



Sheebey geinnee Sand Dunes



CummeY YannoO Beiyn-Feie Biodiversity Action Plan



Habitat Description

The Sand Dunes BAP includes embryo dunes, yellow dunes and grey dunes.

Dunes are ridges of sand created from a source of intertidal sand by the wind. Plants resistant to salt spray and wind damage colonise the sand which in turn traps more sand, in time marram grass *Ammophila arenaria* and couch *Elytrigia* spp. colonise the embryo dunes and this has the effect of stabilising the dunes by binding the sand substrate together, and this allows other plants to colonise.

Dunes accrete (grow and extend) and erode.

Dunes are restricted to the north-west coast, mainly at the Ayres, but smaller patches occur at Ramsey Mooragh shore, Traie Vane (south of Niabyl), Sandwick and Ballateare.

○ Embryo dunes

These are unstable, low ridges of sand, found on the foreshore, with characteristically very open plant cover. Sand couch *Elytrigia juncea* is generally a typical coloniser of fore-dunes but is rarely found on the Isle of Man. Other pioneer species may include marram, sea rocket *Cakile maritime*, oraches *Atriplex* spp. sea saltwort *Salsola kali* and sea sandwort *Honkenya pepiloides*.

○ Yellow dunes

Yellow dunes are dominated by marram grass and bare sand. Plant species include sea holly *Eryngium maritimum* and sea bindweed *Calystegia soldanella*. Fungi include dune cavalier *Melanoleuca albifolia*, dune ink cap *Coprinus ammophila* and dune stinkhorn *Phallus hadriani*.

○ Grey dunes

Grey dunes are stable and have almost complete vegetation cover of a variety of species. Marram is usually present but no longer dominant, and mosses and lichens may occur. Indicator species include pyramidal orchid *Anacamptis pyramidalis* (Sch. 7), early purple orchid *Orchis mascula* (Sch. 7), Portland spurge *Euphorbia portlandica* (Sch. 7), sea spurge *Euphorbia paralias*, Isle of Man cabbage *Coincya monensis* subsp. *monensis* (Sch. 7), dune fescue *Vulpia fasciculata* (Sch. 7), dune waxcap *Hygrocybe conicoides*, scarce crimson and gold moth *Pyrausta sanguinalis* (Sch. 5) and common lizard *Zootoca vivipara*. (Sch. 5). Nesting habitat for curlew *Numenius arquata*, meadow pipit *Anthus pratensis* and skylark *Alauda arvensis*.

Habitat Description continued ...

Notable invertebrates recorded in the dunes include:

Megalonotus dilatatus (Nationally Scarce Nb)
Smicromyrme rufipes (Nationally Scarce Nb)
Otiorhynchus desertus (Nationally Scarce Nb)
Cleonus piger (Nationally Scarce Nb)
Hypera dauci (Nationally Scarce Nb)
Simbinia primitus (Nationally Scarce Nb)
Hypocaccus rugiceps (Nationally Scarce Nb)
Baeckmanniolus dimidiatus (Nationally Scarce Nb)
Aclypea opaca (Nationally Scarce Na)
Gabrieus keysianus (Nationally Scarce Na)
Crypticus quisquilius (Nationally Scarce Nb)
Coast dart *Euxoa cursorial* (Nationally Scarce Nb)
Sand dart *Agrotis ripae* (Nationally Scarce Nb)
Shore wainscot *Mythimna litoralis* (Nationally scarce Nb)
White colon *Sideridis albicolon* (Nationally scarce Nb)

Habitat Area¹

Total area ha	Largest area ha	Smallest area ha	Mean size ha	% of IoM	% Semi-Nat. Habitat
74.92	35.24	0.12	4.99	0.13	0.46

Threats

Sand Extraction

Sand was extracted from the dunes on what is now the Ayres NNR up until the 1980s for the building trade and only 750m of naturally formed dune now remains. Much of the dune system is now protected by ASSI designation: Central Ayres ASSI, Ramsey Mooragh Shore ASSI, Langness, Sandwick and Derbyhaven ASSI and Cronk y Bing ASSI.

Development

Direct loss of habitat; cumulative impact.

Change of Land Use

Any change from the current management could result in the degradation and loss of habitat.

Invasive Non-Native Species (INNS)

In the past garden waste has been dumped in the dunes and this has led to the establishment of monbretia *Crocsmia x crocosmiiflora* (Sch. 8), Japanese rose *Rosa rugosa*, New Zealand flax *Phormium tenax*. All three species are capable of expanding and outcompeting native flora.

Sea Level Rise²

Global mean sea level (GMSL) has risen about 21cm since 1900, at an accelerating rate and was at its highest value ever in 2019. Climate models project a GMSL rise over the next 100 years ranging between 0.29 to 0.59m for low emissions scenario and 0.61 to 1.10 for high emissions scenario. Models that include a faster disintegration of the polar ice sheets predict a rise of up to 2.3m in 2100—and up to 5.4m in 2150. The dunes act as natural sea defence from sea level rise; if they are breached extensive areas could be flooded.

¹ Sayle, T., Lamb, J., Colvin, A. & Harris, B. (May 1995) Isle of Man Ecological Habitat Survey – Phase 1 1991 – 1994 Final Report, Isle of Man Government

² <https://www.eea.europa.eu/data-and-maps/indicators/sea-level-rise-7/assessment>

Threats continued

Coastal Erosion

The east and west coasts are eroding and a substantial amount of material has been lost from Ramsey Mooragh Shore. Some of the eroded material is being deposited at Rue Point and this area is rapidly accreting, however due to the change in the profile of the shore at Rue Point erosion of the dunes to the north-west of Rue Point is currently taking place.

Coastal Squeeze

Due to the development of the land adjacent to Ramsey Mooragh Shore there is no flexibility for the dune system to roll back in response to the coastal erosion.

Over Stabilisation of Dunes

Natural Resources Wales has initiated a project called Sands of LIFE to revitalise sand dune systems across Wales that have become overly stabilised³. Furthermore, the 'Foredune Dynamisation Manual'⁴, an English translation of the Dutch experience of mobilising dunes is a step by step guide to creating successful sand drifts in a dune system. Many rare species are associated with the early stages of dune development and require bare sand. The dunes on the Ayres have a variety of successional stages due to the historic extraction of sand. Over stabilisation needs to be monitored on the NNR going forward to ensure there are sufficient areas of bare sand for specialist species.

Trampling and Vehicle Erosion

Trampling can be a major issue at some dune systems in the British Isles e.g. Maharees⁵; marram grass will not grow in areas that are regularly trampled and the sand is mobile if it's not fixed by marram grass. Motor bikes have been used in the sand dunes at Cronk y Scotty and this is the best location for the Isle of Man cabbage. It's thought that the plant is able to seed into the open sand created by the motorbikes. Vehicle movement at Point West is having a detrimental impact on the dunes.



Plastics

Over the years a large number of plastic items have been accumulated and buried in the dunes. It is likely that the sand particles are mixed with micro-plastic particles. Micro-plastics may be ingested by animals and accumulate up the food chain.

Scrub Invasion

Sporadic plants of European gorse, hawthorn and sycamore occur in the dunes; if these plants become well established they will out-compete the dune specialists. In addition, large patches of bramble have become established in the dunes and these are expanding. Appendix 1 shows aerial photographs from 2006 and 2021 illustrating the expansion of bramble scrub in the dunes particularly in the area of Rue Point sand pit east (NX420832 03429).

³ <https://naturalresources.wales/about-us/our-projects/nature-projects/sands-of-life/?lang=en>

⁴ Geelen, L., Arens, S., Oost, A., Pye, K., Houston, J., and others. Foredune Dynamisation Manual – Working together on nature restoration. (26/07/2024)

⁵ https://www.ccatproject.eu/wp-content/uploads/2020/11/Martha-Farrelly_Maharees_CCAT.pdf

Nitrogen deposition

Sand dune flora is highly sensitive to nitrogen deposition. There is currently no monitoring of nitrogen impacts on sensitive habitats in the Isle of Man.

Fire

Marram grass is highly flammable and large wild fires could be detrimental to the animals living in the dunes. The marram grass does have the ability to regenerate rapidly, however until it does the bare sand is mobile and there is potential for the dunes to be eroded by the wind blowing loose sand particles.

Reason for BAP

Restricted habitat just 0.13% of IoM, associated rare fauna and flora, threats listed.

Dunes are included within multiple Important Bird Areas and Candidate Ramsar sites across the Isle of Man.

Aims

- Maintain the extent of sand dune habitat and associated animal and plant communities and extend this habitat to the pre-1850s area, noting considerable losses around Ramsey and Sandwick to development.
- Maintain the condition of sand dune habitat and associated animal and plant communities
- Enhance and extend the areas of sand dune habitat and associated animal and plant communities
- Set up scheme to routinely survey and monitor condition and of the habitat and establish a base line for conservation of associated flora and fauna.

Habitat Management

Detailed habitat management can be found at:

Denning, L., Pugh, M., Pitts., V., and Dynamic Dunescape partners (2024). The Sand Dune Managers Handbook. Version 2, September 2024. Produced for the Dynamic Dunescape (DuneLIFE) project: LIFE17 NAT/UK/000570; HG-16-08643

<https://dynamicdunescape.co.uk/wp-content/uploads/2024/09/Dynamic-Dunescape-Sand-Dune-Managers-Handbook-v2.pdf>

Linked BAPS and Species/Habitats of Conservation Concern

Habitats

- | | | |
|----------------------------------------------|-----------------------------------------|----------------------------------|
| <input type="radio"/> Coastal grassland | <input type="radio"/> Coastal heathland | <input type="radio"/> Dune scrub |
| <input type="radio"/> Dune grassland | <input type="radio"/> Dune heathland | <input type="radio"/> Bare sand |
| <input type="radio"/> Lichen/Bryophyte heath | <input type="radio"/> Dune slack | |

Species

Plants

- Isle of Man cabbage *Coicya monensis subsp. monensis*
- Early purple orchid *Orchis mascula*

Birds

- Curlew *Numenius arquata*
- Meadow pipit *Anthus pratensis*
- Skylark *Alauda arvensis*

Invertebrates

- Scarce crimson and gold *Pyrausta sanguinalis*

Delivery Options	Active	Challenges
○ Undertake 5 yearly Common Standards Monitoring on all ASSI's (including extent of habitat and condition).	No	Resources
○ Designate the remaining areas of dune and dune grassland ASSI's (Rue Point to Cronk y Bing, Point of Ayre to the Ayres NNR boundary and Cronk y Scotty).	No	Resources Requires political support
○ Elevate Cronk y Bing ASSI to NNR status	Underway	Resources
○ Monitor and submit representations for planning applications	Yes	
○ Legislation to further the conservation of the living organisms and types of habitat of principle importance for the purpose of conserving biodiversity similar to NERC 2006 Section 40 & 42.	No	Resources Requires political support
○ Forward planning policy – inclusion of BAP habitats and species in future updates of the Isle of Man Strategic Plan.	Underway	Resources Requires political support
○ Determine rates of coastal erosion and accretion 3 yearly with government updates of aerial photographs.	Yes	
○ Where specific areas of erosion are identified consider a more intensive monitoring programme using drones	No	Resources
○ Investigate options for Ramsey Mooragh Shore ASSI, benefits for biodiversity and natural coastal flood defence. Geomorphological evaluation study required first.	No	Resources
○ Establish Biodiversity Units or a platform to obtain funding to enable the restoration works required to get the sand dunes in favourable conservation status	No	Resources
○ Monitor extent of INNS	Yes	
○ Control of INNS	Ad hoc	Resources
○ Removal of large plastic items	Yes	
○ Monitor extent of scrub	Yes	
○ Control of scrub	No	Resources
○ Monitor extent of bare sand areas	Yes	
○ Create band sand areas	Ad hoc	
○ Education/Awareness raising	Yes	
○ Annual review and update of this document	By 1/1/2025	

Appendix 1 – Aerial photographs from 2006 and 2021 showing expansion of bramble scrub in the dunes particularly in the vicinity of Rue Point sand pit east.

