

Site 2 – Keel

Site description

Keel is a medium sized site covering 95.7 ha located directly adjacent to the village of Keel and approximately 9.5 km north-west of Achill Sound, Co. Mayo. It is located on the southern coast of Achill Island and comprises a machair plain which runs from Trawmore beach northwards to Keel Lough (Martin et al., 2017). The site lies within the Keel Machair/Menaun Cliffs SAC (001513).

Based on the currently available mapping, three coastal Annex I habitats occur within Keel Machair/Menaun Cliffs SAC and one of them is listed as Qualifying Interests (Table 1Error: Reference source not found).

Table 1. Annex I habitats present at Keel Machair/Menaun Cliffs SAC, the area they occupy (based on the most recent mapped available) and status as a Qualifying Interest of the SAC. An asterisk denotes a priority Annex I habitat and habitat that were not the target of this survey are excluded.

Habitat Code	Area (ha)	Qualifying Interest?
2120 Marram dunes (white dunes)	1.048	No
*2130 Fixed dunes (grey dunes)	8.415	No
*21A0 Machairs	82.771	Yes

Table 2. Habitat loss recorded during the desk and field surveys in hectares and % of total habitat area in the site.

Habitat	Within SAC?	Loss (ha)	Impact code	New habitat
*21A0	Yes	0.635	PE01	Buildings and artificial surfaces (BL3)
*21A0	No	0.172	PF02	Buildings and artificial surfaces (BL3) and Amenity grassland (GA2)
*21A0	No	0.421	PM07	Dry calcareous and neutral grassland (GS1)

The total area of sand dune habitats has increased from 94.75 ha to 95.27 ha from CMP to SDM due to the seaward development and expansion of **2120 Marram dunes (white dunes)**, ***2130 Fixed dunes (grey dunes)** and ***21A0 Machairs**. The habitat **1220 Perennial vegetation of stony banks** has no longer been present in the site since the National Shingle Beach Survey (NSBS).

A golf course (Achill Golf Club) is present on the machair and has expanded from a 9-hole to a 18-hole. The course has been active since 1951, with no fairways as such and with a clubhouse as a portacabin. There is high recreational pressure on the site, especially during the summer months and there is a caravan park and amenity area located nearby. The machair area, including the golf course, is used for commonage and is overgrazed by sheep. During the last reporting cycle there was a dispute with the ownership of the land, which adds to the difficulties of controlling the grazing (Martin et al., 2017).

Conservation assessments were carried out within the entire site (Table 3).

Table 3. Summary of Conservation Status for all habitats assessed at Trawmore, Keel.

Subsite	Habitat	Area	Structure and functions	Future Prospects	Overall assessment
2.01 Trawmore, Keel	2120	Favourable (Stable)	Unfavourable – Inadequate (Stable)	Unfavourable - Inadequate	Unfavourable – Inadequate (Improving)
2.01 Trawmore, Keel	*2130	Favourable (Stable)	Favourable (Increasing)	Favourable	Favourable (Improving)
2.01 Trawmore,	*21A0	Unfavourable - Bad	Unfavourable –	Unfavourable -	Unfavourable –

Keel		(Decreasing)	Inadequate (Stable)	Bad	Bad (Stable)
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Subsite 1 Trawmore, Keel

Summary Information

Survey Date: 3 August 2023

Water Framework Directive Waterbody:

Previous survey identifiers: CMP113, VSM006.

Current survey details:

Table 4: Current survey details for Annex I habitats at Trawmore, Keel

Habitat	Area	Monitoring stops
2120 Marram dunes (white dunes)	1.048	8
*2130 Fixed dunes (grey dunes)	8.415	8
*21A0 Machairs	82.771	12

2120 Marram dunes (white dunes)

Area

The habitat **2120 Marram dunes (white dunes)** has decreased from 1.87 ha to 1.28 ha between CMP and VSM due to the natural process of succession to the habitat ***2130 Fixed dunes (grey dunes)** and ***21A0 Machairs** and has decreased over the most recent reporting cycle from 1.28 ha to 1.05 ha due to the same reason. This is consistent with an Area assessment of Favourable and the trend, compared to CMP, is stable.

Structure and Functions

Eight monitoring stops were recorded and one indicator have failed the assessment. Damages due to disturbance has been recorded in 50% of the plots, rather than within the threshold of 20%. This is consistent with a Structure and Functions assessment of Unfavourable - Inadequate. Compared to CMP the trend is stable.

Future Prospects

As highlighted in the last report, recreational elements such as pedestrian tracks and activities such as horse riding were the main pressures that impacted the habitat; moreover, the rock armour had been considered as having high negative impact on the habitat in the last report, while during CHNW21 it was considered neutral, since part of it has been revegetated since 2016 and hosted sand dune species. Litter has been recorded for the first time as a new impact on this habitat, while it previously has been recorded only on other habitats. Although the rock armour seemed to be less impactful than previously thought, the habitat conditions were still affected by several pressures: Future Prospects were therefore assessed as Unfavourable - Inadequate and the trend is improving, compared to CMP.

Conservation assessment

The conservation status assessments of the three parameters are as follows:

- Area: Favourable (stable)
- Structure and Functions: Unfavourable - Inadequate (stable)
- Future Prospects: Unfavourable - Inadequate (increasing)

Since at least one of the three parameters was assessed as Unfavourable - Inadequate, the overall conservation assessment for **2120 Marram dunes (white dunes)** at Trawmore, Keel was Unfavourable - Inadequate. Considering the CMP report, the overall trend is improving.

Overall Conservation Status: Unfavourable - Inadequate (improving)

Condition of the habitat by area

80% of the habitat was considered to be in good conditions, while the remaining 20% was assessed as being in poor conditions, considering several pressures impacting the habitat and the fact that a single criteria has failed the Structure and Functions assessment.

*2130 Fixed dunes (grey dunes)

Area

The area of ***2130 Fixed dunes (grey dunes)** had increased from 0.5 ha to 6.39 ha between CMP and VSM. The area increased again over the most recent reporting cycle to 8.41 ha. According to VSM, much of the increase could have been attributed to either a succession from **2120 Marram dunes (white dunes)** or to a change from ***21A0 Machairs** to ***2130 Fixed dunes (grey dunes)**. No habitat loss has been recorded. This is consistent with an Area assessment of Favourable. Comparing to CMP, the trend is stable.

Structure and Functions

Eight monitoring stops have been recorded and no indicator has failed the assessment. This is consistent with a Structure and Functions assessment of Favourable. During VSM, a single criterion had failed the assessment (the level of disturbance was beyond the threshold of 20%), but in 2023 the damage due to disturbance seemed to have reduced to 10%. Structure and Functions for ***2130 Fixed dunes (grey dunes)** were therefore assessed as Favourable. The trend is increasing, compared to CMP.

Future Prospects

Some small patches of the habitat were overgrazed but grazing was mostly a positive pressure that occurred on 100% of the habitat's area. Recreational elements such as pedestrian tracks, and activities such as walking and offroad driving were the main negative pressures recorded in the site and impacted about 10% of the habitat. In the last report, the sum of these impacts accounted for about 20% (this trend is consistent with the result of monitoring stops). Compared to the last report, impacts such as litter, camping and presence of invasive non-native species haven't been recorded, but it would be necessary to investigate how this pressures have been reduced. Considering the aforementioned pressures (especially the reduction of disturbance and the positive effect of non-intensive grazing), Future Prospects were therefore assessed as Favourable. Comparing to CMP, the trend was assessed as increasing.

Conservation assessment

The conservation status assessments of the three parameters are as follows:

- Area: Favourable (stable)
- Structure and Functions: Favourable (increasing)
- Future Prospects: Favourable (increasing)

Since all three parameters were assessed as Favourable, the overall conservation assessment for ***2130 Fixed dunes (grey dunes)** at Trawmore, Keel was Favourable. Considering CMP, the overall trend is therefore improving.

Overall Conservation Status: Favourable (improving)

Condition of the habitat by area

Even if globally pressures on-site had reduced since VSM, some negative impacts still affected the habitat (above all, disturbance due to recreational activities) therefore during CHNW21 10% of the habitat area was considered in poor conditions, while the remaining 90% was in good condition.

*21A0 Machairs

Area

The habitat ***21A0 Machairs** had decreased from 92.83 ha to 87.6 ha between CMP and VSM. Area then decreased again to 82.77 ha over the most recent reporting cycle. This loss was due to several human impacts and activities (see Appendix 3). The most impacting activities leading to habitat loss were the construction of buildings, artificial surfaces and gardens, that caused the loss of about 1% of the habitat. A small portion of ***21A0 Machairs** (0.5% of habitat area) was considered to be dry grassland, but this could just be due to interpretation and so, further verifications are recommended to confirm this change. Overall, even if the habitat loss due to these activities amounted to less than 1% per year since CMP, the loss was greater than the 10% of the Favourable Reference Area leading to an Area assessment of Unfavourable - Bad. It could have also been caused, according to the VSM, by succession of ***21A0 Machairs** habitat to both **2120 Marram dunes (white dunes)** and ***2130 Fixed dunes (grey dunes)**, and also natural erosion along the seaward edge of the site and transition to grasslands. Compared to CMP, the trend has been assessed as decreasing.

Structure and Functions

Above twelve monitoring stops recorded, two indicators failed the assessment: the mean height of swards was 2.56 cm rather than 8, and the damage due to disturbance occurred in 25% of the habitat instead of 20%. Low vegetation height suggested that grazing levels at the site were too high. As compared to the last report, there have been some changes in the recorded level of disturbance, which seemed to have increased. Nonetheless, the number of failed criteria was the same as the last report, so Structure and Functions were assessed as Unfavorable - Inadequate and the trend was assessed as stable.

Future Prospects

There is a long list of impacts and activities that could pose a threat to the Future Prospects. The ones that contributed more to the current status of the area were recreational elements and activities, like offroad driving, vehicle tracks, car parking, cutting of grassland for golf activities. During VSM, sheep grazing was considered to be a neutral impact, despite the high grazing levels and nutrient inputs with an average vegetation height of 2.2 cm. In 2022, the height improved, but was still below the threshold for Structure and Functions's assessment. On this basis, grazing has been recorded as a low negative pressure rather than neutral.

Regarding the other pressures recorded in the site, damages caused by car parking and paved road seemed to have increased and to have been affecting 1.5 % of the habitat. Moreover, car parking, roads, offroad driving and cutting of grasslands for golf activities were recorded as a low intensity negative pressure on more than 50% of the habitat. However, differences in interpretation and changes in the pressure's classification could have played an important role. Deposition of building material was considered a medium negative pressure but it was very localized. Natural process, like natural erosion and invasion of *Ulex* sp., were considered as being neutral pressures. Net of interpretative differences, however, Future Prospects were not increasing and no measures seemed to have been taken yet. Future Prospects were therefore assessed as Unfavourable - Bad, and the trend was assessed as stable.

Conservation assessment

The conservation status assessments of the three parameters are as follows:

- Area: Unfavourable - Bad (stable)
- Structure and Functions: Unfavourable - Inadequate (stable)
- Future Prospects: Unfavourable - Bad (stable)

Since at least one of the three parameters was assessed as Unfavourable - Bad, the overall conservation assessment for ***21A0 Machairs** at Trawmore, Keel was Unfavourable-Bad. Compared to CMP, the overall trend is stable.

Overall Conservation Status: Unfavourable - Bad (stable)

Condition of the habitat by area

On the basis of several negative pressures which were impacting the habitat (especially recreational activities that involved car parking and offroad driving, in addition to overgrazing), 25% of the habitat area was considered in poor conditions, while the remaining 75% was considered to be in good conditions.

Site 2 Subsite 2.01 Trawmore, Keel: Appendix

Appendix 1 Area

Total habitat area recorded during reporting cycles to date.

Habitat	2007	2013	2019	2025
2120	1.870	NS	1.280	1.048
2130	0.050	NS	6.390	8.415
21A0	92.830	NS	87.600	82.771

Favourable Reference Area and cumulative changes in area due to human activities (restoration and loss) recorded during reporting cycles to date. Natural fluctuations are not taken into account.

Habitat	Favourable Reference area (ha)	2007 change (ha)	2013 change (ha)	2019 change (ha)	2025 change (ha)
2120	1.870	0	NS	0	0
*2130	0.050	0	NS	0	0
*21A0	92.830	<1% per year	NS	0	0.091 and 2007 loss

Appendix 2. Structure and functions

Negative indicator species and non-native invasive species

Habitat	Species name	Cover (%)
2120	<i>Cirsium vulgare</i>	5.3
*2130	<i>Cirsium arvense</i>	1.0
*2130	<i>Cirsium vulgare</i>	0.6
*2130	<i>Lolium perenne</i>	3.0
*2130	<i>Senecio jacobaea</i>	5.0
*2130	<i>Urtica dioica</i>	1.0

Positive indicator species and notable species

Habitat	Species name	Cover (%) (if recorded)
2120	<i>Ammophila arenaria</i>	
2120	<i>Elytrigia juncea</i>	
*2130	<i>Carex flacca</i>	
*2130	<i>Crepis capillaris</i>	
*2130	<i>Festuca rubra</i>	
*2130	<i>Galium saxatile</i>	
*2130	<i>Galium verum</i>	
*2130	<i>Homalothecium lutescens</i>	
*2130	<i>Hypnum cupressiforme s.s.</i>	
*2130	<i>Linum catharticum</i>	
*2130	<i>Lotus corniculatus</i>	
*2130	<i>Luzula campestris</i>	
*2130	<i>Peltigera species</i>	
*2130	<i>Plantago lanceolata</i>	
*2130	<i>Pleurozium schreberi</i>	
*2130	<i>Poa pratensis</i>	
*2130	<i>Rhytidiadelphus squarrosus</i>	
*2130	<i>Rhytidiadelphus triquetrus</i>	
*2130	<i>Syntrichia ruralis</i>	
*2130	<i>Trifolium repens</i>	
*2130	<i>Viola canina</i>	
*21A0	<i>Agrostis stolonifera</i>	
*21A0	<i>Aira praecox</i>	
*21A0	<i>Bellis perennis</i>	
*21A0	<i>Carex arenaria</i>	
*21A0	<i>Carex flacca</i>	
*21A0	<i>Cerastium fontanum</i>	
*21A0	<i>Crepis capillaris</i>	
*21A0	<i>Euphrasia officinalis ag.</i>	
*21A0	<i>Festuca rubra</i>	
*21A0	<i>Galium verum</i>	
*21A0	<i>Hydrocotyle vulgaris</i>	
*21A0	<i>Lotus corniculatus</i>	
*21A0	<i>Plantago lanceolata</i>	
*21A0	<i>Prunella vulgaris</i>	
*21A0	<i>Thymus polytrichus</i>	
*21A0	<i>Trifolium repens</i>	

Structure and Functions Assessment Criteria

Habitat	Indicator	Pass/Fail
2120	Positive indicator species	Pass
2120	Negative indicator species	Pass
2120	Non-native species	Pass
2120	Flowering or fruiting of positive indicator species	Pass
2120	Notable/rare species	Pass
2120	Interference with the sediment dynamics	Pass
2120	Damage due to disturbance	Fail
*2130	Positive indicator species	Pass
*2130	Negative indicator species	Pass
*2130	Non-native species	Pass
*2130	Cover of trees and scrub other than <i>Juniperus communis</i>	Pass
*2130	Trees or saplings from adjacent plantations	Pass
*2130	Height of vegetation	Pass
*2130	Flowering or fruiting of positive indicator species	Pass
*2130	Bare sand	Pass
*2130	Notable/rare species	Pass
*2130	Interference with the sediment dynamics	Pass
*2130	Damage due to disturbance	Pass
*21A0	Positive indicator species	Pass
*21A0	Bryophytes	Pass
*21A0	Negative indicator species	Pass
*21A0	Non-native species	Pass
*21A0	Flowering or fruiting of positive indicator species	Pass
*21A0	Sward height	Fail
*21A0	Bare ground	Pass
*21A0	Notable/rare species	Pass
*21A0	Interference with the sediment dynamics	Pass
*21A0	Damage due to disturbance	Fail

Appendix 3. Impacts and Activities

Impacts recorded

Habitat code	Impact code	Impact description	Relative importance	Influence	Source	Timing	Trend	Area
2120	PF05	Pedestrian tracks, walking, horse riding	Medium	Negative	Inside	Ongoing	Increasing	80.0
2120	PF06	Deposition of waste	High	Negative	Inside	Ongoing	Increasing	0.1
2120	PF15	Rock armour	High	Neutral	Inside	Ongoing	Increasing	50.0
*2130	PA07	Overgrazing	Medium	Negative	Inside	Past/suspended	Increasing	1.0
*2130	PA08	Grazing (sheep)	High	Positive	Inside	Ongoing	Stable	100.0
*2130	PA25	Vehicle track	High	Negative	Inside	Ongoing	Decreasing	0.5
*2130	PF05	Pedestrian tracks, walking, horse riding	Medium	Negative	Inside	Ongoing	Increasing	10.0
*21A0	PA07	Overgrazing (sheep)	Low	Negative	Inside	Ongoing	Decreasing	10.0
*21A0	PA08	Grazing (sheep)	High	Neutral	Inside	Ongoing	Stable	90.0
*21A0	PA25	Vehicle track	High	Negative	Inside	Ongoing	Stable	2.5
*21A0	PE01	Paved road and vehicle parking	High	Negative	Inside	Ongoing	Stable	1.5
*21A0	PF05	Car parking, road, offroad driving and cutting of grassland for golf	Low	Negative	Inside	Ongoing	Stable	55.0
*21A0	PF06	Deposition of building materials	Medium	Negative	Inside	Ongoing	Decreasing	0.1
*21A0	PM07	Natural erosion and encroachment (<i>Ulex</i> spp)	Low	Neutral	Inside	Ongoing	Stable	1.0

Conservation Measures required

Habitat code	Measure code	Measure description	Area (ha)	Status (in place/partial/Absent/unidentified)	Response timeframe	Purpose	Location (inside and or Outside SAC)
2120	CF03	Measure required to regulate recreational activities	0,8395	Absent	Medium-term results	Restore the structure & functions, including the status of typical species	Inside
*2130	CA05	Measure required to regulate grazing	8,4147	Absent	Medium-term results	Restore the structure & functions, including the status of typical species	Inside
*21A0	CA05	Measure required to regulate grazing and offroad driving	10,3464	Absent	Medium-term results	Restore the structure & functions, including the status of typical species	Inside
*21A0	CF03	Measure required to regulate recreational activities	45,6070	Absent	Medium-term results	Restore the structure & functions, including the status of typical species	Inside

Appendix 4. Condition of the habitat by area

Summary of habitat condition

Habitat code	% remaining habitat in poor condition	% remaining habitat in good condition
2120	20	80
*2130	10	90
*21A0	25	75