

**Comhairle Contae
Fhine Gall**
Fingal County
Council



Redrock Management Plan

2020- 2030

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BITHSFÉIR
Chuan Bhaile Átha Cliath
Dublin Bay
BIOSPHERE

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PART 1: INTRODUCTION AND SITE DESCRIPTION

1. Management Plan

1.1 Introduction

Redrock is located in the south-west corner of the Howth peninsula in Co. Dublin. It measures approx 21 hectares and the lands supports protected habitats, rare plant species and cultural heritage features, such as the Martello tower and old stone piers and remnants of old dwellings. It is a popular destination for locals and hikers and is visited by several thousand people each year. The lands are publicly owned and are designated as a SAC under the EU Habitats Directive. It is also covered by the Howth Special Amenity Area Order and UNESCO's Dublin Bay Biosphere.

1.2 Purpose of management plan

The management plan for Redrock has been prepared by Peadar Jolliffe-Byrne and Hans Visser on behalf of Fingal County Council and has been developed in consultation with the Howth SAAO committee, local residents and other interested parties. The plan has been developed to protect the lands at Red Rock and address nature conservation, recreational and cultural heritage issues in an integrated manner. The plan, which covers the period 2020 to 2030, is not statutory and is intended to guide the future management of the lands by Fingal County Council. It will be a working document that is open to periodic review, with additions or amendments being made as conditions change. The plan brings together all the existing knowledge on the site and presents a list of detailed actions that addresses the key concerns over a 10-year period.

1.3 Vision for Redrock

Fingal County Council will protect and maintain the eighteenth-century agricultural landscape at Redrock and the associated nature conservation values, while providing appropriate access for the public to enjoy the views and the cultural and natural heritage features of the Redrock lands.

1.4 Objectives of Site Management Plan

The site will be managed to achieve the following objectives:

- To conserve and enhance the natural heritage of Redrock in a sustainable manner
- To maintain the landscape characteristics of the site
- To facilitate recreational use without having a detrimental impact on the natural environment
- To protect the cultural & historical features on the site

2. Legislation and Policy context

2.1 EU Habitats and Birds Directive

Red Rock is designated as a Special Area of Conservation (SAC) under the EU Habitats Directive. The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) forms the basis for the designation of SAC's. SAC's and SPA's are collectively referred to as Natura 2000 sites and are generally considered to be of utmost importance with regards to vulnerable, rare or endangered habitats and species within the EU.

The Birds and Habitats Directives are transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011. The statutory agency responsible for Natura 2000 sites is the National Parks and Wildlife Service of the Department of Culture, Heritage and the Gaeltacht.

2.2 County Development Plan

The Fingal Development Plan 2017-2023 sets out the Council's proposed policies and objectives for the development of the County over the Plan period. The Plan seeks to develop and improve, in a sustainable manner, the social, economic, environmental and cultural assets of the County. Chapters 9 of the Development Plan set out the objectives for the Natural Heritage of the County. Those that are the most relevant to the management of Redrock are listed in the table 1 below. These are summaries of the Objectives which are generally longer and more detailed.

Table 1: Relevant Objectives in the Fingal Development Plan

Fingal County Development Plan 2017-2023	
Ref	Objectives – Natural Heritage – Chapter 9
NH10	Ensure that the Council takes account of objectives and management practices proposed in any management or related plans for Natura2000 sites
NH12	Undertake field studies and map invasive species throughout the County and initiate control programs
NH15	Strictly protect areas designated as Natura 2000 sites
NH54	Where coastal erosion is considered a threat to properties, explore the technical and economic feasibility of coastal adaptation and coastal retreat management options.
NH63	Encourage leisure and amenity type uses along the coast so long as such uses do not cause significant adverse impacts

2.3 Howth Special Amenity Area Order

In 1999, Fingal County Council recognised the exceptional character of the area of Howth by making the Howth Special Amenity Area Order (SAAO). The Order protects many of the special qualities of the area and aims to preserve and enhance the character and special features of Howth. The Howth SAAO was confirmed by the Minister for Environment on the 16th May 2000. The Howth Special Amenity Area covers a total area of 547 hectares.

The SAAO operational plan includes action 1.4 *To carry out a management appraisal of best flora sites in Howth including Council owned sites at Red Rock and field adjacent to Sutton Woods and road verges near the Summit and St. Fintan's Cemetery.*

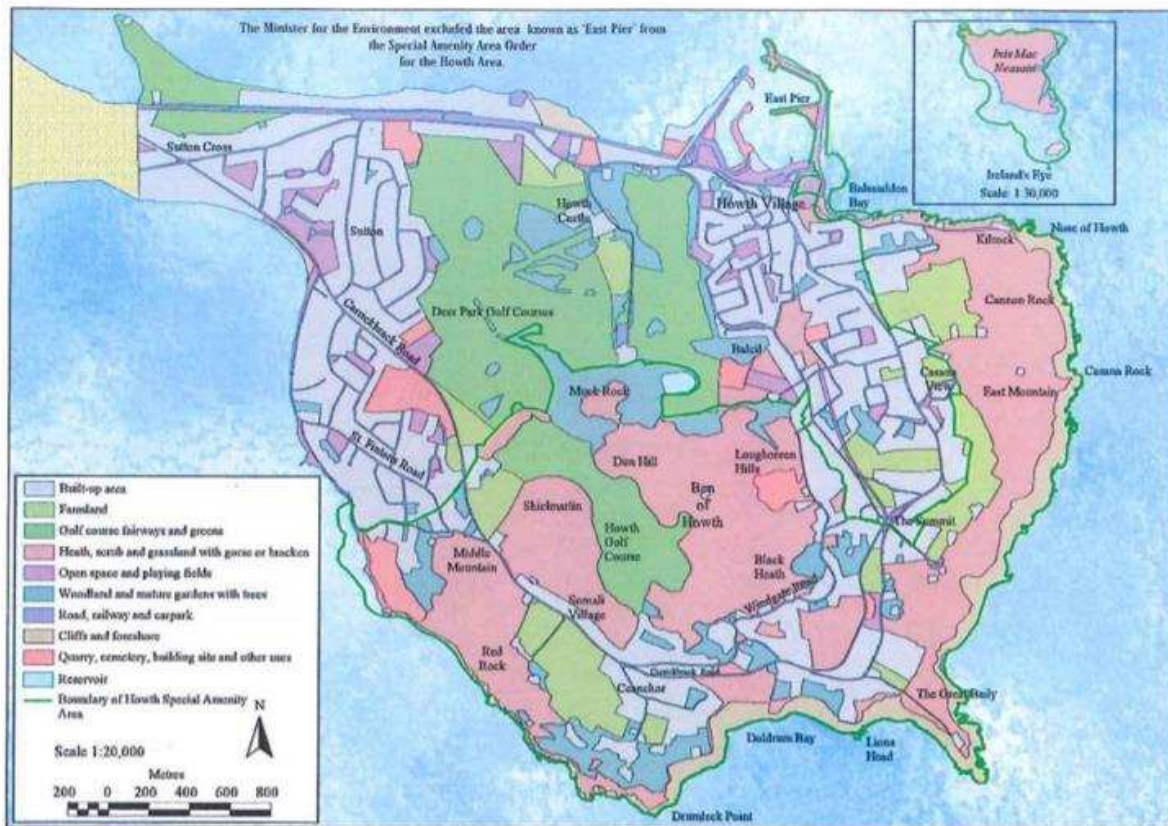


Figure 1: Map showing habitats within Howth SAO

2.4 Dublin Bay Biosphere

Red Rock and Howth Head form part of the Dublin Bay Biosphere, which was designated by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 2015. The Dublin Bay Biosphere Biodiversity Conservation and Research Strategy 2016-2020 includes a coordinated framework for biodiversity conservation and research activities to be undertaken by Dublin Bay Biosphere Partnership, while also providing clarity regarding any planned activities to all stakeholders within the Dublin Bay Biosphere.

Action 1 for Howth Head in the Conservation and Research Strategy is *to conduct a management appraisal of sites of highest botanical conservation value in Howth including the Council owned lands at Red Rock*

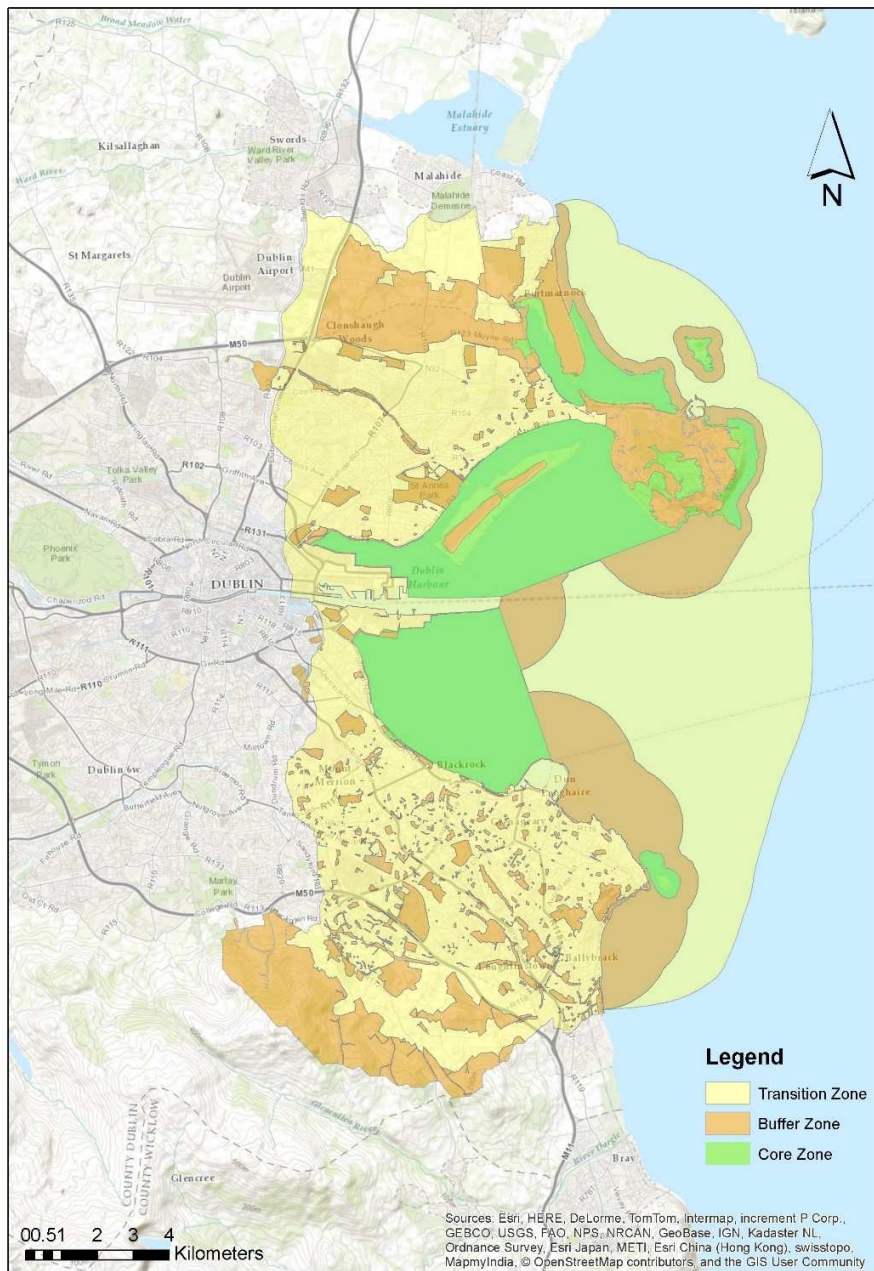


Figure 2: Map showing the Dublin Bay Biosphere

3. Site description.

3.1 Introduction

Redrock is located in the south-western corner of the Howth Peninsula. The site is bounded by the Carrickbrack road and Sutton Castle to the north, Strand road to the west, Bellinghams farm to the east and the Dublin Bay to the south (See Figure 3). The lands are owned by Fingal County Council. It is an attractive natural amenity area with extensive grassland, woodland and some heathland, with historical features such as the Martello Tower, walls and stone piers located throughout the site.



Figure 3: Outline Redrock lands

3.2 Environmental Information

Surveys of the vegetation and breeding birds of Redrock were undertaken in 2018 on behalf of Fingal County Council (Brady, 2018, Nairn *et al*, 2018) and these report form the basis of the following site description.

3.2.1 Geology

The shoreline between St. Fintans Road and the Martello Tower at Redrock displays some of the best exposed cliff sections and exposures of Cambrian rocks in Fingal and is a County Geological Site (Clarke 2007, Parkes 2012). The rocks here are quartzite and mudstone rock types. The site shows some evidence of disruption that happened in Cambrian times when they were still soft sediments. There are also tectonic fractures that happened much later, mostly shown up by white quartz veins. The Cambrian rocks are covered with high cliffs of Ice Age (Quaternary) till. This mixed deposit of sand, gravel and clay also shows some evidence of the ice shearing away the surface of the Cambrian rocks, illustrating the erosive power of glaciers.

3.2.2 Habitats and vegetation

The area comprises of grassland, scrub, heathland, dense bracken, mature woodlands, treelines, hedges and exposed rock. Eight terrestrial habitats were found on the lands at Redrock with grassland covering most of the site, followed by woodland and heathland (see Appendix 1 for habitat map). These have been allocated to the nearest habitat category in the classification of Fossitt (2000) and the nearest equivalent habitat from Annex I of the EU Habitats Directive (see table 2).

Table 2: Red Rock Habitat Types

Code	Habitat type (Fossitt 2000)	Code	Equivalent EU Annex I habitats
GS1	Dry Calcareous Grasslands	6210	Orchid rich calcareous grassland
GS2	Dry Meadows and Grassy Verges		
HD1	Dense Bracken		
WD2	Woodland		
WD4	Conifer Plantation		
WS1	Scrub		
HH1	Dry Siliceous Heath	4030	European Dry Heath
ER1	Exposed Siliceous Rock		

Most of the site is covered with rank dry grassland **Dry Meadows and Grassy Verges (GS2)**. Due to inconsistent mowing and not removing any arisings, the area is dominated by tall perennial grasses and broad-leaved herbs such as Hogweed *Heracleum spondilium*, Alexanders *Smyrnian duastrum* and Cow Parsely *Anthriscus sylvestris*. Much of the rank grassland in the eastern part of the site is slowly being taken over by Bracken *Pteridium aquilinum* and Bramble *Rubus fruticosus*.

The central part of the western grassland field is the most species-rich **Dry Calcareous Grassland (GS1)**, which corresponds with the area where the topsoil was removed in the late 1990's as part of proposed development. The vegetation on this nutrient poor ground supports four species of orchid and has an affinity with the habitat "*Orchid rich calcareous grassland*" listed in Annex 1 of the EU Habitats Directive. The orchids appeared in succession with Pyramidal Orchid *Anacamptis pyramidalis* being the first to flower in mid-May followed by Purple Marsh-orchid *Dactylorhiza incarnata subsp incarnata*. *Dactylorhiza* sp. then appeared in profusion with over fifty flowering spikes noted. Bee Orchid *Ophrys apifera* flowered and set seed within a two weeks period in June.

Hairy Tare *Vicia hirsuta*, Yellow-rattle *Rhinanthus minor* and Red Bartsia *Odontites vernus* can be found in abundance within the grasslands supplemented by taller more vigorous plants, particularly Common Bird's-foot-trefoil *Lotus corniculatus*, Common Knapweed *Centaurea nigra* and Red Fescue *Festuca rubra*. As a result of the site's proximity to the sea, Sea Plantain *Plantago maritima*, Thrift *America maritima* and Slender Thistle *Carduus tenuiflorus* are also present.



Figure 4: Species rich grassland with orchids

Bracken **Dense Bracken (HD1)** can be found in a range of habitat types at Red Rock. It is encroaching areas of rank dry grassland at the eastern and northern end. Bracken also makes up most of the herb layer within the coniferous woodland and is often found accompanied by Bramble. It can be found in deeper pockets of soil among the rocky outcrops and bracken was also the first plant to re-establish itself after the fire along the coastal pathway in 2018. Its extensive network of rhizomes allows the plant to survive the fires and to spread to adjacent habitats.

The **Conifer Plantation (WD4)** at Red Rock comprises mostly of Sycamore *Acer pseudoplatanus*, and several species of Pine. There has been a recent removal of some mature trees due to the danger posed by dead or dying trees. These cleared areas have been replanted with young Pine trees and hazel. The shrub layer of the woodland is comprised of Holly *Ilex aquifolium*, Elder *Sambucus nigra*, Sycamore *Acer pseudoplatanus* and some Rowan *Sorbus aucuparia*. In other areas, Blackthorn *Prunus spinosa* suckers form dense thickets. In the uncleared area among the mature Pines, the herb layer consists of patches of Bluebells and Common Ivy *Hedera helix*.

In the open-ground and cleared areas a variety of species can be found, including Bramble *Rubus fruticosus*, Bracken *Pteridium aquilinum*, Rosebay Willowherb *Chamerion angustifolium*, Spear Thistle *Cirsium vulgare* and Cleavers *Galium aparine*.

The higher slopes of the woodland are covered by Downy Birch *Betula pubescens*. The herb layer comprises of Bracken and Bramble. Foxglove *Digitalis purpurea*, Flase-brome *Brachypodium sylvaticum*, Herb Robert *Geranium robertianum*, Honeysuckle *Lonicera periclymenum*, Creeping Soft-grass *Halcus mollis* and Lesser Stitchwort *Stellaria graminea* are all species found along the edges of this part of the woodland.

Scrub (WS1) is found growing throughout the site except in areas where grasslands are mowed and where soil depth is insufficient for root growth. The key species that make up the scrub are Gorse *Ulex europaeus* and *Ulex gallii*, Blackthorn *Prunus spinosa*, Bramble *Rubus fruticosus* and Elder *Sambucus nigra*. Other species found among the scrub are Hawthorn *Crataegus monogyna*, Downy Birch *Betula pubescens* and Rusty Willow *Salix cinerea*.

Extensive Gorse scrub is present along the northern boundary and on the heathland. A lot of the tall Gorse was removed from the rocky outcrops in the winter of 2017 and 2018 to reduce the risk of fire and to restore the vegetation associated with shallow soil communities. Blackthorn is found in several thickets running adjacent to the coastal path,

while Elder can be found in the old hedgerows and between the rocky outcrops and the coastal pathway. Elder can spread throughout the site relatively quickly due to its high fruit production and will have to be monitored in the future to prevent it from taking over.

Dry Siliceous Heath (HH1)

There are three notable vegetation types found within the heathland:

- *Calluna vulgaris*-*Ulex gallii* heath
- Thero-Airion vegetation community
- *Scilla verna* heathland

Calluna vulgaris-*Ulex gallii* heath occurs on the highest rock outcrops within Redrock and is exposed to strong winds. There is little room or light for grasses and herbs to grow in the dense heath which consists of Heather *Calluna vulgaris*, Western Gorse *Ulex gallii* and Bell Heather *Erica cinerea*. The heathland is highly susceptible to fire due to the incendiary material shed by both Heather and Western Gorse. As a result of uncontrolled fires the heathland occurs in various successional stages.

The Thero-Airion Vegetation Communities occurring in Redrock comprise of various winter annual species. These specialised vegetation communities have adapted to shallow soil with a low water holding capacity and low nutrient availability. As a result these communities are found only on the tips of rock outcrops within the heathland. Within these communities occur some of Ireland's rarest flora species. It is also the most vulnerable habitat in Redrock.

Several large colonies of Spring Squill *Scilla verna* occur in Redrock. These colonies are found between dry siliceous heath and cliff-top grasslands. Spring Squill is a bulb-forming species which allows it to flower, set seed and die back early in the year. For the rest of the year the bulbs and roots lie dormant in the shallow soil. The Spring Squill colonies are regularly accompanied by Thyme *Thymus praecox*, Crested Dog's-tail *Cynosurus cristatus*, Thrift *Ameria maritima*, Sea plantain *Plantago maritima* and Buck's-horn Plantain *Plantago coronopus*.

3.2.3 Rare Plant Species

Redrock supports some of the rarest plant species in Ireland, with Howth being their stronghold in Dublin. Four rare species were found at Redrock during the 2018 survey. The species encountered during the 2018 flora study are listed in Table 2 with habitats, frequency and status. Three other rare plants are known from the site, but were not refound during the 2018 study. Curved hard-grass (*Parapholis incurva*) was last seen in 2004 along the coastal pathway near the Martello tower. Rough Clover *Trifolium scabrum*, a nationally rare species and is categorised as near threatened on the Irish Red Data List, was also last recorded at Redrock in 2004. Slender trefoil *Trifolium micranthum* was last recorded at Redrock near Drumleck point in 1991.

Table 3: Rare plant found during botanical study in 2018

Common Name	Scientific Name	Habitat	Frequency at Redrock	Status
Knotted Clover	<i>Trifolium striatum</i>	Thero-Airion vegetation communities	Three colonies comprising of eight individual plants	Very rare plant in Ireland and confined mostly to the south and east coasts.
Bird's-foot	<i>Ornithopus perpusillus</i>	Thero-Airion vegetation communities and dry calcareous grassland	four colonies	Redrock is the only site in Dublin where Bird's-foot can be found
Bird's-foot Clover	<i>Trifolium ornithopodioides</i>	Short turf on shallow soil	one colony comprising of 4 individual plants	Very rare in Ireland. Howth is one of the two known areas in Dublin
Spring Squill	<i>Scilla verna</i>	Thin soil over a rocky outcrop.	Few locations.	Rare in Co. Dublin.

3.2.4 Invasive plant species

There are three invasive herbaceous species found in Redrock:

Alexanders *Smyrniium oluastrum*

Alexanders is found in abundance throughout the meadows and grassy verges and has spread into parts of the calcareous grasslands.

White Bryony *Bryonia dioica*

White Bryony can be found along the track-way east of the central dividing old stone wall. The numbers of this plant are limited, but it is a prolific grower that can take over large areas.

Giant-rhubarb *Gunnera tinctoria*

A single plant of Giant-rhubarb is located in the grassland along an old hedgerow in the western meadow.

3.2.5 Birds

The following information comes as a result of three bird surveys undertaken during the 2018 breeding season (Nairn *et al*, 2018). Various breeding birds can be found in Redrock, some of which are in the amber or red categories of the Birds of Conservation Concern in Ireland 2014-2019 (Colhoun and Cummins, 2013). There are a possible twenty-three bird species breeding at Redrock.

Table 4. Bird species in Redrock

Species	Breeding evidence	Abundance	Habitat preference (Fossit 2000)
Blackbird	Probably	Abundant	WD2, WS1
Blackcap	Probable	Frequent	WD2, WS1
Blue Tit	Possible	Rare	WD2, WS1
Chiffchaff	Possible	Rare	WD2, WS1
Chaffinch	Possible	Frequent	WD2, WS1
Coal Tit	Possible	Rare	WD2, WS1

Dumnock	Probably	Rare	WD2, WS1
Goldfinch	Possible	Occasional	WD2, WS1
Great Tit	Probable	Frequent	WD2, WS1
Hooded Crow	Probable	Frequent	WD2
House Sparrow	Possible	Rare	WS1
Kestrel	Possible	Rare	ER1
Linnet	Probable	Frequent	HD1, HH1, WS1
Magpie	Probable	Frequent	WD2, WS1
Meadow Pipit	Probable	Rare	GS1, GS2
Pheasant	Possible	Rare	WD2, WS1
Robin	Possible	Frequent	WD2, WS1
Stonechat	Possible	Rare	WS1
Swallow	Possible	Frequent	WS1
Song Thrush	Probable	Frequent	WD2, WS1
Wood Pigeon	Probable	Abundant	WD2, WS1
Wren	Probable	Abundant	HH1, HD1, WD2, WS1
Willow Warbler	Possible	Occasional	WD2, WS1

Of the above listed breeding bird species in Redrock, one is categorised as Red Listed and six are categorised in the Amber list species of the Birds of Conservation Concern in Ireland 2014-2019. The Meadow Pipit is the only red listed species and usually breeds in rank grassland. Only a single pair was found on the site, which is surprising given that rank grassland in which it nests is abundant on the site. Amber listed birds include the House Sparrow, Kestrel, Linnet, Robin, Stonechat and Swallow. Many of these birds nest in scrub and this needs to be considered in the context of scrub removal for fire safety purposes. The other species found breeding in Redrock are common and widespread throughout Ireland.

3.3 Cultural Heritage

3.3.1 Past Land use

The existing landscape that can be seen today at Redrock is not too dissimilar to the landscape from the early 1900's. The 6-inch map from 1837-1843 shows these lands being linked to Sutton House with a pathway running through the centre of the Redrock lands. The 25-inch map dated 1866-1867 shows that in the intervening period, the pine woodland has been planted but that little else has changed.

These maps suggest that good farmland was present in the western bottom grassland and top north eastern grassland. Rough ground was also noted in the eastern half of the Redrock lands. The good ground was grazed with cattle (e.g. dexter, kerry & Jersey) for milk and beef production. The fields with the deeper soil such as the north-eastern field were ploughed during second world war period to provide for extra vegetables (pers comm John Bellingham). Following the sale of the Jamesons lands to the Luyks family after the war the land fell derelict. Since then, there has been some informal horse grazing and fires occurred occasionally.



Figure 5; Redrock circa 1837-1843 (source Geohive)



Figure 6; Redrock circa 1866-1867 (source Geohive)

3.4 People and visitor use

3.4.1 Stakeholders

The stakeholders are considered to be all persons and groups who may be affected by the actions of the management of the site. This management plan will take into consideration the interests of all stakeholders. The main stakeholders in Redrock are:

- Local residents and adjacent landowners
- Howth Special Amenity Area Order Committee
- Visitors
- National Parks and Wildlife Service
- Fingal County Council

3.4.2 Access and visitor use

Redrock is situated along the Dublin Bay coastline and forms part of Howth Head, which is the second most visited attraction in Fingal. The site is traversed by a network of informal surfaced and unsurfaced pathways. The main entry point is from Strand road where a small car park is located, but the site can also be accessed from the Carrickbrack road and the right of way next to the former Sutton Castle. It is also the starting or end point of the popular cliff walk around the Howth Peninsula. The area is easily accessible from Dublin City centre by public transport, car or by foot.

Visitors to Redrock tend to be a mixture of locals and tourist. There is no breakdown of visitor numbers but the proportion of local residents is relatively high, with many locals visiting on a regular basis. Visitor numbers are in the thousands throughout the year, but tend to be much higher during the drier and warmer summer months (see figure 7).

Most of the locals access the site on foot or by car and visit the Redrock lands for a short or long walk, admire the views and walking their dog. Based on site observations most tourist follow the Cliff path or the Bog of the Frog looped pathway that traverse the site. Redrock is not a specific destination for them.

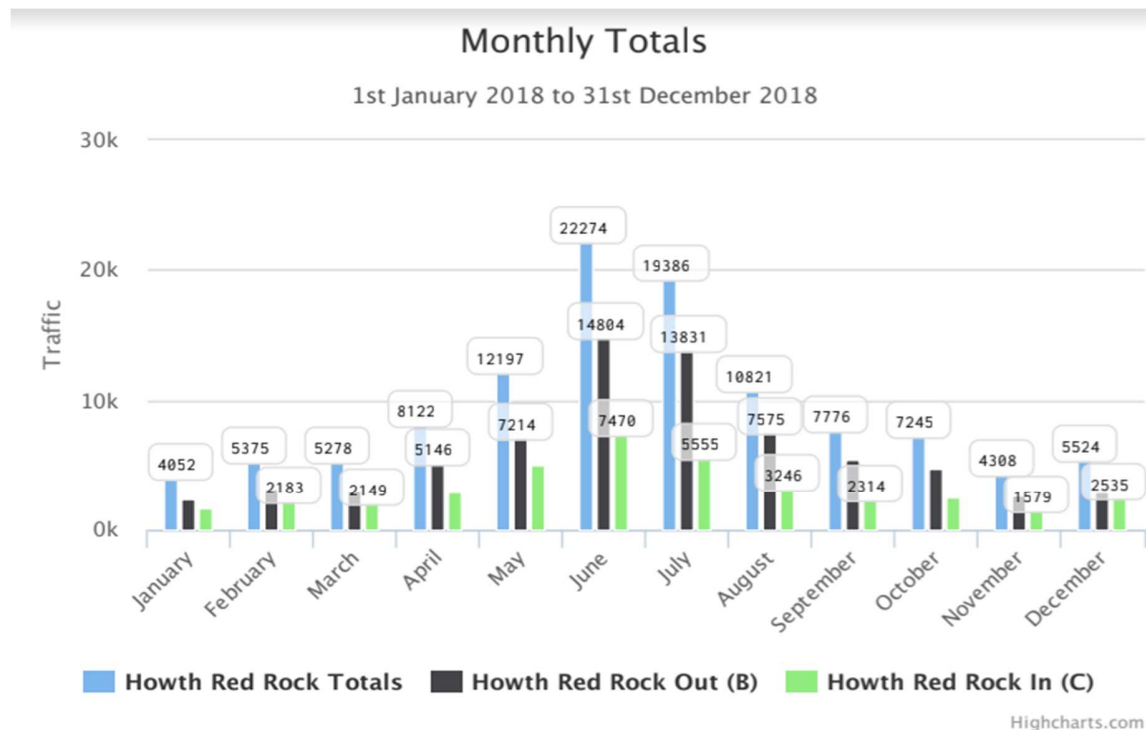


Figure 7: Redrock visitor numbers 2018-2019

PART 2: MANAGING THE REDROCK LANDS

4. Introduction

This section of the management plan presents a prescription for management of the Redrock lands including an evaluation of the key features and key issues to be considered in the management plan.

4.1 Public Consultation

Two rounds of public consultation were organised by the Howth SAAO committee and Fingal County Council. A site visit to Redrock took place on 20th March 2018 and the purpose of this meeting with local residents was to explain the management works undertaken in the winter of 2017-2018 and to get some initial feedback on other works proposed. The second round of consultation took place in the Marine Hotel on 6th February 2019, which was attended by 100+ people from the locality. The draft management actions were presented and local residents were given the opportunity to give their preference on the management options for the site. This feedback provided the basis for the actions proposed in this management report. The outcome of the second consultation is presented in Appendix 2. Another presentation of the draft management plan was given to the committee responsible for the management of Howth Special Amenity Area Order (SAAO).

4.2 Evaluation Key features

The following are the key natural & cultural heritage features of Redrock:

- County Geological Site with exposed cliff sections and exposures of Cambrian rocks
- Several natural habitat types of which one protected within a Special Area of Conservation (SAC) and one is protected under the EU Habitats Directive.
- Six plant species that are rare in Ireland and/or County Dublin.
- Seven red & amber listed bird species
- The Martello Tower which is listed in the RMP and is a protected structure.
- Boundary stones associated with the Martello tower.

In order to evaluate the most important features of Redrock these are listed in order of their relative value in Table 8. This establishes a list of priorities for protection but does not suggest that other features are unimportant.

Table 8: Important features Redrock

<i>Level of value</i>	<i>Feature</i>	<i>Status</i>
International	Dry Heath	Qualifying interest of Howth SAC
	Orchid rich calcareous grassland	Annex I priority Habitat
National	Martello Tower	RMP site
	Curved Hardgrass <i>Parapholis incurva</i>	Rare in Ireland
County	Geological features	County geological site
	Knotted Clover <i>Trifolium striatum</i>	Rare in Co Dublin or Fingal County
	Bird's-foot <i>Ornithopus perpusillus</i>	Rare in Co Dublin or Fingal County
	Bird's-foot Clover <i>Trifolium ornithopodioides</i>	Rare in Co Dublin or Fingal County
	Spring Squill <i>Scilla verna</i>	Rare in Co Dublin or Fingal County
	Boundary stones associated with Martello Tower	Rare in Co Dublin or Fingal County

5 Objectives Management Plan

5.1 Overall Objectives

The overall objectives of this management plan are:

- To protect and enhance the natural heritage of the lands at Redrock.
- To ensure the favourable conservation status of those habitats which are qualifying interests of the Howth Head SAC (Dry Heath).
- To maintain the landscape character of the site
- To facilitate recreational use without having a detrimental impact on the natural environment
- To protect the cultural & historical features on the site

More specific objectives are contained in the following designations:

5.2 Conservation objectives for Howth SAC

The conservation objectives for Redrock (as part of the Howth Head SAC) are to maintain or restore the favourable conservation condition of the Annex 1 habitat European Dry Heathland for which the site has been designated.

The favourable conservation status of the Dry Heath habitat is achieved when:

- The natural range and area covered by the habitat is stable or increasing.
- The actions and factors necessary for a habitats sustainable maintenance exists and are likely to continue to exist for the foreseeable future.
- The conservation of its typical species is favourable

The Annex I habitat type Orchid Rich Calcareous grassland also occurs within the Redrock lands. It is a priority habitat in the EU Habitats Directive, because this type of grassland is rapidly disappearing throughout Europe. Accordingly, although the site is not designated for this particular habitat, it is a requirement under the EU Habitats Directive that this grassland habitat type shall be protected.

5.3 Objectives for Howth SAAO

The overall objective of Howth Special Amenity Area Order 1999 is 'to preserve and enhance the character or special features of the area, including the provision of open spaces'. In pursuance of this objective, no development, other than exempted development and developments within the limitations more especially set out in Schedule 3 attached to this Order, shall be permitted within this area. Other objectives listed in the SAAO which apply to Redrock include:

- Develop heathland management plan including a burning and firefighting plan.
- Control alien invasive plants
- Maintain the footpaths

6.0 Management issues

Site surveys identified various issues that will need to be addressed by this management plan.

- Habitat and landscape management
- Pathway management
- Invasive species control
- Climate change
- Uncontrolled fires

The key concerns are the lack of management and visitor management and the future challenges of climate change.

6.1 Habitat and Landscape Management

During the two rounds of consultation, the public made it very clear that they wish to see the existing landscape protected and maintained. With the exception of the woodland, the landscape at Redrock we see today is a result of its agricultural use in the past. The grasslands would have been grazed and/or hay would have been collected, while the heathland would have been grazed with cows, horses or goats. Livestock would have kept the Gorse, Bramble, Elder, Blackthorn and Bracken at bay, thereby keeping the landscape open and preventing these shrubs taking over the heathland and the shallow soils where the rare plants grow for example. If no landscape management action is undertaken, the grasslands and heathland will slowly transform into scrub and woodland as a result of natural succession. If no management measures are undertaken in the mature woodland it is very likely that this woodland will change significantly over the next decade or two. Most trees are of the same age, which means that they are also likely to die around the same time and this would lead to the loss of most of the woodland as natural regeneration of young pine trees has been very limited.

In order to maintain the present landscape, including the grassland and heathland habitats of national and international nature conservation value, the agricultural practices of the past such as hay making and grazing will have to be reintroduced. The public indicated that they prefer not to see any fences on the site, which has implications for the use of grazing animals. Grazing with livestock would have to be replaced by mechanical or manual

methods to achieve the same effect on the vegetation. This may have significant cost implications, as this management regime will be required in the long term.



Figure 8: livestock such as cows grazed the Redrock up to about 70 years ago

6.2 Pathway Management

Visitors to the Redrock lands use a network of formal and informal pathways to make their way around the site. With the exception of the coastal pathway, most of these pathways are informal grass pathways that are kept open by regular trampling. Vegetation can be sparse on these pathways depending on the level of trampling. Occasionally the grass surface is worn away to the soil underneath due to high footfall. These pathways pose no real problem for the site, with the exception of one track that runs north-south across the shallow soil communities near the central dividing wall. This pathway runs through the only population of the rare plant Bird's-foot *Ornithopus perpusillus*. The shallow soil vegetation is particularly vulnerable to trampling because of the thin soil layer that can erode relatively quickly as a result of trampling. Once the soil is gone, the habitat for these rare species is gone too. Accordingly, this pathway will have to be re-routed.

The coastal pathway and Bog of Frogs loop get the highest footfall and these pathways mainly comprise of gravel or subsoil. Soil erosion as a result of excessive footfall can be clearly observed on the coastal walkway hugging the cliffside to the east of the Martello Tower. This part of the pathway is eroding downward and sideways creating a potential hazard for visitors. The walkway from the central wall to the two piers covering both the coastal pathway and the Bog of Frogs loop are also subject to erosion and the pathway is slowly widening, as users try to find the most comfortable and level parts to walk on. The coastal pathway east of the Martello tower can be relocated further inland to prevent further erosion and to make access easier, while the other section is likely to require some surfacing and water bars.

The ultimate aim is to provide a pathway network throughout the Redrock lands that is comfortable and safe to use and in keeping with its natural surroundings and that will not have a detrimental impact on the nature conservation function of the site.



Figure 9: soil erosion due to excessive footfall on the cliff path

6.3 Invasive Species control

There are three plant species that are considered to be invasive at Redrock; White Bryony and Gunnera, which are alien invasive species and Alexanders, which is considered a native species. These species are considered invasive because they can take over an area and smother all other plants, leading to a loss of plant diversity. If no action is taken it is likely that Alexanders would dominate in the meadows, Gunnera could take over the slightly wetter acid grounds and White Bryony the shallow soil areas. To prevent the loss of rare plant species and to ensure the grassland and shallow soil communities stay in good ecological condition, these invasive species will need to be consistently controlled or eradicated.

6.4 Climate change

As is the case at many natural heritage sites across Ireland and throughout the world, climate change is one of the biggest challenges to site conservation. Due to its coastal location and geology, the Redrock lands will be vulnerable to coastal erosion due to the combination of a soft sediment shoreline, sea level rise and extreme weather events. The potential for coastal erosion has to be considered in terms of the siting and maintenance of the coastal pathway. Climate change can also affect vegetation growth as a result of hotter and drier summers. The shallow soil communities on the rocky outcrops with the rare plants will be particularly vulnerable to persistent dry weather conditions because these shallow soils retain very little water. Hotter and drier weather will also increase the risk of wildfire on the site and this needs to be considered in terms of vegetation management and specific fire management measures to reduce the risk of fire.

6.5 Uncontrolled fires

Uncontrolled fires can pose a threat to habitats and species of the Redrock lands and to surrounding properties. Most of the heathland on the site burned in 2018 as a result of a fire spreading from the adjoining property. Local residents indicated that fires have occurred at the Redrock lands over the last three decades. Some of these would have been started intentionally, while other may have been accidental as a result of a BBQ or thrown away cigarette. Although the blackened landscape may not be the most attractive to look at for a while, nature will recover. Moreover, burning is part of the management regime for rejuvenating heathland as long as it is done at the right time and not more than every 20 years.

To prevent large parts of Redrock burning at the same time, firebreaks will have to be developed throughout the site. It is envisaged that most of the existing surfaced and grass pathways will act as firebreak lines, which prevents the fire from jumping from one area to the other, while also providing access for fire fighting personnel. Access for fire fighting machinery is limited at the moment, with the main staging points from the Carrickbrack road and the track to the Martello tower. The main priority for the firebrigade would be to protect residential property in the vicinity of the Redrock lands (pers comm Dublin Fire Brigade).

When considering the overall risk of fire, the heathland, Gorse scrub and rank grassland are all at risk of wildfire. Most of the heathland burned last year and will therefore be less of a risk over the next decade. Gorse fires are hard to control by the fire service due to the intense heat and the height of the flames. A lot of tall Gorse has been removed from the site over the last two years to reduce the fire risk. However, not all tall Gorse scrub should be removed from the lands as it provides an important breeding habitat for birds such as Stonechat and Linnet too. Instead, a phased approach to Gorse management should be advocated, whereby the existing stands are cut annually on a 10 year cycle (every year 1/10th of the acreage of Gorse on the site is cut down). This would ensure a mixed age class of Gorse which will benefit breeding birds and by removing a lot of dead branches and leaf litter, it also reduces the risk of fire.

A lot of rank grassland is present on the lands, usually in combination with Bracken. At the height of summer the dead grass and the leaf litter of the bracken are quite flammable, but these are likely to burn quite light depending on the amount of dead biomass. Reducing the amount of rank grassland is advisable, particularly in linear sections that act as fire breaks. It is not recommended that all rank grassland is removed as it provides a valuable breeding habitat for Meadow pipit.

The fire risk to the mature pine woodland is relatively low due to the absence of a well-developed ground flora and shrub layer. This prevents the fire from travelling from the ground into the tree canopy. A fire risk was present at the eastern end of the woodland, where Gorse and other shrubs linked into the very flammable pine woodland canopy. Most of these shrubs have already been removed and this risk is to be monitored into the future.



Figure 10: Redrock 8 months after the fire in June 2018

7. Action plan

7.1 Introduction

An action plan is presented in table 8 and Appendix 3 as a basis for management of the Redrock lands over the 10-year period 2020-2030. Implementation of this action plan will be dependent on available resources. The management plan will be reviewed after 5-years to ensure that it is still fit for purpose. The actions are grouped under three headings:

- A: Habitat and Species Management
- B: Visitor Management
- C: Fire Management

In the case of each proposed action the table below gives a summary of the action, objectives of the action, frequency with which the action should be repeated, target date for undertaking the action and responsibilities. A fuller outline of the actions is given in the implementation strategy in section 7.2

Table 8. Action Plan for Redrock

Ref	Proposed action	Objective	Frequency	Target date	Responsibility
A	<i>Habitat and species management</i>				
A1	To cut and collect the hay twice a year in field 1	To protect the existing orchid rich calcareous grassland vegetation and allow it to expand	Twice a year	2020-2030	FCC
A2	Cut back any growth of Bracken, bramble and other tall vegetation around the rare plant sites	To protect the existing colonies of rare plants	Annual	2020-2030	FCC
A3	Cut back any growth of Bracken, bramble and other tall vegetation on shallow soils	To create more suitable habitat for rare plants	Annual	2020-2030	FCC
A4	Strim, scarify and cultivate trial strips in rank grassland	To establish if any rare grassland or arable plant seedbank is present underneath rank grassland	Once	2020	FCC
A5	Manage newly planted saplings in pine wood by strimming the weeds around them and replacing any dead trees.	To maximise survival rates of newly planted trees	Annual	2020-2022	FCC
A6	Monitor mature trees and carry out remedial tree management works where required	To ensure that dead trees or dead branches do not cause injury to visitors	Annual	2020-2030	FCC
A7	Remove invasive species (Alexanders, Gunnera and White Bryony)	To restrict spread of invasive species in native vegetation	Annual	2020-2030	FCC, DNFC, NPWS
A8	Monitor vegetation change using permanent quadrats	To improve knowledge of the changes in vegetation due to management or other factors	Every 3 years	2020-2030	FCC, DNFC

B	Visitor Management				
B1	Re-route the coastal pathway between the Martello tower and the wall further inland	To prevent further erosion of the coastal pathway	Once	2020	FCC
B2	Monitor coastal erosion along pathway near Bellinghams farm and relocate pathway if necessary.	To allow the coastal pathway to be relocated in a timely manner if necessary	Annual	2020-2030	FCC
B3	Re-route informal pathway across rare plant site and install signage to make visitors aware of the rare plants	To prevent rare plant sites being trampled	Once	2020	FCC
B4	Develop small boardwalk over marshy land in field 1	To enhance accessibility to lands	once	2020	FCC
B5	Install bins at 4 entrances	To provide location for disposal of litter and dog faeces	Once	2020	FCC
B6	Organise a brief campaign encouraging dog owners to pick up dog faeces	To reduce the occurrence of dog faeces at Red Rock	Twice	2020-2021	FCC and SAAO committee members
B7	Install 3 seats	To provide seating as requested at public meeting	Once	2020	FCC
B8	Organise guided walks	To raise awareness of flora, fauna and history of the site	Annual	2020-2030	FCC, historical society, DNFC
C	Fire Management				
C1	Build a stone wall along the boundary with Bellinghams Farm	To create a firebreak between Bellinghams farm and Red Rock	Once	2021	FCC
C2	Monitor Gorse growth and remove any tall Gorse near firebreak lines	To maintain firebreaks across Red Rock	Annual	2020-2030	FCC

7.2 Implementation Strategy

7.2.1 Habitat and species management

A1. Collection of hay

The proposed action for this section of grassland is to cut the meadow twice a year and collect all the hay. This will protect the orchid-rich grassland and expand it in places where possible. The cuts will happen biannually, the first one in April/May and the second cut in August/September depending on weather conditions and when the orchids have set seed. The area with the orchids in it shall only be cut once a year in the August/September period. The farmer who mows and collects the grass has observed a reduction in grass volume. While this is beneficial to orchid growth it also suggests that it may not be feasible for the farmer to continue collecting the grass in the long term. Bad weather conditions may also result in the prevention of grass being cut.

Alternatively, temporary grazing may be introduced to the area using horses sourced from local owners. Grazing would take place during the autumn and winter months. The horses would be contained by use of electric fences fencing off sections of the grassland and should include one of the wetter parts of the site to provide fresh water for the horses. Should it not be possible to collect the hay or have it grazed, the council will organise for a contractor to cut and collect the hay and dispose of it.



Figure 11: Hay meadow area with orchid rich grassland highlighted in blue

A2/A3. Cut back Bramble, bracken and other tall vegetation on shallow soils

The removal of Gorse, Bracken and Bramble is necessary throughout sections of Redrock particularly on the shallow soils. The first priority is to protect the existing rare plant sites from incursions by Gorse, Bracken and Bramble. By cutting back these species on other shallow soil areas, more suitable conditions can be created elsewhere in Redrock for the rare plants. For now it is proposed the removal of Gorse and Bramble be carried out by hand by a contractor in September. Grazing with livestock is also under consideration but the public is not keen on the idea of introducing new fencing on the site. The cost-effectiveness of the manual control method will be reviewed after a three year period.

A4 Strim, scarify and cultivate trial strips in rank grassland

Several management options have been considered for this section of grassland and Bracken stands. These options include cutting the grass, grazing, sowing of an arable mix and creating a woodland. According to results from the public consultation, the creation of a woodland and sowing the arable mix are the preferred options. A trial to flail and scarify a strip of the rank grassland to observe flower growth will take place before any decisions are made. This will assist in determining whether there may be any unusual grassland species or arable species present before proceeding with planting trees and starting arable crop management or introducing a haymeadow regime as per action A1.



Figure 12: Area for trial strips in rank grassland

A5/A6 Woodland regeneration

Following the woodland management works in the winter of 2017-2018, young trees have been planted in the open areas to rejuvenate the woodland. These young trees have been encroached upon by more vigorous weeds such as Nettles and Brambles. The vegetation around the young trees is to be cut back by a contractor up to three times a year for the next 3 years. Further thinning out of the woodland is required, particularly of the denser Sycamore stands to give the remaining trees a better chance of survival and to allow more light to reach the woodland floor. The extra light will allow for a ground flora to develop. The old and mature trees are to be monitored for defects, particularly near the pathways, and remedial works shall be carried out as necessary.

A7. Invasive species control

This measure focusses on the control of Alexanders, Bryony and Gunnera at the Redrock lands. Alexanders shall be controlled in the western meadow by means of cutting it up to three times between February-April by a contractor. Bryony and Gunnera shall be dug out of the ground by a contractor and the arisings shall be removed from site to a licenced waste facility. Where Bracken control is required, this will be done by means of a combination of cutting it twice a year in May/June and July/August and by applying the herbicide Asulum with a weed wipe in July. If chemical control measures are applied, warning notices shall be installed on site to notify the public.

Noxious weeds such as Ragwort and Thistles will also need to be controlled as required under the Noxious Weed Act, 1936. It is envisaged that the small pockets of these plants will be controlled by a combination of pulling in June/July (Ragwort) and by applying the herbicide Thistlex or equivalent with a weedwipe or knapsack sprayer in May/June.

A8 Monitor vegetation change using permanent quadrats

A total of 14 permanent botanical quadrats (PQ) were recorded as part of the botanical study of the site in 2018. For each 2 × 2 metre PQ, a high-resolution ITM grid reference was recorded. It is proposed to record these PQ's every three years. This will allow Fingal County Council to closely monitor the effects of the habitat management measures and other environmental impacts (including direct human impacts) on plant species diversity at Redrock.

7.2.2 Visitor Management

B1. Relocate coastal pathway near Martello tower

The coastal pathway immediately east of the Martello tower has been subject to a lot of erosion due to high footfall by visitors. To prevent further erosion of this area, it is proposed to develop a new 1.6m wide gravel pathway on the line of the existing grass track running parallel with the coastal pathway about 20m further inland. The excavated material and sod from the excavations shall be used to backfill the beginning and end sections of the most heavily eroded areas to discourage people from still using this area.



Figure 13: Relocation of Coastal pathway further inland

B2. Coastal erosion monitoring

Coastal erosion is undermining the coastal pathway near the boundary of Bellinghams farm. This area is to be monitored for subsidence on an ongoing basis. Should the cliff face erode to such an extent that the pathway falls into the sea, the pathway will have to be re-routed further inland away from the cliffs and this may require acquisition of lands at Bellinghams farm.

B3. Pathway rerouting near rare plants

There is one area to the north east of the wall dividing the lower field from the higher field where an existing informal track is located on a site with rare plants. The trampling of the vegetation on and along this informal track is having a detrimental impact on the rare plant species. It is proposed to re-route this pathway along the wall and around the rockface and to link it with the informal track coming the grassland to the north. The pathway shall be a 1.2-1.5m wide gravel pathway to clearly delineate it. Signage will be installed along the coastal pathway to encourage to use the new pathway and not walk on the rocky outcrops.

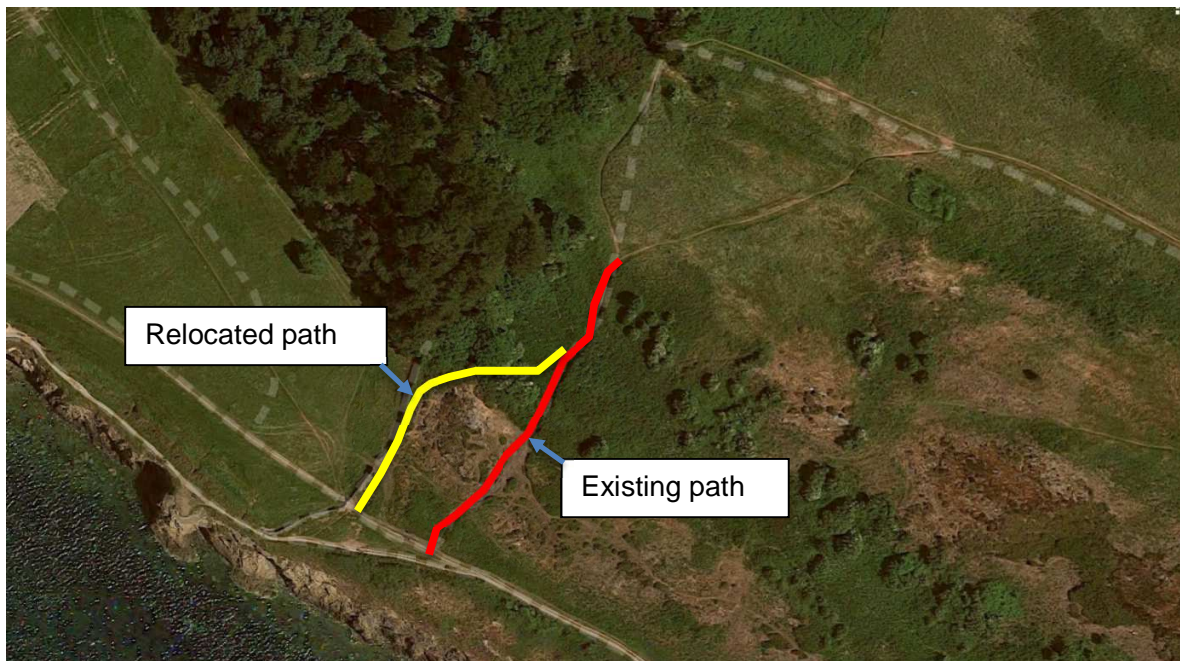


Figure 14: Relocation of informal path around rare plant site

B4. Installation of small bridge

A surface water drain running from north to south near the western end of Redrock, can make access from the right of way at Sutton Castle more challenging. This is particularly the case from late autumn until mid-spring when the drains carries a lot of water. It is proposed to build a small 1.5m wide and 15m long bridge deck over this stream to make access easier.



Figure 15: Site for small bridge

B5./B6. Waste management

Dog faeces can currently be found throughout the site and poses a serious problem for the future management of the site, particularly for hay collecting. Dog faeces can contain a parasite called *Neospora caninum*. As the name suggests, this parasite has a strong connection to canines. The dog is the final hosts of this parasite and passes infective oocysts (eggs) in their faeces. Cattle become infected following ingestion of hay contaminated by dog faeces. The parasites then migrate from the gut, through the blood, and settle out in the reproductive tract and causes late-term abortion in cows.

Sarcocystosis and cysticercosis are transferred in a similar manner and livestock infected with these diseases have to be destroyed, as these diseases can transfer to humans eating contaminated meat. The chance of these disease transfers happening is relatively small, however most farmers are not willing to take the risk and are therefore not interested in collecting or buying the hay that is contaminated with dog faeces.

This would require the hay to be collected and disposed off by a contractor instead, at the cost of approx. ten thousand euros annually. This is considered a serious waste of money that can be easily avoided. It is therefore proposed to install 4 bins at each of the entrances to Redrock to encourage people to pick up the faeces of their dog and dispose of it in the bins. Furthermore, an awareness campaign is planned to take place to increase public knowledge and cooperation. This campaign shall comprise of signage on the site, flyers for the public and talking to dog owners on the site by FCC staff and SAAO Management Committee members.

B7 install 3 seats

The installation of 3 seats at the Redrock lands was requested during the public consultation. These seats are to be installed at scenic locations, facing out to sea.



Figure 16: Proposed locations for seats

B8. Organise guided walks

Guided walks will be organised on an annual basis to raise awareness of the natural and cultural heritage of the Redrock lands.

7.2.3 Fire Management

C1. Construction of stone wall

During the summer months, the vegetation at Redrock can become extremely dry and pose a serious fire risk. In 2018, a major fire took place in the Gorse stands on the Bellinghams Farm. This fire spread into the Council owned lands at Redrock, despite having created a firebreak along the property by removing all the tall Gorse. In this case the fire travelled through the peaty soil and flared up on the other side of the firebreak. It is proposed to build a 1.2m high stone wall along the boundary with the Bellinghams property, where there is an existing old wire fence. This will prevent a fire from moving along the ground. All tall gorse vegetation within a 10m corridor of the wall shall be removed on an ongoing basis to ensure the optimal functioning of this firebreak. This wall will also help to clearly delineate the boundary between the two properties and prevents visitors to Redrock wandering into the privately owned farmlands.



Figure 17: location of proposed wall



Figure 18: existing stone wall

C2 monitor and remove gorse growth

Most of the existing pathways act as firebreak lines to prevent large parts of Redrock burning at the same time. Monitoring must be carried out every 2-3 years to prevent any large connecting stands of Gorse developing. Where this occurs, the Gorse will be cut back where possible or pulled out where necessary. It should be noted that it is not the intention to remove Gorse from the site, but to encourage different stages of Gorse growth. This benefits not only the fire management, but also allows typical heathland scrub birds such as Stonechat and Linnet that breed on the site.

8 Plan Review

This management plan covers the period 2020 to 2030. The plan will be reviewed in 2025 and updated where necessary for a further five-year period 2026-2030 to take account of any changes that have happened in the interim.

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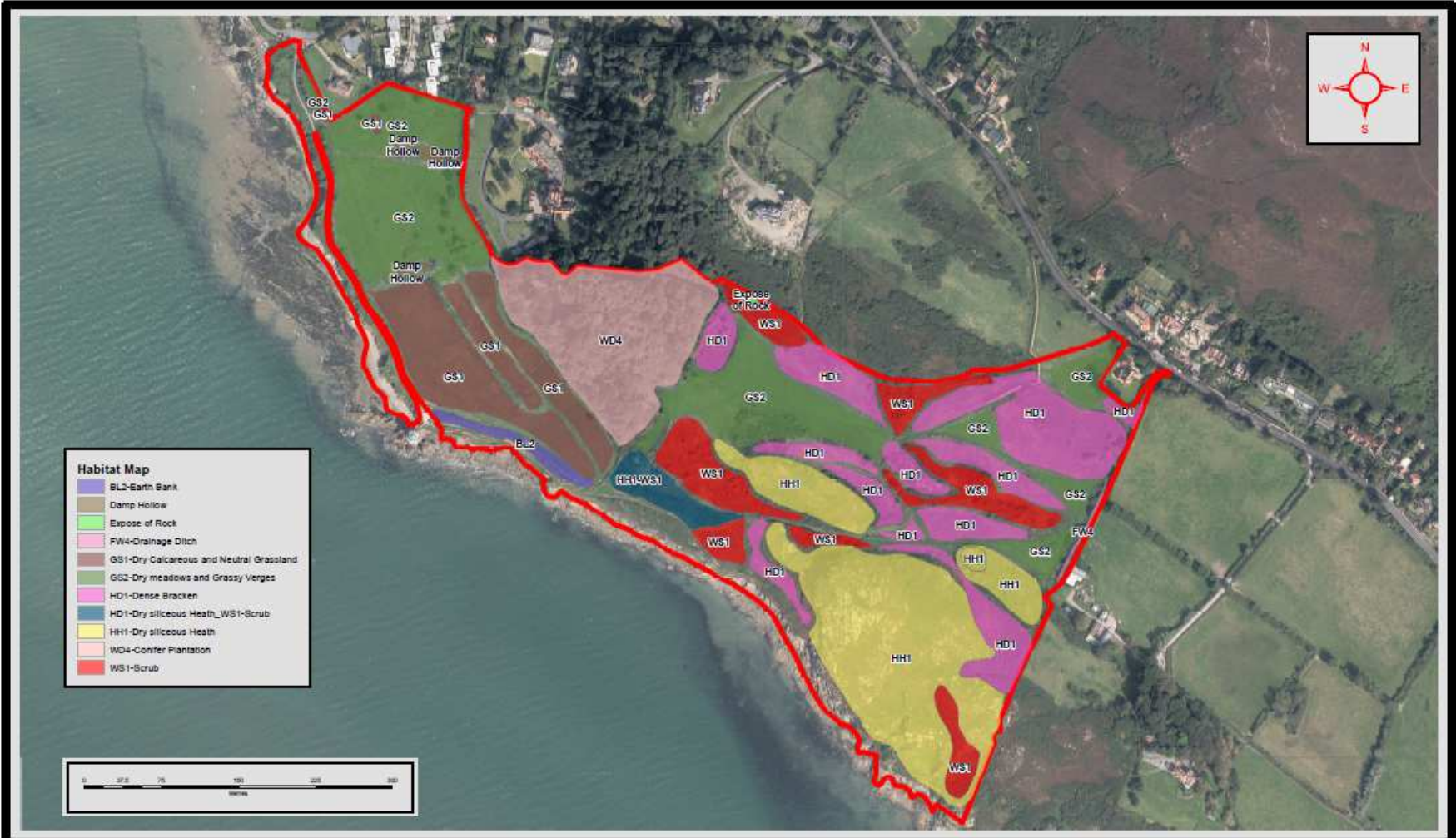
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APPENDIX 1; HABITAT MAP



**Habitat Map,
Redrock Howth.**

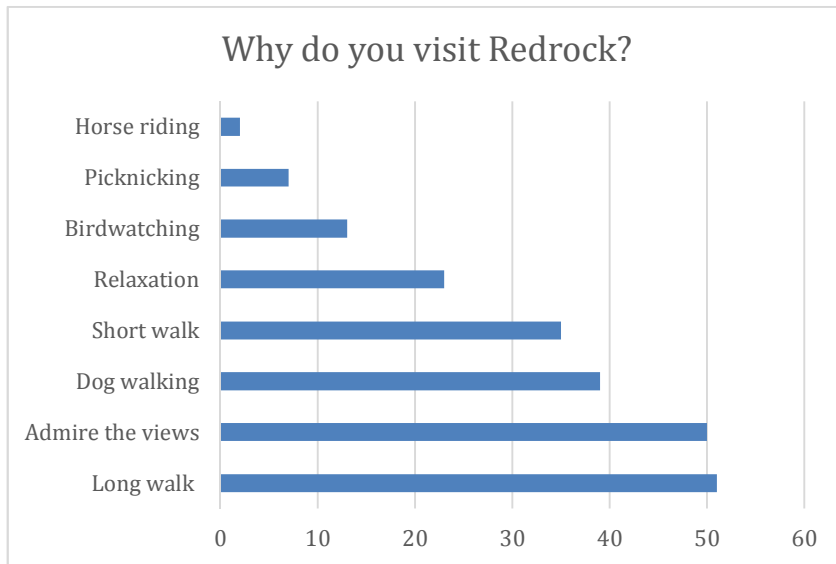
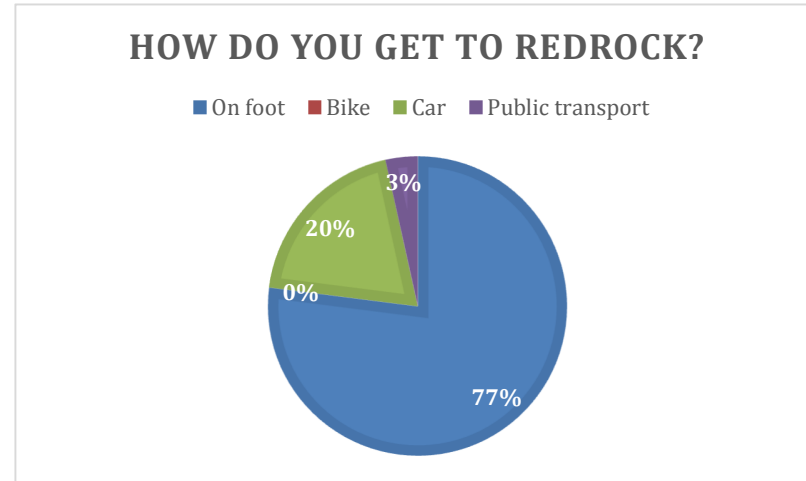
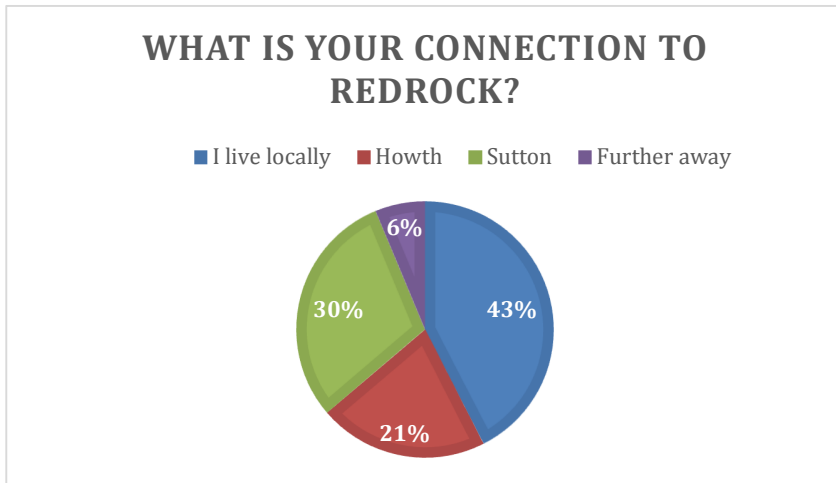
Planning & Strategic Infrastructure Department
 Parks & Green Infrastructure Division
 Senior Parks Superintendent: Kevin J. Halpenny
 Index No.: 5741
 Prepared by: P.C.

Scale 1:3500
 Date: 12/12/2018

Comhairle Contae
 Fhine Gall
 Fingal County
 Council

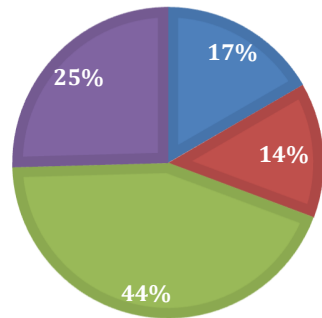


Appendix 2: Results to questionnaires public consultation event (n=80)



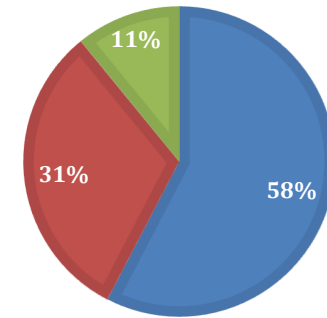
**PREFERENCE GRASSLAND MANAGEMENT
EASTERN FIELDS**

■ Contractor collects Hay ■ Grazing
■ change to arable field ■ change to woodland



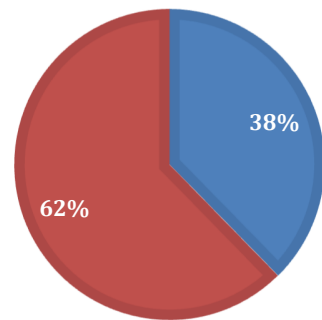
**PREFERENCE MANAGEMENT OPTION FOR
SHALLOW SOIL AREAS**

■ Annual works done manually ■ Grazing regime
■ Large scale works every 10 years



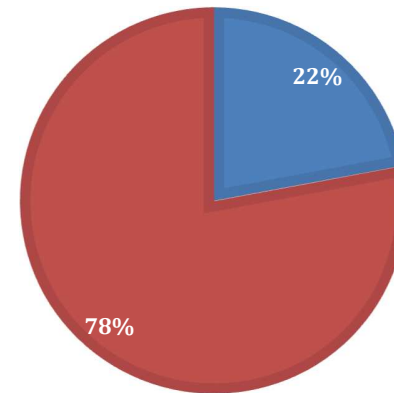
**PREFERENCE GRASSLAND MANAGEMENT
OPTION IN CASE HAY CAN NOT BE
COLLECTED IN LOWER WESTERN FIELD**

■ Collection by contractor ■ Grazed by livestock with temporary fencing



PREFERENCE RE STEPOVER CENTRAL WALL

■ Widen entrance and remove stepover ■ Leave stepover



Appendix 3: Map with Actions

