	-	-	-	III
Cirsium palustre	1	-	-	-	I	-	-	-	1	-	I
Plantago major	-	-	-	1	I	-	-	-	-	1	I
Cynosurus cristatus	-	-	-	1	I	-	-	-	-	-	-
Sagina nodosa	-	-	-	-	-	-	3	-	-	-	I
Calliergon cuspidatum	7	7	6	4	V	6	5	6	6	6	V
Brachythecium rutabulum	-	-	-	2	I	-	4	-	-	-	I
Pseudoscleropodium purum	-	-	-	-	-	-	2	1	-	-	III
Bryum pseudotriquetrum	-	-	-	-	-	3	2	-	-	-	III

Quadrats 32-35 represent the vegetation associated with more or less circular clones of Salix repens occuring in vegetation otherwise dominated by Carex flacca and Lotus corniculatus, (quadrats 36-40).

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Table 10. Herb Rich Salix repens Dune Slack Vegetation.

NVC Community SD15a Salix repens - Calliergon cuspidatum dune slack.
Carex nigra sub-community.

NGR SS 790800
Altitude (approx metres a.o.d) 7.0

Sample Number	47	48	49	50	51	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cm)	8	9	8	10	12	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	7.0	8.0	8.5	9.0	8.0	
Salix repens	5	5	5	6	6	V
Rannunculus repens	5	3	5	4	5	V
Hydrocotyle vulgaris	6	6	6	5	6	V
Carex nigra	5	5	5	4	4	V
Carex flacca	5	4	4	4	4	V
Trifolium repens	6	6	6	7	6	V
Trifolium fragiferum	4	5	4	4	4	V
Agrostis stolonifera	3	5	4	5	4	V
Mentha aquatica	4	3	4	3	4	V
Potentilla anserina	2	4	5	4	5	V
Taraxacum officinale	4	4	3	1	1	V
Galium palustre	3	3	3	3	3	V
Cardamine pratensis	3	3	1	3	1	V
Juncus articulatus	4	3	2	3	3	V
Equisetum palustre	3	3	3	3	3	V
Eleocharis palustris	-	3	3	4	5	IV
Leontodon autumnalis	4	4	-	4	-	III
Carex arenaria	-	-	1	3	3	III
Ranunculus flammula	-	-	1	-	1	II
Prunella vulgaris	4	-	-	-	-	I
Lotus corniculatus	2	-	-	-	-	I
Rubus caesius	1	-	-	-	-	I
Equisetum variegatum	1	-	-	-	-	I
Plantago lanceolata	-	-	1	-	-	I
Anagallis tenella	-	-	-	1	-	I
Calliergon cuspidatum	5	5	5	6	5	V

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Table 11. Agrostis stolonifera - Eleocharis quinqueflora Dune Slack Nodum.

NVC Community SD17 Potentilla anserina - Carex nigra dune slack.

NGR SS 795803
Altitude (approx metres a.o.d) 7.0

Sample Number	52	53	54	55	56	57	58	59	
Reference Number	sk89	sk89	sk89	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	-	-	-	
Herb Height (cm)	5	6	5	6	6	5	4	5	
Bare Sand (%)	0	0	0	0	0	0	0	0	
Soil Depth (cm)	11	12	12	12	13	12	12	13	
Agrostis stolonifera	5	5	5	5	5	5	5	5	V
Eleocharis quinqueflora	6	5	3	5	4	5	4	4	V
Carex nigra	3	5	6	5	6	5	6	6	V
Carex flacca	5	5	4	4	5	4	3	4	V
Trifolium fragiferum	5	6	4	5	5	4	4	4	V
Hydrocotyle vulgaris	5	5	5	6	6	5	6	5	V
Trifolium repens	4	4	5	5	4	5	7	7	V
Juncus articulatus	4	4	4	4	4	4	4	4	V
Leontodon autumnalis	4	3	4	4	4	5	4	3	V
Mentha aquatica	3	4	4	4	4	4	4	4	V
Ranunculus repens	3	4	4	4	4	4	3	4	V
Potentilla anserina	4	1	4	1	1	3	5	4	V
Cardamine pratensis	3	3	3	3	3	3	4	3	V
Poa subcaerulea	2	3	3	4	4	1	-	4	V
Ranunculus flammula	4	4	3	1	3	1	-	3	V
Carex serotina	3	4	-	3	4	3	3	3	V
Prunella vulgaris	3	3	-	1	4	4	-	-	IV
Anagallis tenella	1	3	-	2	1	3	-	-	IV
Galium palustre	2	2	2	-	-	1	1	2	IV
Lotus uliginosus	-	4	4	5	5	4	-	-	IV
Taraxacum officinale	-	-	1	-	1	1	4	1	IV
Equisetum palustre	-	-	1	-	-	1	1	2	III
Leontodon taraxacoides	-	1	-	3	1	-	-	-	III
Lotus corniculatus	-	-	-	-	1	4	-	3	II
Potentilla reptans	-	-	-	-	1	3	-	1	II
Plantago lanceolata	-	-	-	-	-	3	1	-	II
Sagina nodosa	-	-	-	1	-	-	-	-	I
Bellis perennis	-	-	-	-	1	-	-	-	I
Scirpus setaceus	-	-	-	-	-	1	-	-	I
Salix repens	-	-	-	-	-	-	-	2	I
Festuca rubra	-	-	-	-	-	-	-	1	I
Eleocharis palustris	-	-	-	-	-	-	-	1	I
Pulicaria dysenterica	-	-	-	-	+	-	-	-	I
Calliergon cuspidatum	5	5	5	6	5	5	5	5	V

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Table 12. *Potentilla anserina* - *Carex nigra* Dune Slack Community.

NVC Community SD17 *Potentilla anserina* - *Carex nigra* dune slack community.

NGR SS 795803
Altitude (approx metres a.o.d) 7.0

Sample Number	60	61	62	63	64	
Reference Number	sk89	sk89	sk89	sk89	sk89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cms)	14	12	16	15	14	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cms)	0	0	0	0	0	
Potentilla anserina	8	8	8	8	6	V
Equisetum palustre	6	6	5	5	6	V
Agrostis stolonifera	5	7	6	5	6	V
Ranunculus repens	5	4	3	6	6	V
Carex nigra	4	5	5	5	5	V
Juncus articulatus	3	3	3	3	3	V
Hydrocotyle vulgaris	2	3	3	3	3	V
Carex arenaria	3	-	1	2	3	IV
Trifolium fragiferum	5	1	-	-	1	III
Eleocharis palustris	-	-	1	3	2	III
Potentilla reptans	1	1	-	-	-	II
Leontodon autumnalis	1	-	-	-	1	II
Poa subcaerulea	-	1	3	-	-	II
Mentha aquatica	4	-	-	-	-	II
Ranunculus flammula	3	-	-	-	-	I
Bellis perennis	1	-	-	-	-	I
Taraxacum officinale	1	-	-	-	-	I
Holcus lanatus	1	-	-	-	-	I
Lotus corniculatus	-	1	-	-	-	I
Rubus caesius	-	1	-	-	-	I
Rumex acetosa	-	-	1	+	-	I
Calliergon cuspidatum	3	3	-	-	-	II

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Table 13. Wet Dune Heath community.

NVC Community H11 Calluna vulgaris - Carex arenaria dune heath.

NGR SS 791806
Altitude (approx metres a.o.d) 26.0

Sample Number	65	66	67	68	69		70	71	72	73	74	
Reference Number	pk89	pk89	pk89	pk89	pk89		pk89	pk89	pk89	pk89	pk89	
	Open Salix/Erica						Closed Salix/Erica/Calluna					
Slope (degrees)	0	0	0	0	0		0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-		-	-	-	-	-	
Herb Height (cm)	20	22	25	30	25		45	50	60	50	60	
Bare Sand (%)	0	0	0	0	0		0	0	0	0	0	
Soil Depth (cm)	5.0	3.0	5.0	5.0	5.0		6.0	5.0	4.0	4.0	4.0	
Salix repens	8	8	9	6	9	V	7	8	6	7	3	V
Erica tetralix	5	5	5	5	5	V	6	3	5	3	4	V
Potentilla erecta	3	4	3	5	2	V	3	4	1	1	3	V
Lotus uliginosus	4	4	3	4	4	V	3	-	1	-	-	III
Juncus conglomeratus	5	3	1	1	1	V	-	-	2	1	3	IV
Carex nigra	1	3	4	4	3	V	1	-	1	1	-	IV
Carex arenaria	3	4	2	4	-	V	1	3	2	1	-	IV
Ophioglossum vulgatum	1	2	1	-	3	IV	-	1	1	-	-	III
Agrostis stolonifera	3	3	4	3	-	IV	3	-	-	-	-	I
Calluna vulgaris	-	-	-	5	4	III	7	7	8	8	8	V
Cirsium palustre	1	1	-	-	1	III	1	-	1	1	-	IV
Holcus lanatus	1	1	-	-	-	III	2	-	-	-	-	I
Hydrocotyle vulgaris	2	2	-	-	2	IV	-	-	-	-	-	-
Equisetum palustre	-	-	1	1	-	III	-	-	-	-	-	-
Nardus stricta	1	-	-	-	-	I	-	-	1	1	-	III
Anthoxanthum odoratum	1	-	-	-	-	I	-	-	-	-	-	-
Salix caprea	+	+	-	-	+	IV	-	-	-	-	-	-
Molinia caerulea	-	-	-	-	+	I	-	-	-	-	-	-
Rubus caesius	-	-	-	-	-	-	-	-	1	-	-	I
Pseudoscleropodium purum	4	8	6	5	10	V	4	6	5	-	4	V
Rhytidiadelphus squarrosus	8	5	7	4	-	V	-	6	4	3	-	IV
Rhytidiadelphus triquetrus	7	4	4	4	-	V	4	3	-	-	3	IV
Eurynchium praelongum	-	-	-	-	-	-	4	3	2	3	3	V
Parmelia physodes	-	-	-	-	-	-	1	-	-	-	6	III
Lophocolea bidentata	-	-	-	-	-	-	-	2	-	-	-	I
Dicranum scoparium	-	-	-	-	-	-	1	-	-	-	-	I

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Table 14. Fixed Dune Grassland Community.

NVC Community SD8a Festuca rubra - Galium verum fixed dune community. Typical sub-community.

NGR SS 799805
Altitude (approx metres a.o.d) 35.0

Reference Number	sk89	sk89	sk89	sk89	sk89	sk89	
Sample Number	75	76	77	78	79	80	
Slope (degrees)	5	2	5	15	10	10	
Aspect (degrees)	160	250	230	0	10	0	
Herb Height (cm)	20	25	22	25	20	20	
Bare Sand (%)	0	0	0	0	0	0	
Soil Depth (cm)	2.5	4.0	3.0	5.0	8.0	5.2	
Festuca rubra	8	9	8	8	7	8	V
Rubus caesius	5	6	5	6	6	6	V
Ononis repens	5	5	5	5	4	3	V
Plantago lanceolata	2	4	4	4	5	4	V
Anthoxanthum odoratum	4	4	4	4	5	3	V
Poa subcaerulea	4	4	4	4	4	4	V
Holcus lanatus	3	3	3	4	5	5	V
Lotus corniculatus	4	3	4	3	4	4	V
Galium verum	3	4	4	3	3	3	V
Carex arenaria	1	3	3	3	3	3	V
Ammophila arenaria	3	1	3	1	1	1	V
Vicia sativa	1	1	+	1	2	1	V
Thymus praecox	3	3	3	3	3	-	V
Hypochaeris radicata	4	-	4	1	1	1	V
Rosa pimpinellifolia	-	-	1	2	-	1	III
Hieracium pilosella	3	-	1	-	-	-	II
Anthyllis vulneraria	-	3	1	-	-	-	II
Cerastium fontanum	-	1	2	-	-	-	II
Sanguisorba minor	1	-	-	-	1	-	II
Luzula campestris	-	-	1	-	1	-	II
Galium saxatile	-	-	1	-	-	1	II
Hypericum perforatum	-	-	-	3	1	-	II
Senecio jacobaea	-	1	-	-	-	-	I
Polygala vulgaris	-	1	-	-	-	-	I
Campanula rotundifolia	-	-	1	-	-	-	I
Centaurium erythraea	-	-	-	-	1	-	I
Veronica chamaedrys	-	-	-	-	1	-	I
Eurynchium praelongum	3	3	1	3	3	3	V
Hypnum cupressiforme	3	3	4	-	1	3	V
Pseudoscleropodium purum	5	4	4	1	-	3	V
Lophocolea bidentata	3	-	-	-	1	-	II
Amblystegium serpens	3	-	-	-	-	-	I
Dicranum scoparium	3	-	-	-	-	-	I
Plagiomnium undulatum	-	2	-	3	-	-	II
Cladonia rangiformis	-	-	3	-	-	-	I
Polytrichum commune	-	-	1	-	-	-	I

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Table 15. Bracken Dominated Dune Grassland.

NGR SS 827611
Altitude (approx metres a.o.d) 40.0

Sample Number	1	2	3	4	5	6	
Reference Number	ws89	ws89	ws89	ws89	ws89	ws89	
Slope (degrees)	5	5	5	5	5	10	
Aspect (degrees)	175	180	160	185	190	170	
Herb Height (cm)	50	45	60	55	40	45	
Bare Sand (%)	0	0	0	0	0	0	
Soil Depth (cm)	20.0	25.0	21.0	20.0	23.0	22.0	
Pteridium aquilinum	10	10	9	10	10	10	V
Arrhenatherum elatius	5	5	5	5	5	4	V
Convolvulus arvensis	4	3	3	4	2	5	V
Galium aparine	3	3	3	1	-	-	IV
Urtica dioica	-	-	2	1	-	3	III
Agrostis capillaris	-	-	-	1	1	-	II
Rubus fruticosus	4	-	-	-	-	-	I
Hyacinthoides non-scriptus	-	2	-	-	-	-	I
Holcus lanatus	-	-	-	-	-	3	I
Lathyrus pratensis	-	-	-	-	-	1	I
Eurynchium praelongum	-	-	-	1	3	-	II

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Table 16. Fixed Dune Grassland.

NVC Community MG1 Arrhenatheretum elatioris community. Urtica dioica subcommunity.

NGR SS 809823
Altitude (approx metres a.o.d) 25.0

Sample Number	7	8	9	10	11	
Reference Number	ws89	ws89	ws89	ws89	ws89	
Slope (degrees)	3	2	5	2	0	
Aspect (degrees)	140	120	125	130	-	
Herb Height (cm)	50	45	50	60	60	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	5	5	6	5	4	
Arrhenatherum elatius	9	8	9	5	6	V
Cirsium vulgare	2	3	3	3	-	IV
Urtica dioica	3	6	4	-	-	III
Lathyrus pratensis	1	3	-	1	-	III
Holcus lanatus	4	-	-	5	3	III
Heracleum sphondylium	4	-	1	-	-	II
Dactylis glomerata	1	-	-	8	-	II
Anthoxanthum odoratum	2	-	-	-	3	II
Agrostis capillaris	1	-	-	-	3	II
Ranunculus repens	1	-	-	-	3	II
Festuca rubra	-	-	-	5	6	II
Potentilla reptans	3	-	-	-	-	I
Rubus fruticosus	-	3	-	-	-	I
Calystegia sepium	-	-	5	-	-	I
Galium verum	-	-	-	1	-	I
Artemisia vulgaris	-	-	-	1	-	I
Plantago lanceolata	-	-	-	-	1	I
Vicia sativa	-	-	-	-	1	I
Achillea millefolium	-	-	-	-	1	I

Additional species recorded outside sample area at low cover values: Agrimonia eupatorium, Allium vineale, Epilobium hirsutum, Geranium pratense, Rumex acetosa and Tragopogon pratensis.

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Table 17. Fixed Dune Grassland Community.

NVC Community. Transitional types, see text.

NGR SS 809821 (quadrats 12-16), 802824 (quadrats 50-53).
Altitude (approx metres a.o.d) 35.0 (quadrats 12-16), 30.0 (quadrats 50-53).

Sample Number	12	13	14	15	16	54	55	56		50	51	52	53	
Reference Number	ws 89	ws 89	ws 89	ws 89	ws 89	ws 89	ws 89	ws 89		ws 89	ws 89	ws 89	ws 89	
Slope (degrees)	10	5	5	0	2	5	5	0		5	5	5	-	
Aspect (degrees)	170	170	180	-	160	180	180	-		10	40	50	-	
Herb Height (cm)	25	25	30	22	20	25	30	32		15	20	25	17	
Bare Sand (%)	0	0	0	0	0	0	0	0		0	0	0	0	
Soil Depth (cm)	10	15	12	12	10	10	8	9		10	11	8	10	
Festuca rubra	8	8	6	7	8	8	8	7	V	7	8	8	7	V
Poa subcaerulea	5	5	7	5	6	4	4	4	V	3	4	4	3	V
Carex arenaria	3	2	4	4	3	2	3	4	V	3	3	3	3	V
Plantago lanceolata	1	3	3	3	3	3	3	3	V	4	4	5	4	V
Galium verum	1	3	3	2	3	3	3	3	V	5	3	3	3	V
Agrostis capillaris	3	3	3	3	3	2	3	3	V	3	3	3	-	IV
Helichotrichon pubescens	4	4	4	5	4	4	5	5	V	2	1	-	-	III
Trisetum flavescens	3	4	2	3	1	-	-	-	IV	-	-	1	1	III
Convolvulus arvensis	3	4	3	4	3	5	6	3	V	-	-	-	-	-
Vicia sativa	1	3	3	3	3	1	1	3	V	-	-	-	-	-
Holcus lanatus	4	3	1	3	+	3	3	-	V	3	-	-	-	I
Arrhenatherum elatius	3	-	1	5	3	5	3	-	IV	1	1	-	-	III
Achillea millefolium	2	2	1	-	3	-	-	-	III	-	-	-	1	I
Urtica dioica	3	3	-	1	-	4	-	-	III	-	-	-	-	-
Senecio jacobaea	-	-	1	1	4	-	-	-	II	-	1	-	1	III
Rubus caesius	+	2	2	-	-	-	-	-	II	-	-	-	-	-
Dactylis glomerata	+	4	-	-	-	4	-	-	II	-	-	-	-	-
Artemisia vulgaris	-	1	-	-	-	-	-	-	I	-	-	-	-	-
Luzula campestris	-	-	-	-	-	-	-	2	I	-	-	-	-	-
Galium saxatile	-	-	-	-	-	-	-	1	I	-	-	-	-	-
Taraxacum officinale	-	-	1	-	-	-	-	-	I	1	1	-	-	III
Anthoxanthum odoratum	-	-	-	1	-	-	-	6	II	7	6	5	7	V
Veronica chamaedrys	-	-	-	1	-	3	-	-	II	-	-	-	-	-
Eurynchium praelongum	3	1	3	-	-	-	-	-	II	4	4	3	-	IV
Pseudoscleropodium purum	1	2	-	-	-	1	3	4	IV	-	5	6	7	IV
Plagiomnium undulatum	3	3	-	-	-	1	-	-	III	3	-	3	-	III
Hypnum jettlandicum	1	1	-	-	-	-	-	-	II	-	-	-	-	-
Thymus praecox	-	-	-	-	-	-	-	-	-	-	1	3	3	IV
Hieracium pilosella	-	-	-	-	-	-	-	-	-	-	1	-	1	III
Leontodon hispidus	-	-	-	-	-	-	-	-	-	1	-	-	-	I
Quercus robur (seedling)	-	-	-	-	-	-	-	-	-	-	1	-	-	I
Hypochaeris radicata	-	-	-	-	-	-	-	-	-	-	-	1	-	I
Lophocolea bidentata	-	-	-	-	-	-	-	-	-	-	-	1	1	I
Lotus corniculatus	-	-	-	-	-	-	-	-	-	-	-	-	1	I
Rosa pimpinellifolia	-	-	-	-	-	-	-	-	-	-	-	-	2	I
Anthyllis vulneraria	-	-	-	-	-	-	-	-	-	-	-	-	-	I

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Table 18. Fixed Dune Grassland Community.

NVC Community. SD 8a Festuca rubra - Galium verum fixed dune community.
Typical sub-community.

NGR SS 817826 (quadrats 17-18), SS811824 (quadrats 41-43).
Altitude (approx metres a.o.d) 20.0

Sample Number	17	18	41	42	43	
Reference Number	ws89	ws89	ws89	ws89	ws89	
Slope (degrees)	0	15	20	25	20	
Aspect (degrees)	-	160	180	175	5	
Herb Height (cm)	20	2	18	22	20	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	5.0	5.0	5.0	6.0	5.5	
Festuca rubra	8	8	8	8	7	V
Poa subcaerulea	4	3	4	4	4	V
Galium verum	3	4	4	3	3	V
Carex arenaria	3	3	3	4	3	V
Plantago lanceolata	4	1	3	-	4	IV
Rubus caesius	3	1	3	-	4	IV
Senecio jacobaea	+	1	1	1	1	IV
Anthoxanthum odoratum	-	-	3	5	5	III
Trisetum flavescens	-	-	4	3	3	III
Ononis repens	-	-	-	3	4	II
Ammophila arenaria	-	1	-	-	1	II
Rosa pimpinellifolia	1	2	-	-	-	II
Arrhenatherum elatius	2	1	-	-	-	II
Lotus corniculatus	1	-	-	-	1	II
Thymus praecox	-	3	-	-	-	I
Anthyllis vulneraria	-	1	-	-	-	I
Asperula cynanchica	-	1	-	-	-	I
Hypochaeris radicata	-	1	-	-	-	I
Briza media	-	-	-	2	-	I
Agrostis capillaris	-	-	-	2	-	I
Holcus lanatus	-	-	-	-	4	I
Polypodium vulgare	-	-	-	-	2	I
Hieracium pilosella	-	-	-	-	1	I
Hypnum cupressiforme	5	4	4	5	-	IV
Pseudoscleropodium purum	4	1	-	4	6	IV
Brachythecium albicans	-	3	-	-	-	I
Cladonia pocillum	-	1	-	-	-	I
Plagiomnium undulatum	-	-	-	-	1	I

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Table 18a. Target notes for disturbed ground adjacent to railway.

NGR SS 806827
Altitude (approx metres a.o.d) 13.0

Sample Number	19
Reference Number	ws89
Sample area (metres)	5
Slope (degrees)	0
Aspect (degrees)	-
Herb Height (cm)	20
Bare Sand (%)	0
Soil Depth (cm)	5.0
Festuca rubra	6
Arrhenatherum elatius	5
Holcus lanatus	4
Poa subcaerulea	4
Pastinaca sativa	4
Galium verum	3
Potentilla reptans	3
Vicia sativa	3
Hypericum tetrapterum	3
Equisetum arvense	3
Plantago lanceolata	3
Rubus caesius	3
Pulicaria dysenterica	3
Carex hirta	2
Dactylis glomerata	2
Heracleum sphondylium	2
Lotus corniculatus	2
Senecio jacobaea	2
Cirsium vulgare	2
Arctium minus	1
Centaurium erythraea	1
Lolium perrene	1
Anacamptis pyramidalis	1
Centaurea nigra	1
Rosa canina	1
Tussilago farfara	1
Chrysanthemum leucanthemum	1
Carex ovalis	1
Trisetum flavescens	1
Tragopogon pratensis	1
Juncus inflexus	1
Ulex europaeus	+

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Table 19. Salix repens - Eupatorium cannabinum nodum.

NVC Community SD15c Salix repens - Calliergon cuspidatum dune slack.
Carex flacca - Pulicaria dysenterica sub-community.

NGR SS 808825
Altitude (approx metres a.o.d) 16.0

Sample Number	20	21	22	23	24	
Reference Number	ws89	ws89	ws89	ws89	ws89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cm)	70	65	70	55	50	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	15.0	12.0	20.0	15.0	10.0	
Salix repens	8	5	6	6	7	V
Rubus caesius	7	8	7	6	8	V
Eupatorium cannabinum	4	5	5	4	4	V
Mentha aquatica	4	4	4	3	4	V
Juncus inflexus	4	4	4	4	3	V
Arrhenatherum elatius	3	3	3	3	2	V
Holcus lanatus	2	3	3	4	3	V
Carex flacca	3	3	3	3	3	V
Poa subcaerulea	3	3	3	3	3	V
Centuarea scabiosa	3	3	4	4	1	V
Cirsium palustre	3	3	1	3	3	V
Galium palustre	3	1	1	3	1	V
Lathyrus pratensis	1	1	1	3	2	V
Rumex acetosa	1	1	1	1	3	V
Glechoma hederacea	5	-	2	3	2	IV
Pulicaria dysenterica	3	4	4	-	4	IV
Carex nigra	3	2	2	-	-	III
Epilobium palustre	2	-	-	1	1	III
Festuca rubra	-	-	3	1	2	III
Carex arenaria	-	-	2	3	2	III
Agrimonia eupatorium	-	-	1	1	1	III
Cirsium arvense	1	-	-	1	-	II
Potentilla reptans	-	1	1	-	-	II
Carex hirta	-	1	1	-	-	II
Arctium minus	-	-	-	1	1	II
Cerastium fontanum	-	-	1	-	-	I
Dactylorhiza majalis	-	-	-	1	-	I
Achillea ptarmica	-	-	-	-	3	I
Equisetum arvense	-	-	-	-	1	I
Hypericum tetrapterum	-	-	-	-	1	I
Eurynchium praelongum	10	3	5	8	3	V
Plagiomnium punctatum	4	5	5	1	-	IV
Brachythecium rutabulum	3	3	3	3	-	IV
Pseudoscleropodium purum	-	-	2	-	9	II
Plagiomnium affine	-	-	3	-	-	I
Pellia endivifolia	-	-	3	-	-	I

Kenfig Pool & Dunes N.N.R. - Water Street Dunes.

Table 20. Tall Herb Dune Slack Communities

NVC Community. See text.

NGR SS 807826
Altitude (metres a.o.d) c 15.0

Sample Number	25	26	27	28	29	30	31	32	
Reference Number	ws89	ws89	ws89	ws89	ws89	ws89	ws89	ws89	
Slope (degrees)	0	0	0	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	-	-	-	
Herb Height (cm)	50	45	55	35	40	35	30	40	
Bare Sand (%)	0	0	0	0	0	0	0	0	
Soil Depth (cm)	15	15	20	30	30	22	20	25	
Juncus inflexus	5	5	6	6	5	5	5	5	V
Hydrocotyle vulgaris	8	7	8	8	6	6	5	5	V
Equisetum palustre	4	5	6	6	8	7	6	6	V
Lychnis flos-cuculi	4	4	6	6	5	7	4	4	V
Lotus uliginosus	4	4	4	5	5	5	5	5	V
Cirsium palustre	4	5	4	3	4	1	4	3	V
Eupatorium cannabinum	4	5	4	4	3	4	4	4	V
Salix repens	4	3	5	4	4	5	4	3	V
Epilobium palustre	3	3	4	3	3	3	3	3	V
Galium palustre	3	3	3	3	3	3	2	3	V
Carex panicea	2	2	3	2	3	3	3	3	V
Angelica sylvestris	5	3	3	1	1	1	1	3	V
Pulicaria dysenterica	6	5	4	4	4	4	-	4	V
Eriophorum angustifolium	-	1	4	4	3	3	3	3	V
Apium graveolens	1	-	1	1	1	-	-	1	IV
Hypericum tetrapterum	2	1	-	1	3	3	2	-	IV
Carex nigra	3	3	2	-	3	-	-	-	III
Lathyrus pratensis	-	-	1	1	-	1	-	-	III
Juncus acutiflorus	4	5	-	-	-	-	-	-	II
Rubus caesius	3	3	-	-	-	-	-	-	II
Fragaria vesca	1	1	-	-	-	1	-	-	II
Dactylorhiza majalis	1	1	-	1	-	-	-	-	II
Vicia sativa	1	-	1	1	-	-	-	-	II
Caltha palustris	-	1	-	-	1	-	-	-	II
Epipactis palustris	-	-	4	-	-	-	-	4	II
Rumex obtusifolius	1	-	-	-	-	-	-	-	I
Calliergon cuspidatum	10	10	10	10	10	10	9	10	V
Rhizomnium punctatum	3	3	3	3	3	3	-	2	V
Pseudoscleropodium purum	-	4	-	-	-	1	5	4	III
Dicranum scoparium	-	-	-	-	-	-	4	3	II
Brachythecium rutabulum	-	-	-	-	-	-	4	-	I

Kenfig Pool & Dunes N.N.R. - Water Street Dunes

Table 21. Salix repens - Agrimonia eupatorium nodum.

NVC Community. Herb rich SD15a Salix repens - Calliergon cuspidatum dune slack. Carex nigra sub-community.

NGR SS 806826
Altitude (approx metres a.o.d) 15.0

Sample Number	33	34	35	36	
Reference Number	ws89	ws89	ws89	ws89	
Slope (degrees)	0	0	0	0	
Aspect (degrees)	-	-	-	-	
Herb Height (cm)	50	55	60	45	
Bare Sand (%)	0	0	0	0	
Soil Depth (cm)*					
Salix repens	8	9	8	8	V
Rubus caesius	7	7	7	7	V
Hydrocotyle vulgaris	5	7	5	5	V
Hypericum tetrapterum	1	4	4	5	V
Carex nigra	4	3	3	3	V
Lotus uliginosus	3	3	4	3	V
Cirsium palustre	1	5	4	4	V
Angelica sylvestris	1	4	4	4	V
Equisetum palustre	3	3	3	1	V
Epilobium palustre	2	3	3	2	V
Pulicaria dysenterica	3	4	1	1	V
Agrimonia eupatorium	4	1	3	1	V
Eupatorium cannabinum	2	3	3	1	V
Centaurea scabiosa	4	4	4	-	IV
Mentha aquatica	4	3	-	3	IV
Carex panicea	-	3	3	3	IV
Vicia tetrasperma	-	1	1	1	IV
Cirsium arvense	4	1	-	-	III
Lathyrus pratensis	1	1	-	-	III
Senecio jacobaea	1	-	-	1	III
Phragmites australis	-	-	1	3	III
Galium palustre	5	-	-	-	I
Epipactis palustris	1	-	-	-	I
Potentilla reptans	1	-	-	-	I
Filipendula ulmaria	-	1	-	-	I
Juncus inflexus	-	-	3	-	I
Festuca rubra	-	-	-	3	I
Fragaria vesca	-	-	-	3	I
Viola hirta	-	-	-	1	I
Potentilla erecta	-	-	-	1	I
Betula pubescens	-	-	+	-	-
Calliergon cuspidatum	5	5	6	6	V
Pseudoscleropodium purum	4	4	6	7	V
Brachythecium rutabulum	5	5	6	6	V
Lophocolea bidentata	-	-	4	-	I

Soil Stratigraphy (cm).		
	0 - 4.0	Partially humified plates of black peat with much living root material.
	4.0 - 15.0	Solid compacted well humified peat.
	15.0 - 21.0	Dune sand stained with much organic material.
	32.0	Water Table
	50.0	Heavy boulder clay.

Kenfig Pool & Dunes N.N.R. - Water Street Dunes

Table 22. Centaurea scabiosa - Carices nodum.

NVC Community. Herb rich SD15a Salix repens - Calliergon cuspidatum dune slack. Carex nigra sub-community.

NGR SS 806826
Altitude (approx metres a.o.d) 15.0

Sample Number	37	38	39	40	
Reference Number	ws89	ws89	ws89	ws89	
Slope (degrees)	0	0	0	0	
Aspect (degrees)	-	-	-	-	
Herb Height (cm)	25	22	20	26	
Bare Sand (%)	0	0	0	0	
Soil Depth (cm)*					
Salix repens	5	6	6	6	V
Centaurea scabiosa	7	6	6	3	V
Hydrocotyle vulgaris	6	6	5	5	V
Carex nigra	6	6	5	5	V
Angelica sylvestris	4	5	5	5	V
Cirsium palustre	4	5	4	5	V
Rubus caesius	4	4	5	6	V
Carex panicea	5	4	3	3	V
Lotus uliginosus	4	4	4	4	V
Festuca rubra	4	4	4	4	V
Hypericum tetrapterum	4	3	4	3	V
Equisetum palustre	3	3	4	4	V
Plantago lanceolata	3	3	4	1	V
Epipactis palustris	4	3	3	3	V
Ranunculus repens	3	3	3	1	V
Agrimonia eupatorium	1	3	1	1	V
Pulicaria dysenterica	2	2	-	1	IV
Vicia tetrasperma	1	1	-	1	IV
Poa subcaerulea	-	-	3	2	III
Phragmites australis	-	-	3	2	III
Juncus inflexus	1	-	-	-	I
Lathyrus pratensis	-	-	1	-	I
Mentha aquatica	-	-	-	5	I
Dactylorhiza majalis	-	-	-	1	I
Eupatorium cannabinum	-	-	-	1	I
Holcus lanatus	-	-	-	1	I
Juncus acutus	-	-	-	+	-
Pseudoscleropodium purum	8	8	4	4	V
Brachythecium rutabulum	4	4	6	8	V
Calliergon cuspidatum	-	4	6	6	IV

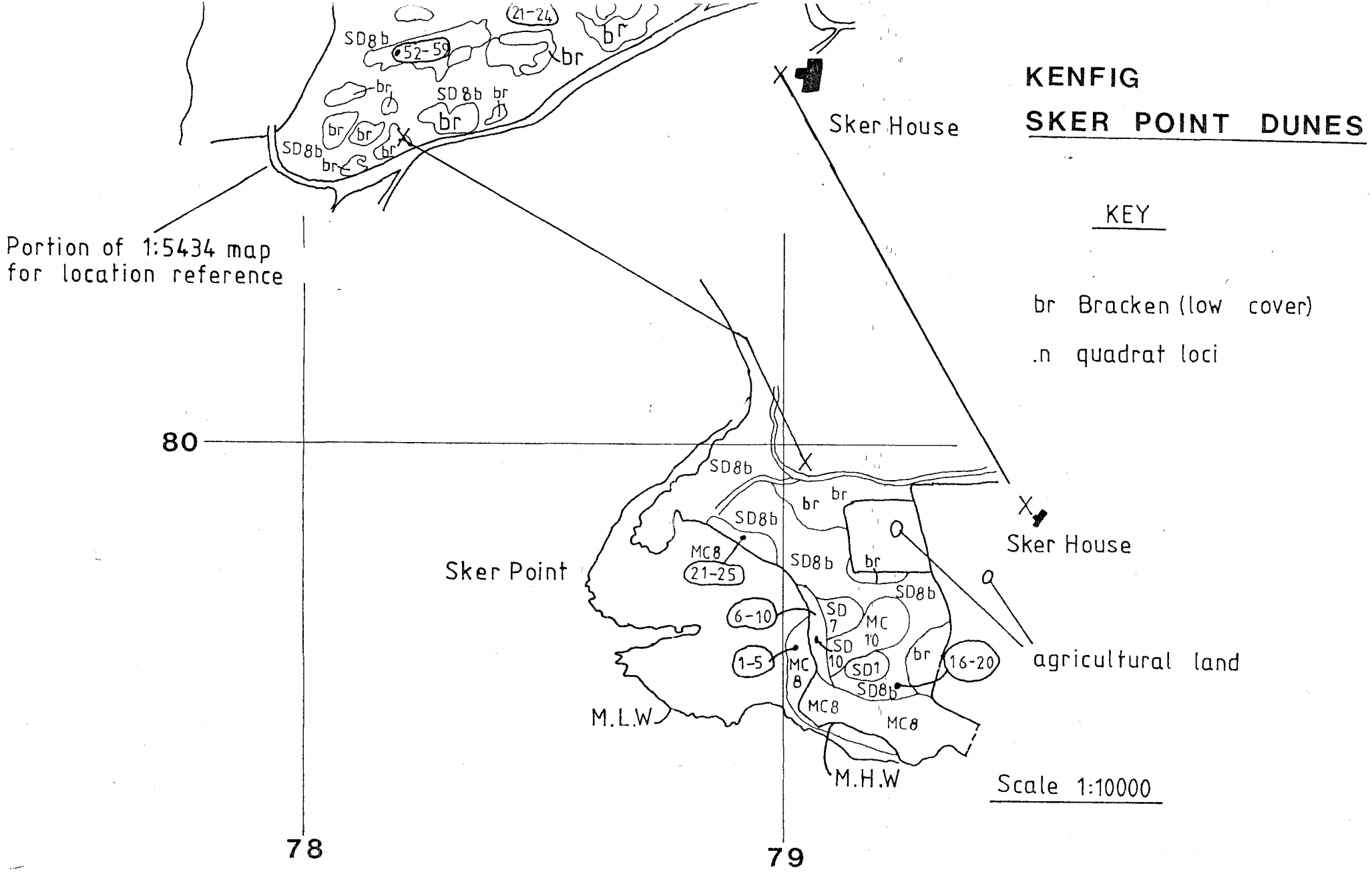
Soil Stratigraphy.		
	0 - 3.0	Partially humified plates of black peat with much living root material.
	3.0 - 14.0	Solid compacted well humified peat.
	14.0 - 19.0	Dune sand stained with much organic material.
	30.0	Water Table
	50.0	Heavy boulder clay.

Kenfig Pool & Dunes N.N.R - Water Street Dunes

Table 23. Fixed Dune Grassland Community.

NVC Community SD12a Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland. Anthoxanthum odoratum sub-community.
NGR SS 809826
Altitude (approx metres a.o.d) 13.0

Sample Number	45	46	47	48	49	
Reference Number	ws89	ws89	ws89	ws89	ws89	
Slope (degrees)	0	0	0	0	0	
Aspect (degrees)	-	-	-	-	-	
Herb Height (cm)	20	25	22	25	20	
Bare Sand (%)	0	0	0	0	0	
Soil Depth (cm)	15.0	12.0	10.0	5.0	5.0	
Festuca ovina	7	7	7	6	7	V
Anthoxanthum odoratum	4	7	5	7	6	V
Poa subcaerulea	4	4	3	4	4	V
Agrostis capillaris	3	3	3	3	3	V
Galium verum	3	3	3	4	2	V
Plantago lanceolata	2	3	3	3	3	V
Senecio jacobaea	1	3	2	1	1	V
Vicia sativa	1	1	1	2	1	V
Holcus lanatus	5	3	5	3	-	IV
Lathyrus pratensis	3	3	3	3	-	IV
Achillea millefolium	4	3	-	3	3	IV
Carex arenaria	-	-	3	3	3	III
Trisetum favescens	-	-	2	3	-	II
Galium saxatile	-	1	-	2	-	II
Rubus caesius	-	-	-	1	1	II
Veronica chamaedrys	1	-	-	-	-	I
Linaria vulgaris	1	-	-	-	-	I
Helichotrichon pubescens	-	-	-	-	3	I
Carduus nutans	+	-	-	+	-	-
Dactylis glomerata	-	+	-	-	-	-
Pseudoscleropodium purum	-	-	3	4	4	III
Plagiomnium punctatum	-	-	3	-	3	II
Eurynchium praelongum	4	-	-	-	-	I



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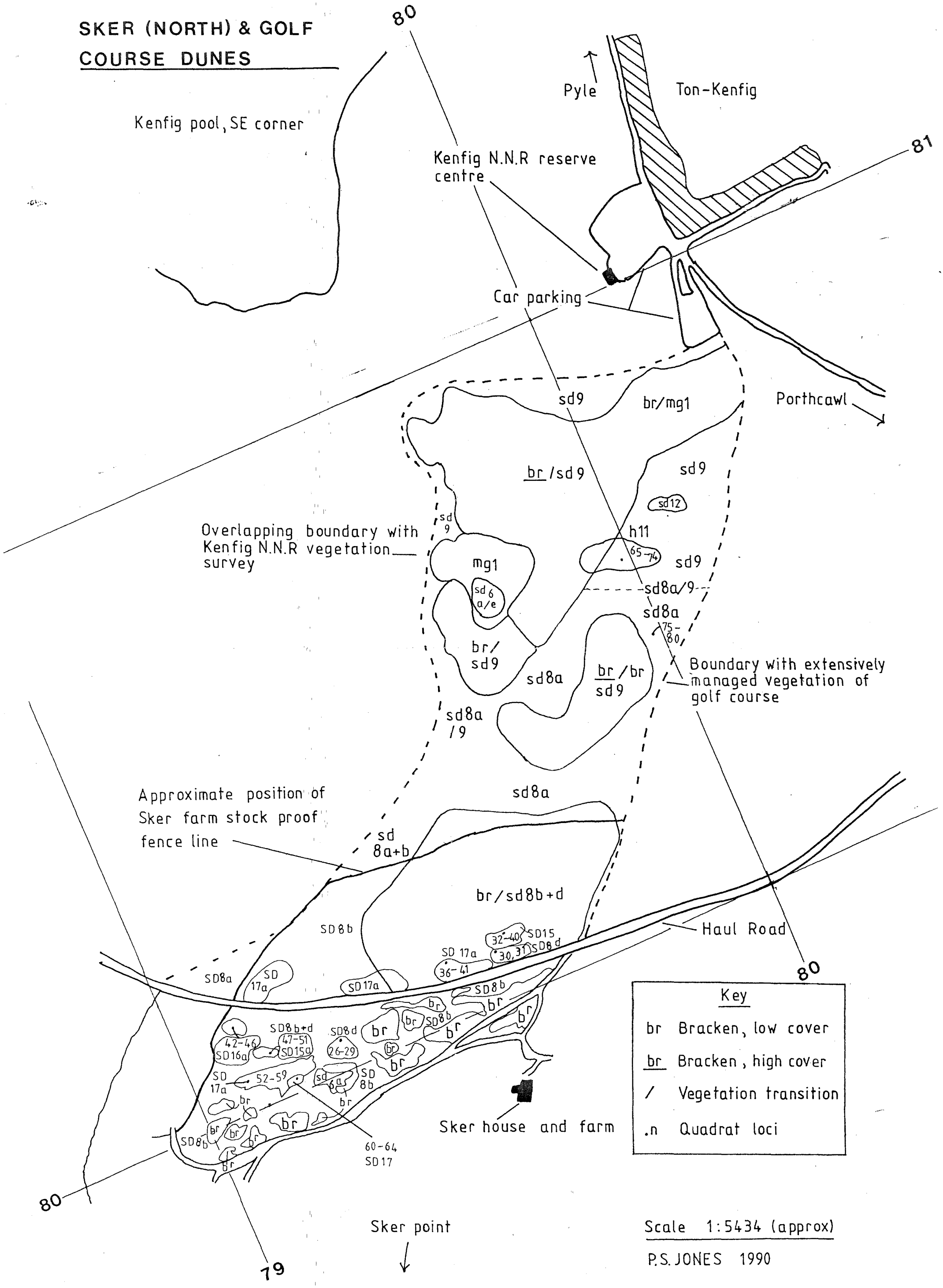
SKER (NORTH) & GOLF COURSE DUNES



Key	
br	Bracken, low cover
br	Bracken, high cover
/	Vegetation transition
.n	Quadrat loci

Scale 1:5434 (approx)

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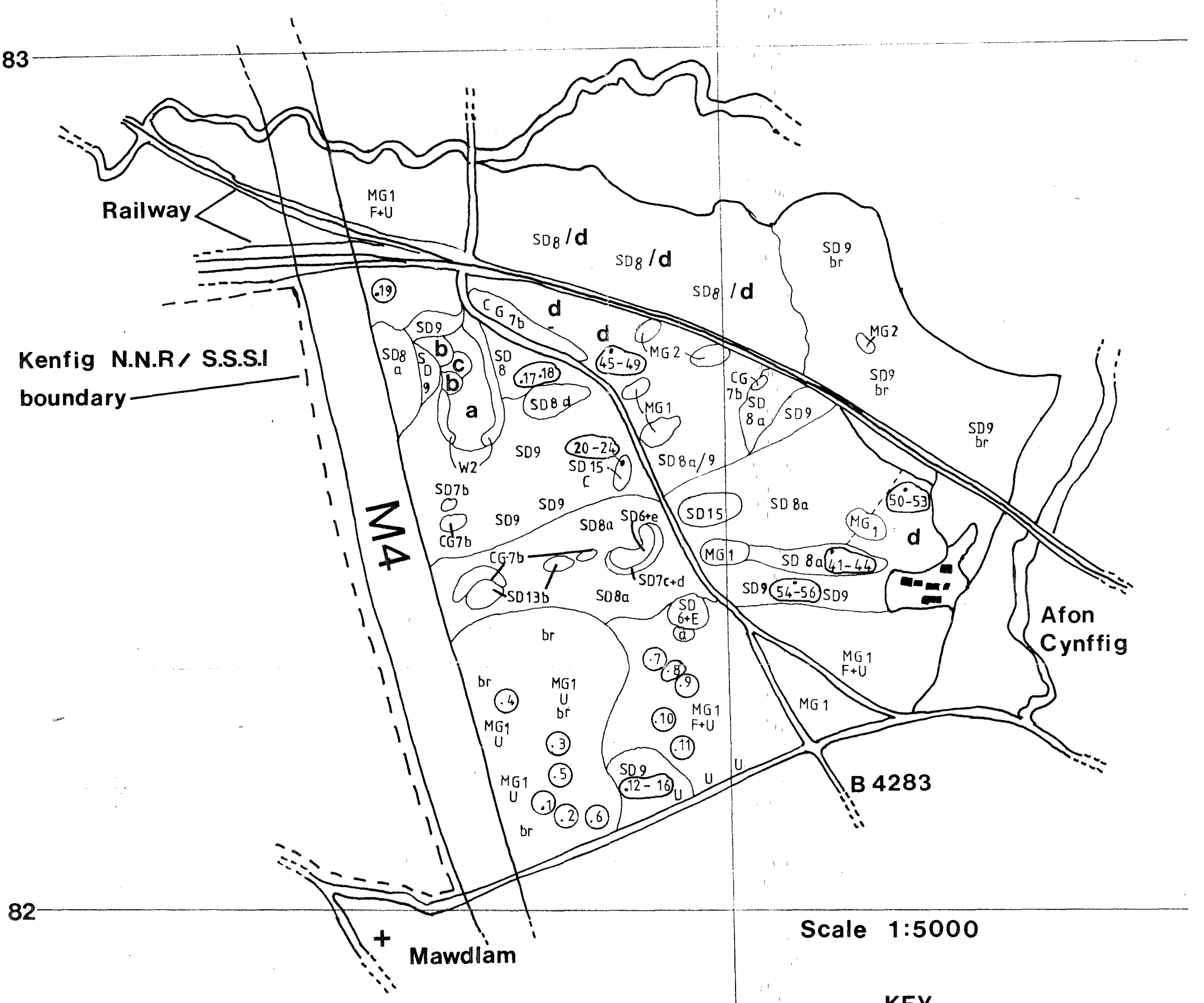
WATER STREET DUNES

VEGETATION MAP



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