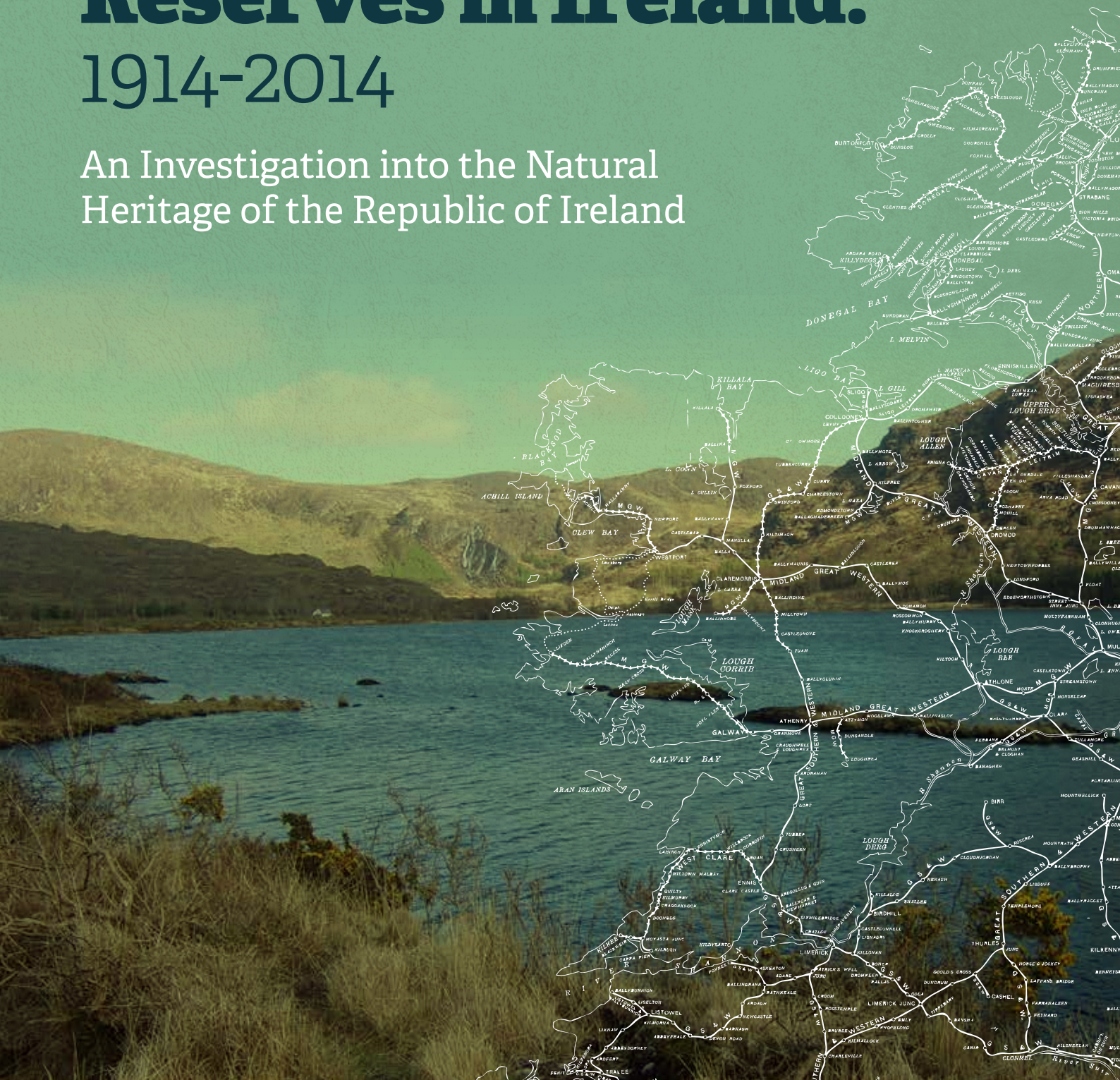


The Rothschild Reserves in Ireland: 1914-2014

An Investigation into the Natural
Heritage of the Republic of Ireland



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Irish Wildlife Trust
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The National Trust for Ireland



Coláiste na hOíscille Corcaigh, Éire
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CENTRE FOR PLANNING EDUCATION & RESEARCH






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List of Abbreviations

AA	Appropriate Assessment
ASI	Area of Scientific Interest
EIA	Environmental Impact Assessment
IUCN	International Union for the Conservation of Nature
NHA	Natural Heritage Areas
NPWS	National Parks and Wildlife Service
pNHA	Proposed Natural Heritage Area
SAC	Special Area of Conservation
SPA	Special Protection Area
SPNR	Society for the Promotion of Nature Reserves
TWT	The Wildlife Trusts
UNESCO	United Nations Educational, Scientific and Cultural Organization

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Foreword

Our natural heritage is something each generation has to consider afresh. Competing demands for economic wellbeing sit along side those of social and environmental wellbeing. Holding the balance is never easy.

The last century saw some extraordinary pioneering work. None more so than Charles Rothschild, the founder of the Society for the Promotion of Nature Reserves and the forerunner of The Wildlife Trusts in the UK today. In 1914 Rothschild began to organise a survey of wildlife sites in Ireland and a year later he published a list of natural areas around Britain 'worthy of permanent preservation'.

The list included sites in England, Scotland, Wales and 17 in Ireland which are the subject of this report. This place based approach to conservation showed great foresight and although it would take many years for society to adopt the approach he advocated, he was successful in raising awareness of the importance of safeguarding areas of outstanding and fragile natural heritage for future generations to enjoy and benefit from.

The Carnegie UK Trust was founded by Andrew Carnegie in 1913 - one year after Rothschild set up his new Society for protecting nature - with an aim to improve the wellbeing of the people of the UK and Ireland. The Carnegie UK Trust has long recognised the importance of a high quality local environment. In the 1970's our Trustees invested in the fledgling individual Wildlife Trusts and funded their first member of staff. The Wildlife Trusts are now a hugely successful network of 47 independent, local Wildlife Trusts.

In our centenary year we were therefore pleased to support this investigation into the 17 sites in Ireland identified in Rothschild's list so many years ago.

We hope that this report stimulates debate and discussion on the fate of these 'Rothschild reserves' and the value of Ireland's outstanding natural heritage.



Martyn Evans,
Chief Executive, Carnegie UK Trust



Executive Summary



Introduction

Founded in 1912 by the banker and naturalist Charles Rothschild, the Society for the Promotion of Nature Reserves (SPNR) set out to identify wildlife areas in Britain and Ireland worthy of preservation and to encourage others to acquire these sites and look after them. The SPNR eventually became The Wildlife Trusts in the UK which celebrated its centenary in 2012.

The approach to nature conservation proposed by Rothschild, conserving not only individual species of plants and animals but also the habitats on which they depended, represented a new and more scientific and habitat-based attitude to wildlife conservation than was conventional at the time. Rothschild's ideas were ahead of his time and this approach did not become mainstream within the nature movement for many years. The Society's main aim was "to urge by means of the press, by personal efforts and by correspondence with local societies and individuals the desirability of preserving in perpetuity sites suitable for nature reserves"¹.

Once established, one of the Society's first tasks was to prepare a list of important wildlife sites in England, Scotland, Wales and Ireland. Rothschild coordinated this work himself, writing to local natural history clubs and societies asking them to supply information about potential sites. He talked at public meetings, visited and negotiated over sites as well as despatching others, to all parts of the British Isles. George Druce, for example, visited County Kerry in 1914 "to check out an estate at Clooney on Kenmare Bay belonging to the Marquis of Lansdowne."²

The aim of the study

The Society published a list of 284 sites of wildlife importance in England, Scotland, Wales and Ireland in 1915 – the so-called 'Rothschild Reserves'. Seventeen sites on the SPNR list were in Ireland and these are the focus of this report, which was commissioned by The Wildlife Trusts and funded by the Carnegie UK Trust. The key aim of the study is to stimulate interest in the history, and the future of nature conservation in Ireland. (1914 is the earliest recorded date for SPNR field surveys in Ireland and for this reason our report analyses the fortunes of these sites over a 100 year timeframe 1914-2014.)

Methodology

The project was undertaken in two phases.

Phase 1 involved a desk based study which:

- Provided an overview of nature conservation in Ireland.
- Compiled a file on each site including the boundary proposed by the SPNR, reasons for inclusion on Rothschild's list, current site condition and designations, key habitats and species, threats and opportunities and any interesting stories or anecdotes.
- Produced maps for each site showing present boundaries and protective designations alongside the original SPNR maps.

Phase 2 comprised a site survey which:

- Established site boundaries, land uses and the landscape character of the area.
- Gathered limited on-site evidence of the ecological condition of habitats and key species the sites were originally noted for.
- Gathered on-site evidence of present management, as well as other factors driving change while noting any particularly damaging activities.

Work on the project was overseen by a reference group comprising An Taisce, the Irish Wildlife Trust, Centre for Planning Education and Research University College Cork, the Carnegie UK Trust and The Wildlife Trusts. Reports were also circulated to others with an interest and expertise in Ireland's wildlife.



Charles Rothschild – founder of the SPNR

Policy context: nature conservation in Ireland

The publication of the SPNR's list of proposed reserves in 1915 was a notable event in the history of Irish nature conservation but it was more than a decade before significant progress was made in the protection of any of the sites identified. The first sites to receive protection were North Bull Nature Reserve in Dublin Bay (established under the Wild Birds Act in 1930) and the Killarney Lakes which was gifted to the state and subsequently designated as a national park in 1932.

However, it wasn't until the 1970s and 1980s that comprehensive schedules were compiled of outstanding landscapes and areas of scientific interest in Ireland. Today, the National Parks and Wildlife Service has responsibility for protecting wildlife alongside several charitable and local organisations, and there are a number of key national and European protective designations. At a national level there are Natural Heritage Areas (NHAs) and Proposed NHAs, Nature Reserves and National Parks whilst the principal European designations are Special Protection Areas (SPAs) designated under the Birds Directive and Special Areas of Conservation (SACs) designated under the Habitats Directive. Despite these designations many of the protected habitats are described in recent reports by government agencies as being in poor condition. All sites described as SACs in the report are currently 'candidate' SACs pending formal designation by statutory instrument.

The Rothschild Reserves: proposed Irish sites

In 1915, the SPNR drafted an initial list of 20 areas of wildlife importance in Ireland (which included sites in what is now Northern Ireland). This list (see format below) was subsequently refined to 17 sites and all of those sites in the Republic of Ireland remained on the final list of proposed nature reserves.

1 Sands, T. (2012) *Wildlife in Trust*. Elliott & Thompson, p.2

2 Sands, T. (2012) *Wildlife in Trust*. Elliott & Thompson, p.6

Nº	Site Name (from SPNR)
213	Brandon Mountain, Co. Kerry
228	Benbulbin (SW side), Co. Sligo
210	Burren, nr. Ballyvaughan (great botanical interest)*
88	Cloonee, Co. Kerry
214	Gap of Dunloe, Co. Kerry
212	Errisbeg, nr Roundstone, Co. Galway*
215	Lake of Killarney and surrounding, Co. Kerry (scenery and botanical interest)
208	Shores of Lough Neagh, Co. Antrim (rare plants)
212	Lough Nagraiguebeg, Co Galway (Lusitanian Flora)*
211	North Bull, Dublin
217	The Raven, Co. Wexford
216	Rostonstown Burrow, Co. Wexford
209	Cliffs at White Park Bay, Co. Antrim
218	Sand Dunes near Wicklow, Co. Wicklow
80,80a, 80b	Ahascragh Bog, Co. Galway (of general and botanical interest)*
83	Killucan Bog, nr Mullingar, Co Westmeath (of general and botanical interest)*
81	Mowhill Bog, Co. Leitrim (of general and botanical interest)*
82a	Bogs near River Shannon, Co. Galway (of general and botanical interest)*
Nº	Areas of Secondary Importance
10	Saltee Islands, Co. Wexford (breeding-place of birds)
55	Area South of Kenmare River, Co. Kerry

Table of 'Rothschild Reserves' in Ireland

Correspondence suggests that most sites were selected on the basis of recommendation by naturalists and landowners. Survey forms give reasons for inclusion in the list but this is often for general reasons such as representing 'typical primeval country'. However, for some of the sites more detail was provided, for example, on notable species which had been found there. The SPNR also organised some field surveys

The 17 sites in Ireland represent a variety of habitat types although as Cabot points out, with a bias towards 'bogs, salt marshes, shingle beaches and sand dunes'³, which the SPNR considered the most characteristic types of wild country in Ireland. Five of the sites were referred to as bogs and these are the sites which have suffered greatest damage in the intervening years. The 'bog bordering the Shannon at Shannon Harbour' has been almost entirely cut away, and parts of three other peatland sites have suffered significant damage.

Today, 13 of the 17 sites have some variety of national heritage designation and 12 are also covered by European conservation designations. The sites without protective designations are the 'bog bordering the Shannon', which has already been largely destroyed and 'bogs near Mohill and Killucan' which have been partly damaged. It has not been possible to definitively locate one other site, that 'South of Kenmare River, County Kerry'.

The Rothschild sites today



Bogs about Ahascragh, County Galway

Several bogs near Ahascragh in Co. Galway were proposed as SPNR nature reserves. These occur in three main locations, Killure, Annaghbeg and Derryfadda. The areas were proposed on account of their representation of 'typical primeval country' and for the moths *Eupitheca logata*, *Melitaea aurinea* as well as species of *Eriophoria* (Bog cotton), a variety of which, *E. vaginatum*, is

reported by the National Parks and Wildlife Service to be currently present on the site. The bogs in two areas (Killure and Annaghbeg) remain today, and are NHAs, while the third, Derryfadda, has been industrially harvested for peat. Both of the NHA sites are threatened by turf cutting and afforestation.



Ben Bulbin, County Sligo/Leitrim

The SPNR site occurs on the south-west side of Ben Bulbin, West of Glen Car, County Sligo. It contains the famous summit and cliffs of Ben Bulbin (526m), located at the northern tip. In the original survey, the site was recorded as a piece of typical primeval country and of notable importance for plants such as *Arenaria ciliata* and *Polygala babingtonii*. Today the site has SAC and pNHA designations, whilst the steeper slopes and cliff habitats around the perimeter have SPA status. It is particularly noted for its arctic-alpine species and is largely intact. There are no significant threats to the site, perhaps partly as restricted access reduces human impacts on the site's wildlife.



Mount Brandon, County Kerry

Mount Brandon lies in the north of County Kerry, in the south west of Ireland, close to the northern coast of the Dingle peninsula. Overlooking Brandon Bay, it is the second highest mountain in Ireland at 920m. The mountain contains several steep cliffs and a relatively flat plateau, with several lakes on lower ground to the east. The SPNR documents do not give any reasons for the site's inclusion on the list, nor do they mention any particular species. Key habitats present today include alpine and boreal heaths, lakes and inland cliffs. The site is largely intact and is currently covered by European designations. Threats to the lower slopes are posed by overgrazing, burning and afforestation.



Cloonee Valley, County Kerry

The remote Cloonee Valley lies in Co. Kerry, to the south of the River Kenmare estuary. It was proposed for preservation by the SPNR on account of its beauty, and also its flora and fauna, in particular the Strawberry tree (*Arbutus unedo*). Key habitats on site include a chain of several (oligotrophic) lakes as well as Uragh Wood, an ancient oak woodland. The site is intact and is designated as an SAC and pNHA. *Arbutus unedo* is recorded as present on site by the National Parks and Wildlife Service. Threats include coniferous afforestation and deer overgrazing.

³ Cabot, D. (1999) *Ireland*. The New Naturalist series, HarperCollins London, p.433



Errisbeg and Nagraiguebeg, County Galway

Errisbeg lies on the south coast of Co. Galway in the west of Ireland, and Lough Nagraiguebeg lies in the bogland to the north. The main habitats at the sites proposed for preservation by the SPNR are wet and dry heaths on Errisbeg, and lowland atlantic blanket bog and lake habitats in the area around Lough Nagraiguebeg. The site is noted for its Lusitanian flora. Species identified by the SPNR were *Erica mackiana* and *Erica mediterranea* (both observed on a contemporary site visit), *Arabis ciliatus*, *Najas flexilis*, and *Castalia alba occidentali*. Both sites are largely intact and are protected by European designations. Bog and heath burning and some overgrazing are potential threats to both sites.



Gap of Dunloe, County Kerry

The Gap of Dunloe was proposed as an SPNR nature reserve for its general scenic and botanical interest. There is little official data specific to this site as it falls within the larger SAC and pNHA of the Killarney National Park and McGillicuddy Reeks, although the Gap itself lies just outside the National Park boundary. The SPNR boundary stretches along a narrow gap running approximately 11km in length, and which runs in a north-south direction. It is an example of a glacially breeched watershed dominated by blanket bog and open water habitats. There are no particular threats identified for this site which is largely intact.

Area South of the Kenmare River

The list of provisional SPNR reserves names an 'Area South of the Kenmare River'. Correspondence in the SPNR's Kenmare (River) file (55) contains a letter from Mr Richard Barrington which describes this site as 'about 2000 acres and to the south of the Kenmare River and east of Derreen'. From reading the Cloonee Valley file, this corresponds to the Cloonee site in both location and in acreage (Cloonee was 2130), and is also owned by Lord Lansdowne. The Cloonee Valley lies to the south of the Kenmare River, which is the name of the estuary. It seems possible that the SPNR site 55 (Kenmare River) was a precursor to site 88 (Cloonee Valley), as the site described seems very similar.



Lake of Killarney and surroundings, County Kerry

The Upper Lake and surroundings were identified as the main area of interest in the survey of Killarney, although the SPNR map also included the nearby Muckross Lake and surroundings to the north. It is recorded for its 'very lovely scenery of botanical interest', but there is no reference to any particular habitats and

species. The site is one of the most extensive of the Rothschild Reserves and today forms a large part of the Killarney National Park which is over 10,289ha in its entirety. As well as a National Park, the site is also designated an SAC, a pNHA and part of it is an SPA. There are no acute threats facing the site due to the stringent management plan in operation. However there are some issues facing the entire park where the most vulnerable habitats are the woodlands (sensitive to overgrazing and the invasive spread of *Rhododendron ponticum*) and bogs (sensitive to grazing, burning, turbary and afforestation).



Bogs near Killarney, County Westmeath

The SPNR proposed that three main areas of bog in Co. Westmeath, be protected on account of their peatland habitats. The bogs were noted for the presence of the Marsh Ringlet butterfly *Coenonympha typhon*, as well as being representative of 'typical primeval country'. Bog cotton (*Eriophorum angustifolium*) was also noted in this area and was observed on the site visit. None of the sites are currently protected by European or national designations. Of the three main areas of bog, two appear partly intact while one area appears to be partly afforested and partly converted to agriculturally improved grassland.



Bogs near Mohill, County Leitrim

Four bogs near Mohill in Co. Leitrim were also proposed as nature reserves on account of the presence of the rare Marsh Ringlet butterfly *Coenonympha typhon*, and Bog cotton (*Eriophorum angustifolium*), as well as for their representation of 'typical primeval country'. Both species were observed during the site visit. Of the four bogs, one is largely intact, two are partially intact, having been affected by turf cutting and afforestation, and the remaining site is heavily forested. None are protected by national or European designations.



North Bull, Dublin Bay

North Bull or Bull was proposed as a nature reserve by the SPNR, but without any site description. The island is a unique landform on the east coast of Ireland, close to Dublin city. It covers an area of around 1944ha and is still growing. It accommodates a diverse range of coastal habitats, including mud and sand flats, lagoons, salt marshes, sand dunes, beaches and grassland, and is particularly noted for its birdlife. The site holds more protective designations than any other site in the report. Along with SAC, SPA, and pNHA designations, it is also a Nature Reserve, a RAMSAR wetland site, UNESCO Man and Biosphere Reserve,

Public Open Space/Park, Bird Sanctuary and Special Amenity Area. While there are no acute threats, managing recreational pressures such as dog walking, fly tipping and invasive plant species are a priority on the island.



Raven's Point, County Wexford

Whilst the Raven's Point or 'The Raven' in Wexford Harbour, was identified as a proposed reserve, no information is provided other than land ownership at the time. The site is dominated by coastal dune and coniferous woodland habitats and covers an area of 589ha. It is designated as a Nature Reserve, SAC, SPA and pNHA and is an important area for rare flora and fauna including species of national importance that have elsewhere disappeared. It also forms part of the larger Wexford Wildfowl Reserve. Despite the ongoing management measures to conserve the site's habitats and species, the reserve has been facing significant problems of anti-social behaviour and high levels of littering in the woods and on the dunes.



Rostonstown Burrow (Lady's Island Lake), County Wexford

The sand and shingle barrier at Rostonstown's Burrow (Lady's Island Lake), Wexford was identified as a potential SPNR nature reserve. The site is a 200m long spit which is continually breached and supports a rich variety of plant species. Its existence gives rise to a brackish lake just inside the coastline, which is home to an important breeding population of terns. Today the site is protected as an SAC, SPA and IBA (Important Bird Area). The lake area adjacent to the SPNR site covers about 450ha. Potential threats to the site include the periodic breaching of the barrier which can affect wildlife, as well as horse riding and motor cycling.



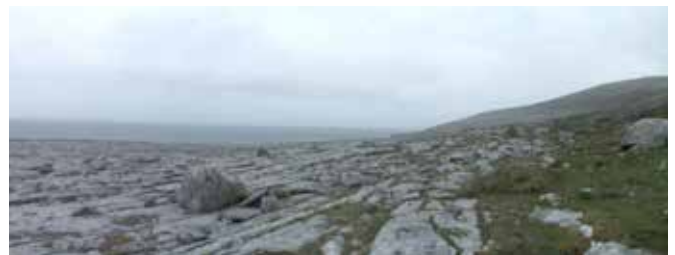
Saltee Islands County Wexford

Great Saltee and Little Saltee, two small islands off the coast of Wexford, were together identified as a proposed SPNR reserve. They are noted as a 'wonderful breeding place for seabirds' and a locality for scarce plants, but with no additional details. The site has the most impressive bird population of all the sites, with massive breeding colonies of a large variety of seabirds. The islands are presently uninhabited, but a bird observatory exists on Great Saltee. Today the islands are designated as an SAC, SPA and pNHA and they cover an area of 120ha. Together they form one of Ireland's most famous bird sanctuaries.



Bogs bordering the Shannon at Shannon Harbour

The SPNR proposed that the bog bordering the River Shannon, at the junction between the River Shannon and Grand Canal, be protected as a 'typical example of primeval country' and a 'breeding place of scarce creatures'. While there is no exact site boundary, the majority of the peatland habitat in this location has been industrially harvested and has been largely destroyed. Adjacent to the site are the Shannon Callows SAC and SPA which are seasonally flooded grassland habitats, protected under European conservation designations. As the bog habitat no longer exists, much of the site data relates to these areas. Threats to the Shannon Callows include agricultural intensification and summer flooding which can affect bird populations.



The Burren near Ballyvaughan, County Clare

Three sites within the Burren, an extensive area of limestone pavement in the west of Ireland, were proposed as nature reserves on account of their 'great botanical interest'. The sites lie in northwest Co. Clare, near the village of Ballyvaughan, which lies on the southern shore of Galway Bay. The habitats proposed for preservation by the SPNR include an extensive area (almost 270ha) of coastal limestone pavement, near Black Head, as well as sand dunes, a river with tufa formation and a turlough site (temporary lake). Two of the sites are now designated under European Habitats Directives as SACs. The third site, a small area of limestone pavement, is partially intact and not designated. The main threats to the sites are recreational pressures, agricultural intensification and overgrazing.



Wicklow Sand Dunes (Magherabeg), County Wicklow

The Magherabeg Dunes on the Wicklow Coast were identified by the SPNR as a proposed nature reserve. The site documentation lacks detail on the reasons for its inclusion on Rothschild's list, yet the map delineates a clearly defined site with a border to the edges of the dunes. Today, the site has SAC and pNHA designations and a conservation plan. Wildlife interest lies primarily with the dune systems and petrifying springs. The site covers an area of around 74ha. The site identified by the SPNR appears largely intact. While there are some potential management issues, threats are reduced by limited access.

Conclusions

In conclusion, the study recognises the foresight of Charles Rothschild and the Society for the Promotion of Nature Reserves (SPNR) in identifying some of what are still today the most iconic landscapes and wildlife habitats in Ireland, places such as the Killarney Lakes, the Burren, Connemara, Ben Bulbin, and Mount Brandon. Our study has shown that a majority of these sites have subsequently been protected and survived largely intact. Only one of the sites on the SPNR list (a bog near the River Shannon) has been entirely lost (due to industrial peat harvesting), although three other sites (principally bogs) have lost some habitat. This compares favourably with the situation in England where a similar study carried out by Miriam Rothschild (Charles Rothschild's daughter) and Peter Marren in the 1990's found that over half of English sites on Rothschild's list had suffered serious habitat loss.

This report provides a snapshot in time of the status of the Rothschild sites with the best records, knowledge and data available to us. It is perhaps not as thorough as we would like it to be, but, overall, it is encouraging that nearly all of the sites still exist today. The data allows us to determine 'what next' for the Rothschild Reserves. We can look to one site specifically, the Burren, as an exemplar of future site and landscape management options and opportunities and to the Irish National Biodiversity Plan (2011-2016), which if implemented fully, could deliver positive long term outcomes for nature in Ireland and the wider issues of ecosystem health and function at a landscape scale.

We note that the SPNR sites are perhaps not altogether representative of important present day landscapes and wildlife habitats in Ireland. As Cabot points out the main focus of the list was on the "bogs, salt marshes, shingle beaches and sand dunes [which] were the most characteristic types of wild country in Ireland and had no exact counterpart on the continent"⁴. In this sense woodland, marine, grasslands, lakes and rivers habitats were perhaps considered less worthy of preservation, than they are today. And this perhaps accounts for what those with an interest in Irish wildlife might consider to be omissions from the list, sites such as the woodlands at Glengarriff and the unique marine ecosystem of Lough Ine, both in County Cork. Nevertheless, as Cabot acknowledges the SPNR list was a 'milestone in history of Irish Nature Conservation' which 'set an important foundation for future development'⁵ as amply illustrated by our study.

We must also add a note of caution to any impression that might have been given that all is well with the majority of sites on the SPNR list. In addition to the site near the River Shannon that has been lost entirely, three other sites have lost important habitat and the remaining parts of two of these (bogs at Killucan and Mohill) do not benefit from any protective designations. We note that the SPNR sites that have suffered most damage have been peatlands, despite the international importance of these habitats. Ireland's raised bogs are national treasures – a fundamentally important part of the country's natural heritage and landscape. However 86% of Ireland's raised bogs have been lost, and it is estimated that between 2% and 4% of the remaining active area continues to be lost annually. It is estimated that the carbon emitted annually from degraded bogs in Ireland is broadly equivalent to Ireland's annual emissions from cars. The re-wetting and restoration of bogs has the capacity to secure existing carbon stocks and re-initiate the carbon storing ability of degraded bogs.

Peatland restoration is an important mechanism for countries such as Ireland to meet its national greenhouse gas targets and contribute towards tackling climate change. The Irish habitats that are most threatened by climate change include many that are found on the SPNR list. On the Rothschild list the bogs, coastal habitats and montane ecosystems which contain arctic-alpine plant communities at the southernmost point of their distribution range are the most likely to suffer the negative impacts of climate change first. Similarly the poor condition of peatland habitats will be exacerbated by drier summers and the encroachment of vascular plants which will cause further water loss.

A further reason for caution is that until the Government fulfils its obligations under the European Habitats Directive and Candidate SACs (Special Areas for Conservation) become full SACs, some sites will continue to exist without management plans. Similarly the vast majority of NHAs in Ireland, including several on the SPNR list, are still 'proposed' rather than fully designated NHAs which substantially weakens their status in the face of any threats.

The future of the SPNR sites cannot be considered in isolation of the wider countryside that surrounds them, and in many ways, their future depends on how the adjoining land and landscapes are managed. We accept that biodiversity protection must afford special attention, but to ensure site safeguard we must look to rebuilding robust and resilient ecosystems, and this means working at a landscape level. At this scale, we can start to address many of the detrimental land management practices and threats that these sites still face like overgrazing, drainage and forestation that lead to habitat degradation, fragmentation and loss.

It is possible to achieve productive agricultural systems and rebuild biodiversity. This is an evolving approach across the EU called high nature value farming. One of the sites selected by the SPNR – the Burren - has followed this model of thinking through the Burren Farming for Conservation Programme. This is a new agri-environment scheme targeting the Burren area on land that is not necessarily designated for conservation. One hundred and seventeen Burren farmers have been selected to take part in the scheme based on environmental criteria of their holdings. At this kind of scale and sympathetic management, rebuilding biodiversity and ecosystems is possible.

With regards to the future survival of these sites, we can perhaps look to Ireland's National Biodiversity Plan 2011-16. On the face of it, halting further biodiversity loss, planning for the protection, conservation and sustainable recovery of biodiversity and the acknowledgement of the intrinsic, social and economic value and benefits of biodiversity and associated ecosystems, appear to be onward organising principles for underpinning government duties and responsibilities.

However the scale of the challenge is reflected in a recent report on the state of Ireland's habitats, carried out by the National Parks and Wildlife Service, which highlighted the degraded status of many key habitats such as bogs, coastal dunes and upland heaths. Of the 58 habitats assessed only five are considered to be in 'good' condition. Up to a third of all species assessed so far are threatened with extinction to one degree or another. The Food Harvest 2020 strategy which aims to increase agricultural productivity will put further pressure on habitats and species.

The goods and services provided by biodiversity are estimated to contribute a minimum of €2.6 billion per annum to the Irish economy. This natural capital is the foundation upon which our agriculture, forestry, fisheries and tourism sector depends and is vital for sustaining vital societal services such as crop pollination, carbon sequestration and climate regulation, the purification of water and air and flood control. This is not to mention the cultural and recreational benefits that are sustained by wild places and landscapes. A land-use strategy, incorporating sustainable farming alongside planning and habitat protection, could help to balance the competing demands on Ireland's wildlife and natural resources.

Irish wildlife and landscapes are under considerable pressure. We hope that this study will help raise awareness about the value of Irish wildlife and of the need to protect it from the many pressures that are identified in the individual site reports. The wellbeing of the sites, identified by the SPNR 100 years ago, could perhaps become a useful barometer of the state of nature in the country as a whole. We hope the next report on their status will be a positive one.

⁴ Cabot, D. (1999) *Ireland. The New Naturalist series*, HarperCollins London, p.433
⁵ *Ibid.* p.435

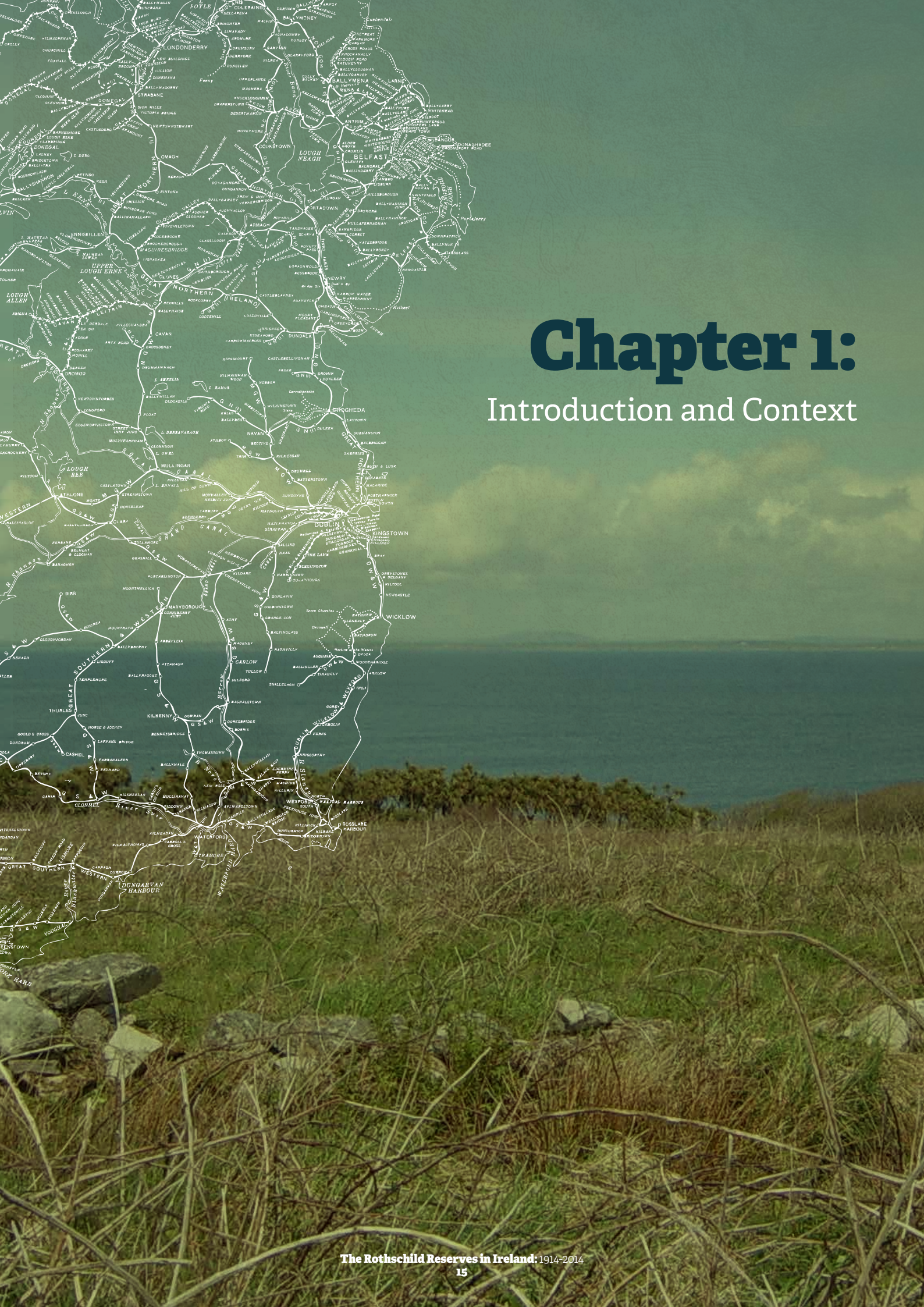
Recommendations

1. We recommend that our findings be used as a contribution towards continuing the debate and discussion on the status of nature and habitat condition in the Republic of Ireland today.
2. We would encourage the Irish Government to move quickly to fulfil its obligations under the European Habitats Directive to continue the process of designation as proposed in the Prioritised Action Framework for Natura 2000⁶ of sites designated as Special Areas for Conservation (SAC) and review the list of Proposed Natural Heritage Areas (with a view to giving many more full status) urgently whilst avoiding downgrading any existing NHAs.
3. We would also encourage the Irish Government to produce and publish conservation objectives and management plans for those sites on the Society for the Promotion of Nature Reserves (SPNR) list currently without them, engaging with local communities in the process. We would welcome a full ecological condition assessment to be undertaken for the SPNR sites and a monitoring programme put in place thereafter to record habitat quality and collect species data.
4. We further encourage the Government to fulfil its obligations set out in the National Biodiversity Plan 2011-2016 and to invest more funds into the restoration, protection and conservation of biodiversity and associated ecosystems in and beyond protected sites.
5. We encourage the Government to use the CAP and Rural Development Programmes as opportunities for delivering biodiversity, ecosystems and landscape restoration, function and resilience. We support the development of high nature value farming partnerships and maximum funding being made available through the CAP to support agri-environment schemes and wildlife-friendly farming. The Rothschild sites could be used as the core zones of landscape restoration schemes.
6. We support work to restore and protect peatland habitats in Ireland. At a European scale Irish peatland is a habitat of significant importance and is a valuable part of the country's natural heritage. We support the Government in fulfilling its commitment to the cessation of peat-cutting on SACs.

Finally we welcome the fact that this report has provided an opportunity for voluntary groups in the Republic of Ireland to work together and to develop stronger links between wildlife conservation organisations in Ireland and the UK. We hope that this relationship will continue to grow and our work to restore wildlife in Ireland and the UK will benefit from this.

6 http://www.npws.ie/publications/archive/IE_PAF_draft_1.1_Jan2013.pdf





Chapter 1:

Introduction and Context

Introduction: The Rothschild Reserves in Ireland

Founded in 1912 by Charles Rothschild and three others, Charles Edward Fagan, William Robert Ogilvie-Grant and Francis Robert Henry, the Society for the Promotion of Nature Reserves (SPNR) set out to identify wildlife areas in Britain and Ireland 'worthy of preservation' and to encourage others to acquire these sites and look after them. The SPNR eventually became of The Wildlife Trusts in the UK, which celebrated its centenary in 2012.

The approach to conservation proposed by the Society, conserving not only individual species of plants and animals but also the habitats on which they depended, represented a new and more scientific and habitat-based attitude to wildlife protection than was conventional at the time. This approach did not become mainstream within the nature movement for many years. The Society's main objective was "to urge by means of the press, by personal efforts and by correspondence with local societies and individuals the desirability of preserving in perpetuity sites suitable for nature reserves"⁷.

Once established, one of the Society's first tasks was to prepare a schedule of sites of wildlife importance in England, Scotland, Wales and Ireland. Rothschild coordinated this work himself, writing to the many independent local natural history clubs and societies asking them to supply information about potential sites⁸. He talked at meetings, visited and negotiated over sites as well as dispatching others, mainly friends, to all parts of the British Isles. George Druce, for example, visited County Kerry in 1914 "to check out an estate at Clooney on Kenmare Bay belonging to the Marquis of Lansdowne"⁹. (1914 is the earliest recorded date for SPNR field surveys in Ireland and for this reason our report analyses the fortunes of these sites over a 100 year timeframe 1914-2014.)

A list of 284 sites was subsequently published in 1915, including maps of the proposed nature reserves (maps for the Irish sites are reproduced in the text) the so-called 'Rothschild Reserves'. Whilst the list was presented to the British Board of Agriculture, no immediate action was forthcoming and it wasn't until many years later that the Society's ambitions began to be realised. Many of the original sites are now protected as nature reserves although some have also been lost in the intervening years. Seventeen sites on the SPNR list were in Ireland and these are the focus of this report, which was commissioned by The Wildlife Trusts and funded by the Carnegie UK Trust. The key aim of the study is to stimulate interest in the history and the future of nature conservation in Ireland.

Key expected short and longer term outcomes of the project are:

- Improved awareness and understanding of the fate of the Rothschild Reserves, putting Charles Rothschild's vision into an Irish context
- Improved awareness and understanding of the importance of healthy ecosystems and conservation activity
- Discussion and debate on the fate of the Rothschild Reserves and the key issues impacting on these sites and the wider natural environment
- The forging of stronger strategic links with those involved in nature conservation in Ireland and the UK
- Improved opportunities for sharing best practice between conservation bodies in Ireland and the UK
- Development of policy that promotes healthier ecosystems.

Methodology

The project was undertaken in phases, namely:

Phase 1: Desk Based Study

Phase 2: Site Survey

Phase 1 involved a desk based study which:

- Provided an overview of nature conservation in Ireland.
- Compiled a file on each site including the original boundary proposed by the SPNR, reasons for inclusion, current site

condition and designations, key habitats and species, threats and opportunities and any interesting stories or anecdotes.

- Produced maps for each site showing boundaries and current protective designations alongside copies of the original Rothschild maps.

Phase 2 comprised a site survey which:

- Established site boundaries, land uses and the landscape character of the area.
- Gathered on-site evidence of the ecological condition of habitats and key species for which the sites were originally noted (because of the limited time available for the study, on-site evidence was restricted to that which could be observed from a short site visit).
- Gathered on-site evidence of present management, as well as other factors driving change while noting any particularly damaging activities.

Work on the project was overseen by a reference group comprising An Taisce, The Irish Wildlife Trust, University College Cork, the Carnegie UK Trust and The Wildlife Trusts. Reports were also circulated to the Irish Peat Preservation Council, Ulster Wildlife and individuals with particular expertise.

Policy Context: Nature Conservation in Ireland

Evolution of nature conservation in Ireland

The founding of the SPNR in 1912 and the compilation of the list of proposed reserves in 1915 was a significant event in the history of nature conservation in Ireland, and was the first time that important habitats were proposed for conservation¹⁰. While some time elapsed before significant legislation on natural heritage was passed, a number of nature reserves were established with legal protection – the Bourne Vincent National Park Act 1932 established the Bourne Vincent Memorial Park in Killarney gifted to the State, as well as the Wild Birds Act 1930 which established the North Bull Nature Reserve in Dublin Bay. These sites were both on the SPNR list.

In the 1940s and 1950s, suggestions were made for the creation of National Parks, as well as for the establishment of Nature Reserves¹¹, but without any immediate action. However, an important event in 1948 was the setting up of An Taisce, the National Trust for Ireland, with the well-known naturalist Robert Lloyd Praeger as President. Later, An Taisce produced a national list of species and sites that were proposed for protection. This was a predecessor to later lists by An Foras Forbartha¹² (such as the Areas of Scientific Interest in Ireland or ASIs).

Important national nature conservation legislation

The 1960s and 1970s saw the introduction of some important national legislation in terms of nature conservation. The Planning and Development Act 1963 was introduced to regulate development and included several measures to protect natural heritage, providing a mechanism by which a variety of conservation objectives could be included in Development Plans. The Act also introduced the process of development control. The more recent Planning and Development (Amendment) Act 2010 along with the Regulations have continued to introduce changes to development and nature conservation in Ireland.

The Wildlife Act 1976 was a significant piece of legislation for nature conservation, and in particular the protection of wildlife. This was updated by the Wildlife (Amendment) Act 2000 which gives statutory protection to Natural Heritage Areas (NHAs) and strengthens the protective regime for SACs (Special Areas for Conservation). Other legislation includes the Flora Protection Order, most recently amended in 1999.

7 Sands, T. (2012) *Wildlife in Trust*. Elliott and Thompson, p2.

8 Ibid p.2

9 Ibid p6

10 Cabot, (1999). *Ireland – A Natural History*. London: HarperCollins.

11 Bannon, M.J. (Ed) (1989). *Planning: The Irish Experience 1920-1988*. Dublin: Wolfhound Press.

12 Ibid.

Evolution of nature conservation designations

In the late 1970s and early 1980s, An Foras Forbartha (the National Institute for Physical Planning and Construction Research) compiled Inventories that had implications for Irish nature conservation. Many of the Rothschild sites appeared in these inventories – very often noted for their ecological interest. The *Inventory of Outstanding Landscapes in Ireland* (1977)¹³, recorded distinctive features of these sites, often with references to wildlife and habitats, and with a conclusion on the hazards threatening each site at the time.

A few years later an *Inventory of Areas of Scientific Interest in Ireland* (1981)¹⁴ was compiled which recorded natural or semi-natural features of ecological, geological and geomorphological interest of each county. An Foras Forbartha was abolished in 1988 with none of the documents having official status. However the information gathered about these areas was used to prepare a list of Natural Heritage Areas (NHAs)¹⁵.

In 1991 the National Parks and Wildlife Service (NPWS) commissioned a report¹⁶ cataloguing the data in the ASIs. With additions, alterations and new legislation, these areas now fall under one or more of the following designations for the purposes of planning and nature conservation: Candidate Special Area of Conservation (cSAC), Special Protection Area (SPA), Proposed Natural Heritage Area (pNHA), Natural Heritage Area (NHA), Nature Reserve, Proposed Nature Reserve in private ownership, County Geological Site, National Park and UNESCO Geopark. SACs, SPAs and pNHAs are dominant in the evaluation of the Rothschild sites today and elaborated further on. It must be noted that all SACs in Ireland are currently of candidate status. Therefore, all sites referred to as SACs in this report are Candidate SACs pending formal designation as SACs by statutory instrument.

Current nature conservation policy in Ireland

The NPWS is charged with conserving a representative number of habitats and species in Ireland, as well as designating NHAs, implementing European Habitats and Birds Directives, and managing and maintaining the state owned National Parks and nature reserves¹⁷. In November 2011, the NPWS announced the publication of Ireland's second *National Biodiversity Plan 2011-2016*¹⁸, which, in building on the previous version, envisions that biodiversity loss and degradation of ecosystems are reduced by 2016 and progress is made towards substantial recovery by 2020.

Ireland is also bound by Global and European objectives such as the Berne Convention, and the UN Convention on Biological Diversity which requires Ireland and other contracting parties to take measures for the conservation and sustainable use of biological diversity. The EU has responded to the UN's 2010 objectives by endorsing, in 2011, a new biodiversity strategy entitled "Our life insurance, our natural capital: an EU biodiversity strategy to 2020"¹⁹. These higher level objectives generate national strategies such as the *National Biodiversity Plan* mentioned above, and *Ireland's National Strategy for Plant Conservation*²⁰. Red Data Books also form part of the monitoring of biodiversity and currently exist for vertebrates, vascular plants and stoneworts. Further Red Data Books are planned for other species, along with individual species action plans²¹.

The Heritage Council, established under the Heritage Act 1995²², also plays a critical role in Irish nature conservation and halting biodiversity loss. It initiated the establishment of the National Biodiversity Data Centre in January 2007, which is funded by both

the Heritage Council and the NPWS. In a response to Ireland's agreement, along with its EU partners, to 'Halt biodiversity loss by 2010', the centre published *Ireland's Biodiversity in 2010: State of Knowledge*, which works as an inventory of current and principal sources of biodiversity data. While the inventory notes the NPWS (2008) publication entitled *The state of EU protected habitats and species in Ireland*²³ provides an assessment of Annex 1 habitats in Ireland, it remarks that monitoring of non-Annex 1 listed habitats is not carried out at the national level²⁴. The latest plan is *Actions for Biodiversity 2011-16: Ireland's National Biodiversity Plan*.

In addition, Ireland has a number of non-governmental organizations which contribute to research and policy formation, including An Taisce, BirdWatch Ireland, Crann, Coastwatch, Friends of the Irish Environment, the Irish Wildlife Trust, the Irish Peatland Conservation Council, Woodlands of Ireland and a number of other national and local groups.

Core national conservation designations in Ireland

The main national designations are as follows:

NHAs: NHAs are nationally significant ecosystems, protected species locations and natural history sites. They are the basic designation for wildlife in the Republic of Ireland and were established by the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000. The Amendment Act 2000 makes legal provision for the designation and protection of NHA.²⁵

Proposed NHAs (pNHAs): A number of (non-statutory) pNHAs were proposed in 1995 but have not been designated or statutorily protected. Prior to designation, an area proposed as an NHA is subject to limited protection²⁶. Proposed NHAs are currently the most extensive conservation sites.

Nature Reserves: Nature Reserves are protected by ministerial order²⁷, and a large number of these are in state ownership.

National Parks: There are six national parks in the Republic (including Killarney which is on the SPNR list), and these are in state ownership. These are managed according to the IUCN (International Union for the Conservation of Nature) which list certain standards. Under Ireland's current National Biodiversity Plan there is an objective to publish legislation to give a legal basis for Ireland's National Parks by 2013.²⁸

Core European conservation designations in Ireland

The European Directives are significant in relation to conservation of Ireland's natural heritage. Most notable are the Birds Directive [79/409/EEC codified 2009/147/EC] which operates through SPAs, and the Habitats Directive [92/43/EEC] which operates through SACs, the Water Framework Directive [2000/60/EC], and Environmental Impact Assessment (EIA) Directive [85/337/EEC]. Together, SPAs and SACs form a network of protected sites across the European Union called NATURA 2000. The network establishes conservation areas encompassing key species and habitats. The NATURA designation does not automatically curtail activities within the site if these are environmentally sustainable and do not compromise its wildlife value. However, any plan or project which may have an impact on a SAC or SPA must undergo a process called Appropriate Assessment (AA).

The NPWS published an assessment of EU protected habitats and species in Ireland in 2008, which lists 59 protected habitats. Of these, only 7% were considered as having a 'good' overall conservation status, 46% being considered inadequate while 47%

13 An Foras Forbartha (1977), *National Heritage Inventory: Outstanding Landscapes in Ireland*. Dublin

14 An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

15 Cabot, (1999). *Ireland – A Natural History*. London: HarperCollins.

16 http://www.npws.ie/publications/archive/Goodwillie_1992_ASI_Catalogue-1.pdf

17 <http://www.npws.ie/aboutnpws/>

18 <http://www.ahe.gov.ie/en/Publications/HeritagePublications/NatureConservationPublications/Actions%20for%20Biodiversity%202011%20-%202016.pdf>

19 http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7%5B%5D.pdf

20 <http://www.botanicgardens.ie/gspc/pdfs/draftplan.pdf>

21 <http://www.cbd.int/countries/profile/default.shtml?country=ie#thematic>

22 <http://www.irishstatutebook.ie/1995/en/act/pub/0004/index.html>

23 http://www.npws.ie/publications/euconservationstatus/NPWS_2007_Conservation_Status_Report.pdf

24 Fitzpatrick, Ú., Regan, E. and Lysaght, L. (Eds.) (2010) *Ireland's Biodiversity in 2010: State of Knowledge*. National Biodiversity Data Centre, Waterford.

25 <http://www.npws.ie/protectedsites/naturalheritageareasnha/>

26 Ibid

27 <http://www.npws.ie/naturereserves/>

28 DAHG (2011). *Actions for Ireland's Biodiversity 2011-2016 – Ireland's National Biodiversity Plan*. Dublin: DAHG, pp49.

of habitats considered in bad condition. A similar assessment for species showed a more favourable outcome (whilst still case for concern), with 27 out of the 69 listed species assessed as having a 'good' overall conservation status²⁹. These findings are also referred to in a report by the Environmental Protection Agency (EPA), *Ireland's Environment 2012: An Assessment*³⁰, which notes that the majority of Ireland's habitats listed under the Habitats Directive are reported as being in poor or bad condition. Furthermore, the document also refers to the fact that Ireland's biodiversity capital is decreasing.

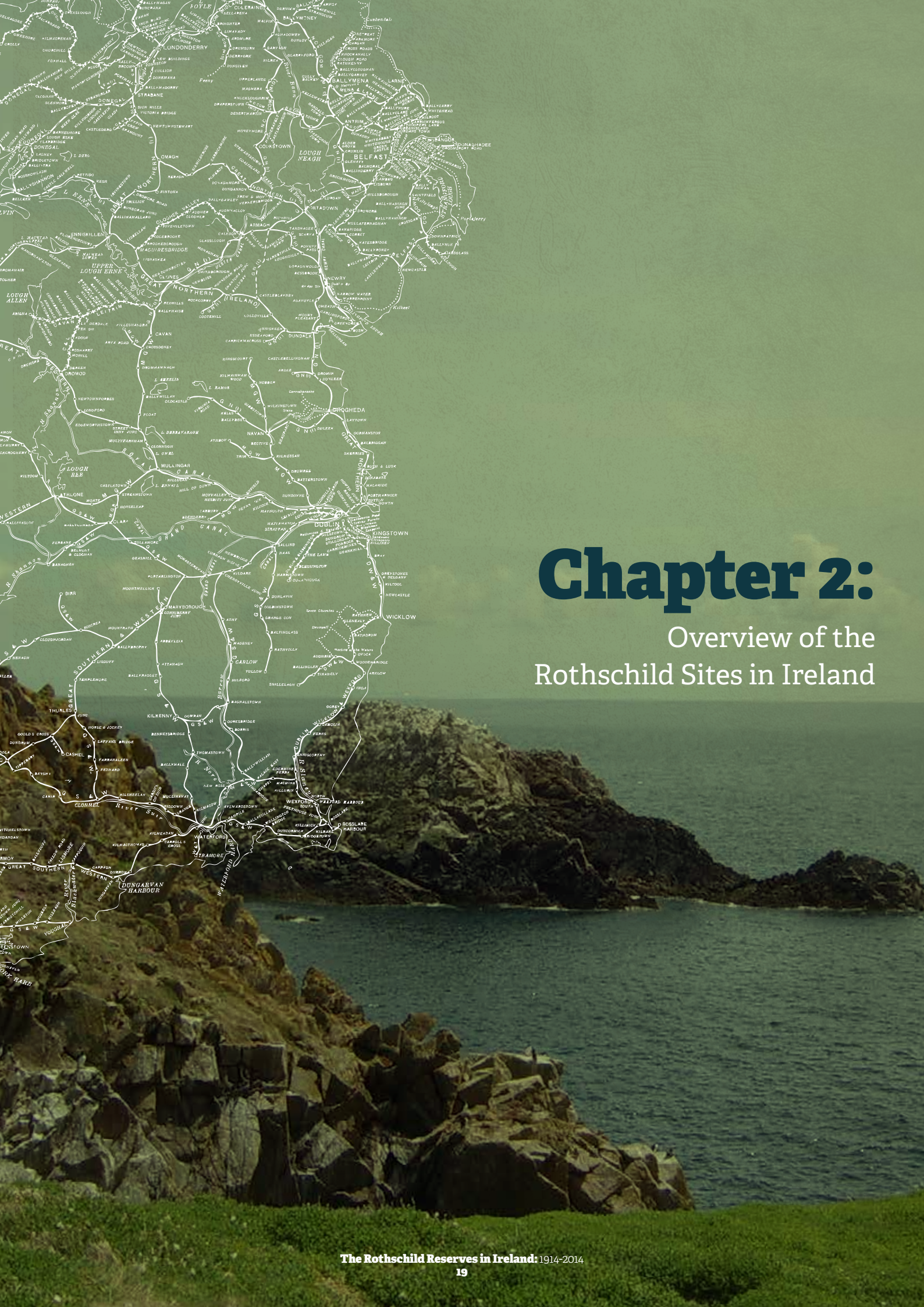
SACs: EU Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('Habitats Directive') is transposed into Irish law by the Natural Habitats Regulations 1996 (S.I. No 94 of 1997). These Regulations were amended by S.I. No 233 of 1998 and S.I. No. 378 of 2005. These were subsequently revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011, S.I. No 477 of 2011. These sites are protected under the legislation from significant damage to their relevant habitats and species, and are considered to be the prime areas of wildlife conservation in Ireland, being of national and European importance. The Habitats Directive lists habitats and species which must be protected, including 45 Priority Habitats, considered of particular significance. Ireland possesses 16 of these Priority Habitats.

SPAs: EU Directive of 79/409/EEC on the Conservation of Wild Birds (Birds Directive); this was transposed into Irish law by the Conservation of Wild Birds Regulations (S.I. 291 of 1985). These were again superseded by and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011, S.I. No 477 of 2011, as above. These sites are protected under the legislation from actions that would damage their value to bird species, especially those on Annex 1 of the Directive.

Note: In 1997, the Habitats Directive was transposed into Irish national law and the relevant Regulations, the European Communities (Natural Habitats) Regulations 1997, SI 94/1997 represent a fundamental shift in nature conservation policy and law. These Regulations were amended by SI 233/1998 & SI 378/2005. These were subsequently revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011, SI 477/2011.

²⁹ <http://www.npws.ie/publications/euconservationstatus/>

³⁰ <http://www.epa.ie/pubs/reports/indicators/irelandsenvironment2012.html>



Chapter 2:

Overview of the Rothschild Sites in Ireland

The Rothschild Reserves: proposed Irish sites

In 1915, the SPNR drafted an initial list of 20 areas of wildlife importance in Ireland (which included sites in what is now Northern Ireland). This list (see *Table 1* below) includes some details on the reasons each site was chosen, and was subsequently refined to a list of 17 sites. Of the sites in the list, all of those sites in the Republic remained on the final list of proposed reserves.

Whilst these sites were included on the list presented to the British Board of Agriculture; it was some years after Irish independence from Britain that the first sites received any protected status. The Bourn Vincent National Park (now forming part of the Killarney National Park) and the North Bull Island in Dublin³¹ were the first sites to receive such protection in the early 1930s.

SPNR Site No.	Site Name
213	Brandon Mountain, Co. Kerry
228	Benbulbin (SW side), Co. Sligo
210	Burren, nr. Ballyvaughan (great botanical interest)*
88	Cloonee, Co. Kerry
214	Gap of Dunloe, Co. Kerry
212	Errisbeg, nr Roundstone, Co. Galway*
215	Lake of Killarney and surrounding, Co. Kerry (scenery and botanical interest)
208	Shores of Lough Neagh, Co. Antrim (rare plants)
212	Lough Nagraiguebeg, Co. Galway (Lusitanian Flora)*
211	North Bull, Dublin
217	Raven's Point, Co. Wexford
216	Rostonstown Burrow, Co. Wexford
209	Cliffs at White Park Bay, Co. Antrim
218	Sand Dunes near Wicklow, Co. Wicklow
80,80a,80b	Ahascragh Bog, Co. Galway (of general and botanical interest)*
83	Killucan Bog, nr. Mullingar, Co Westmeath (of general and botanical interest)*
81	Mowhill Bog, Co. Leitrim (of general and botanical interest)*
82a	Bogs near River Shannon, Co. Galway (of general and botanical interest)
	Areas of Secondary Importance
10	Saltee Islands, Co. Wexford (breeding-place of birds)
55	Area South of Kenmare River, Co. Kerry

Table 1: Provisional Schedule of Areas in Ireland as identified by the SPNR (from Cabot, 1999)

SPNR site selection

Correspondence suggests that most sites were selected on the basis of recommendation by the naturalists and land owners who responded to the Society's request for suitable sites although some field surveys of sites were also organised.

The survey forms compiled by the SPNR in most cases recorded the reasons for each site's inclusion. The reasons given for site preservation vary, but were typically on account of its representation of a habitat for specific species, usually flora or insects, for general and botanical interest, or in certain cases, as they represented 'typical primeval country'.

In addition to the survey forms, most of the sites chosen were indicated on a map, however again the information varied from a clear site boundary to single marks denoting a general area, making exact site boundaries difficult to ascertain in certain cases.

Range of habitats for the proposed sites

The 17 Rothschild sites in Ireland represent a variety of habitat types, ranging from sand dunes, wet and dry heaths, limestone pavement, mountain and cliff vegetation, reefs, lakes, oak woodlands, to both raised and blanket bog habitats. A considerable number of the sites proposed (5 in total) contain bogs, while the other sites include mountain summits and cliffs, coastal sites and islands. However, as Cabot points out, the sites chosen were biased towards 'bogs, salt marshes, shingle beaches and sand dunes'³² which the SPNR considered the most characteristic types of wild country in Ireland.

A range of species were identified on these sites, including Lusitanian and arctic-alpine flora as well as more common species such as Bog cotton. Apart from vegetation, certain sites were identified as areas for butterflies and moths, perhaps because Charles Rothschild had a significant personal interest in lepidopterology, as well as sites significant for birds.

The main losses involving SPNR sites have occurred to bog areas, which have either been harvested, drained and improved, or afforested. Four of the five bog areas on the list have been damaged. The bog bordering the Shannon at Shannon Harbour has been almost entirely cut away. Parts of three other sites, bogs near Mohill, Killucan, and one bog near Ahascragh, have suffered partial losses due to these activities (see Site Reports in Chapter 3). Other recurring threats include damage to habitats as a result of agricultural improvement, drainage, forestry, bog and heath burning, recreational pressures and other development pressures.

Current designations of SPNR sites

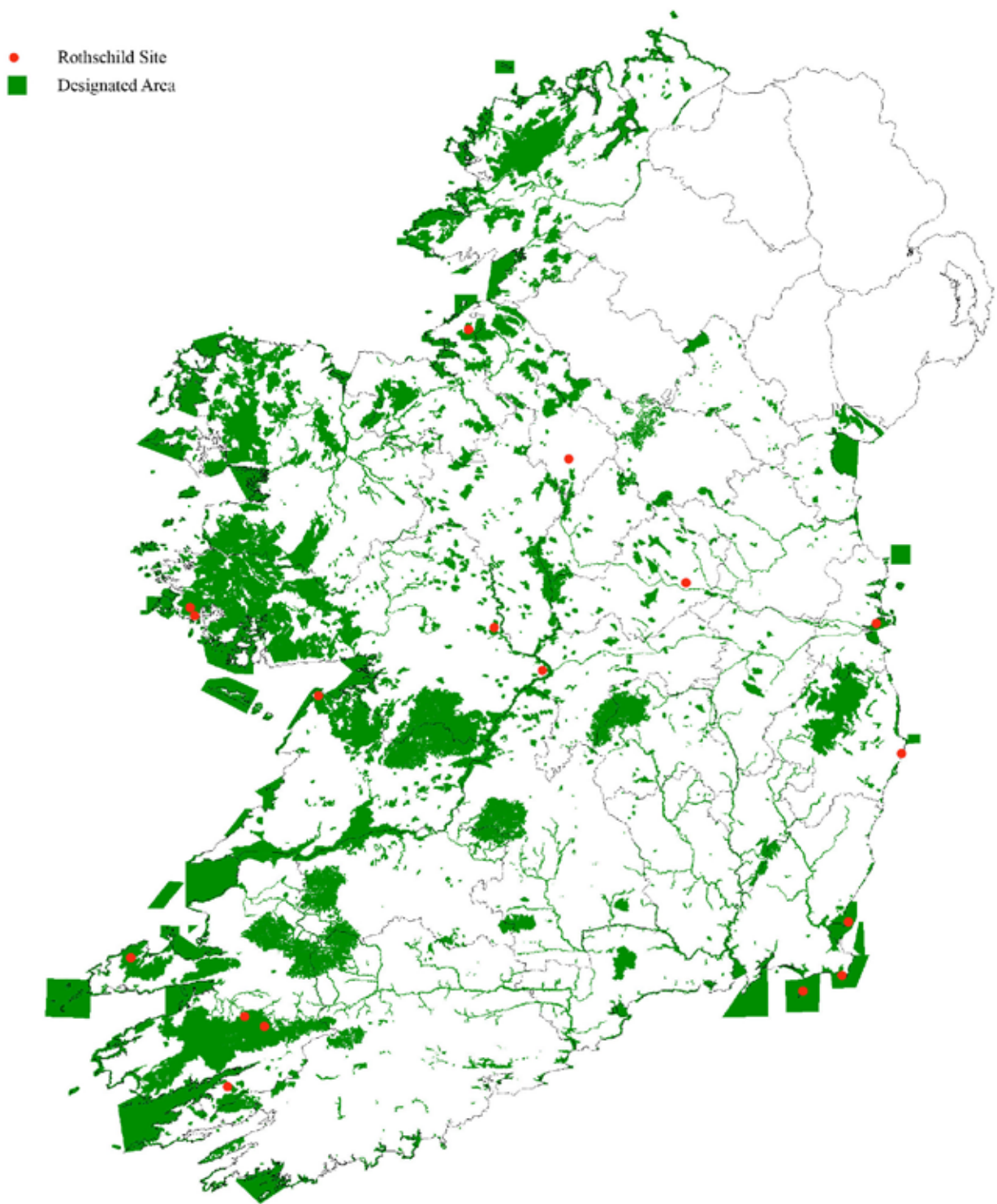
Today, 13 of the 17 sites have some variety of protective national heritage designation and 12 are also covered by European designations. The sites without protective designations are the bog bordering the Shannon, referred to above, and the damaged 'bogs near Mohill and Killucan'. It has not been possible to definitively locate one other site, that 'South of Kenmare River, County Kerry'. Details on the current status of these sites are summarised in the table on p22 and the SPNR sites are located on map 1 (overleaf) which also shows the distribution of sites with protective designations in Ireland.

It is unclear what influence the Rothschild list had on nature conservation policy in Ireland. Whilst Cabot refers to the SPNR list as a "milestone in history of Irish Nature Conservation" which "set an important foundation for future development"³³ we have not found any references to it in Government publications.

³¹ Cabot, D. (1999). *Ireland - The Naturalist Series*, HarperCollins London.

³² Cabot, D. (1999). *Ireland - The Naturalist Series*, HarperCollins London, p.433

³³ *Ibid.* p.435



Map 1: Composite Map of designated sites (SAC, SPA, NHA, pNHA) and Rothschild Sites (Source: NPWS)

ROTHSCHILD RESERVES IN THE REPUBLIC OF IRELAND: STATUS UPDATE 2013*

TABLE LEGEND:
NHA: Natural Heritage Area
pNHA: proposed Natural Heritage Area
SAC: Special Area of Conservation
SPA: Special Protection Area

Site name SPNR	Reasons for selection*	SPNR Nº	Current Site Status	Main Habitat Types	Condition
Bogs near Ahascragh, Co. Galway.	Typical primeval country, insects	80, 80a, 80b	NHA	Raised bogland	Partly intact with protective designation
Ben Bulbin, Co. Sligo/Lietrim.	Typical primeval country, plants	228	SAC, pNHA, SPA, County Geological Site	Upland blanket bog, heathland	Largely intact with protective designations
Brandon Mountain, Co. Kerry	None Stated	213	SAC, pNHA	Upland rocky slopes, cliffs, heathland	Largely intact with protective designations
Cloonee Valley, Co. Kerry.	None Stated	88	SAC, pNHA, Nature Reserve	Oak woodland, oligotrophic lakes	Largely intact with protective designations
Gap of Dunloe, Co. Kerry.	None Stated	214	Part of Killarney National Park and McGillicuddy Reeks SAC and pNHA	Blanket bog, lakeland	Largely intact with protective designations
Errisbeg and L. Nagraiguebeg, Co. Galway.	Locality for rare Lusitanian plants	212	SAC, pNHA, SPA	Lowland Atlantic blanket bog	Largely intact with protective designations
South of Kenmare River, Co. Kerry.	None Stated	55gg	See Cloonee Valley	See Cloonee Valley	See Cloonee Valley
Killarney Upper Lake and surroundings, Co. Kerry.	Scenery, botanical interest	215	SAC, pNHA, SPA, National Park, UNESCO World Biosphere Reserve	Wetland, heathland, blanket bog, alluvial & oak woodland	Largely intact with protective designations
Bogs about Kilbrann, Co. Westmeath.	Typical primeval country, insects	83	No conservation status	Dispersed areas of raised bogland	Partly intact with no protective designations
Bogs close to Mowhill (Mohill), Co. Leitrim.	Typical primeval country, insects	81	No conservation status	Dispersed areas of raised bog & scrubland	Partly intact with no protective designations
North Bull, Dublin Bay.	None Stated	211	SPA, SAC, pNHA, Nature Reserve, RAMSAR Site	Sand-dunes, salt-marshes, lagoon, salt/mudflats	Largely intact with protective designations
Raven's Point (The Raven), Co. Wexford.	None Stated	217	SAC, pNHA, SPA, Nature Reserve	Sand-dunes, coniferous woodland, mudflats	Partly intact with protective designations
Rostonstown Burrow Lady's Island Lake, Co. Wexford.	None Stated	216	SAC, SPA, pNHA	Sand/shingle spit, lagoon	Largely intact with protective designations
Saltee Islands, Co. Wexford	Breeding place for seabirds	10	SAC, pNHA, SPA	Islands habitat with reefs, soft cliffs, mud/sandflats, sea caves	Intact with protective designations
Bogs bordering River Shannon nr. Ballinasloe, Co. Galway.	Typical primeval country, breeding place of insects	82a	No conservation status	Bog, wet grassland	Bogs largely destroyed & with no protective designations. (Adjacent callows are however protected)
Burren, near Ballyvaughan, Co. Clare.	None Stated	210	SAC, pNHA, National Park	Limestone pavement, heath/shore marine habitats (incl reefs), petrifying springs with tufa formation	Largely intact with protective designations
Wicklow Sand Dunes (Magherabeg Dunes), Co. Wicklow.	None Stated	218	SAC, pNHA	Sand-dunes, petrifying springs with tufa formation, broadleaf woodland	Largely intact with protective designations

* Refers to reasons given on SPNR form only - correspondence indicates reasons in some cases



Chapter 3:

The Rothschild Sites Today



BOGS ABOUT AHASCRAUGH, CO. GALWAY

Site synopsis

Several bogs about Ahascragh in Co. Galway were proposed as SPNR reserves. These occur in three main locations, Killure, Annaghbeg and Derryfadda. The areas were proposed on account of their representation of 'typical primeval country' and for the moths *Eupitheca logata*, *Melitaea aurinea* as well as species of *Eriophoria* (Bog cotton), a variety of which, *E. vaginatum*, is reported by the NPWS to be currently present on site. The bogs in two areas (Killure and Annaghbeg) remain today, and are NHAs, while the third, Derryfadda, has been industrially harvested for peat. Both of the NHA sites are threatened by turf cutting and afforestation.



Figure 1: Proposed SPNR Reserve
(Source: TWT)



Figure 2: Killure and Annaghbeg NHAs
(Source: NPWS/ESRI)(see glossary for key)



Figure 3: Proposed SPNR reserve (Derryfadda)
(Source: TWT)



Figure 4: Derryfadda- harvested peatland
(Source: NPWS/ESRI)

Site location and context

There are three distinct areas of bog which were proposed by the SPNR – in the areas of Killure, Annaghbeg and Derryfadda. These occur in east Co. Galway, close to the River Suck.

SPNR site description

The three bog sites marked on the SPNR maps were proposed on account of their representation of 'a piece of primeval country' as well as their status as a 'breeding place of scarce creatures'³⁴. Correspondence regarding these bogs mentions the moth *Eupithecia logata* as well as the Bog cotton *Eriophorum spp.* in this area³⁵.

Killure Bog

One of the areas proposed was closest to Ballinasloe town, approx. 2km to the northwest (indicated at the base of Figure 1) and then owned by Lord Clonbrook. This appears to have been chosen as it was where the insect *Pt. terreradactyla* was found.

Annaghbeg Bog

A further location proposed by the SPNR lies further north (marked at the top of Figure 1.) It was recommended as a site where *Coenonympha typhon* was found.

Derryfada Bog

The other area indicated on the SPNR documents (see Figure 2) consisted of a number of large bogs bordering the River Suck. An annotation notes the presence of the butterfly *Melitaea aurinea* as well as *Coenonympha typhon* in Shanloughra townland.

³⁴ SPNR forms 80, 80a, 80b.

³⁵ See SPNR correspondence for Site 80 dated May 5 1914. Note: Particular species needs clarification.

Evolution of SPNR sites

In the Provisional Survey of Areas of Scientific Interest in Galway, Quinn³⁶ refers to a large raised bog at Ahascragh which was located in the townland of Addergoole North and near Daly's Grove. This is an area at the top of Figure 1, just north of the proposed SPNR site now known as Annaghbeg. The document states that at this time (1971) the area was owned by An Taisce and was a Nature Reserve. However, this land was part of a 'swap' which allowed the An Taisce reserve to be harvested, but in return for the protection of a more significant site. This is not the same area that was proposed by the SPNR, although it lies extremely close to it.

There is at present no documentary information on the areas of Killure Bog to the south and Derryfadda to the north.

Current conservation status and site boundary

Today, two of the original three areas of bog near Ahascragh are protected as Natural Heritage Areas while the third has been industrially harvested. The bog known as Killure Bog is now an NHA and was subject to a NHA Statutory Order in 2003. The bog known as Annaghbeg Bog is now an NHA also formally designated in 2003.

The other bog proposed as an SPNR reserve (indicated on Figure 3) at Derryfadda has been industrially harvested in the intervening years. Due to this access to the site was not possible.

Key habitats and species



Figure 5: Harvested bog at Derryfadda.
(Photo: E. Sikora)



Figure 6: Turf cutting at the edge of Killure bog
(Photo: E. Sikora)

Killure Bog NHA

Killure Bog is significant as it is a raised bog habitat which is considered rare at EU level.

The NPWS Site Synopsis identifies areas of both high bog and cutover bog, with an area of quaking bog with hummocks and pools. Species reportedly found on the area of high bog are typical of raised bog vegetation, including the variety of Bog cotton, *Eriophorum vaginatum*. Other species found include the Ling heather (*Calluna vulgaris*), Bog asphodel (*Narthecium ossifragum*), Deergrass (*Scirpus cespitosus*), Carnation sedge (*Carex panacea*), Cranberry (*Vaccinium oxycoccos*), and bog moss (*Sphagnum papillosum*, *S. fuscum* and *S. imbricatum*). The area of quaking bog with pools includes the mosses *Sphagnum cuspidatum*, *S. auriculatum*, *S. magellanicum* and *S. papillosum*, while in the pools two types of Sundew (*Drosera anglica* and *D. intermedia*) occur. The Downy birch, (*Betula pubescens*), is found in a flush area of the high bog³⁷.

Bog cotton (*Eriophorum spp*) were observed on site, as well as some scrub at the edges near the road which bisects the site.

Annaghbeg Bog NHA

Annaghbeg is also an NHA on account of its raised bog habitat, and it is the only bog in a large area of raised bogs that has not been cutover.

Species found are here representative of a midland raised bog, including Ling heather (*Calluna vulgaris*), Bog asphodel (*Narthecium ossifragum*), Deergrass (*Scirpus cespitosus*), Carnation sedge (*Carex panacea*), Bog rosemary (*Andromeda polifolia*), White beak-sedge (*Rhynchospora alba*). Mosses are found in the wet central area, and include *Sphagnum capillifolium*, *S. papillosum*, *S. magellanicum*, and less often, *S. imbricatum*. *S. cuspidatum* is also found, as is Sundew (*Drosera sp*) in a smaller area³⁸.

It has not been possible to acquire records of species which are found in the harvested Derryfadda bog area.

Threats and opportunities

The NPWS identify a number of threats to both Killure and Annaghbeg NHAs.

Both bogs are threatened by peat cutting, mostly at the edges of the sites, in Annaghbeg peat cutting is occurring on west and south of the site. This was not observed on site due to access constraints. At Killure, an increase in mechanical extraction has reportedly taken place recently. The NPWS have listed Killure Bog NHA as one of the areas where turf cutting is due to cease in 2013, but this will be reviewed in advance of the 2014 cutting season. Evidence of turf cutting at the edge of the Killure bog was observed during the site visit.

From the site visit, it appears that harvesting of a mature plantation of conifers poses a potential further threat to Killure bog. Some re-planting was also evident in the clear felled area. Drainage and agricultural improvement of the bog is a potential threat in both NHAs, as is bog burning.

Current land ownership of sites

Derryfadda is owned by Bord na Mona while the other bogs appear to be in private ownership.

³⁶ Quinn, A (1971). *Provisional Survey of Areas of Scientific Interest in Co. Galway*. Dublin: An Foras Forbartha

³⁷ <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY001283.pdf>

³⁸ Ibid



BEN BULBEN, COUNTY SLIGO/LEITRIM



Figure 7: View of the most northern cliffs of Ben Bulben. (Photo: E. Sikora)

Site synopsis

The SPNR site is located on the south-west side of Ben Bulben, West of Glen Car, County Sligo. It contains the famous summit and cliffs of Ben Bulben (526m), located at the northern tip. In the original survey, the site was recorded as a piece of typical primeval country and of notable importance for plants such as *Arenaria ciliata* and *Polygala babingtonii*. Today the site holds SAC and pNHA designations, whilst the steeper slopes and cliff habitats around the perimeter have SPA status. It is particularly noted for its arctic-alpine species and is largely intact.

There are no significant threats to the site. Restricted access minimises human impacts on the site's wildlife.

Site location and context

The SPNR site is located about 8km north of Sligo town. It includes a striking rock formation which forms the most iconic part of an expansive, steep and angular plateau between Sligo and Leitrim. Its steep cliffs to the north of the site are formed of uplifted horizontal beds of carboniferous limestone which have eroded to form massive scree slopes at the base. The limestone beds are dramatically dissected by faulting followed by prolonged weathering³⁹. The mountain top is flat and covered with blanket bog (an unusual occurrence on limestone). Steep cliffs are particularly notable on the northern and western sides, while the surrounding lowlands included to the north of the site contain patches of coniferous forestry and bogland.

The landscape character of the site is defined by its quaternary past, with its resulting geomorphology giving rise to an expansive steep limestone plateau set within an open patchwork of agricultural lowlands beyond the original site boundary.

SPNR site description

The SPNR records the site location as the south-west side of Ben Bulben, west of Glen Car, County Sligo. It is in fact the entire south-west extension of the Dartry Mountain Plateaux that is outlined in the map below (Figure 8). The site is noted as 'a piece of typical primeval country', primarily recommended for 'plants such as *Arenaria ciliate* and *Polygala babingtonii*'. The map lacks a continuation of a drawn boundary for the eastern border, but the border is implied by the eastern cut-off of the map itself.



Figure 8: Proposed SPNR reserve (Source: TWT)

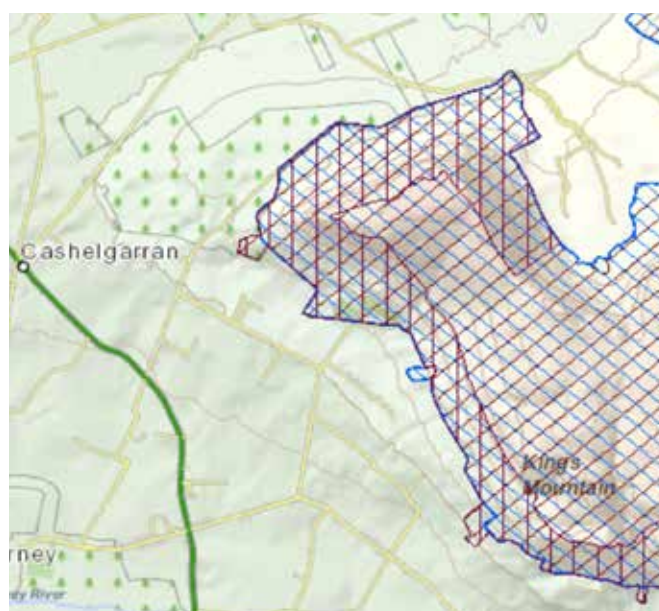


Figure 9: Current designations (Source: NPWS)



Figure 10: Aerial image of Ben Bulben (Source: NPWS)

39 Mitchell, F. and Ryan, M. 2007. *Reading the Irish Landscape*. Townhouse, Dublin

Evolution of SPNR site

Ben Bulbin was identified as an Area of Scientific Interest in 1981 by An Foras Forbartha⁴⁰ which noted its geological, geomorphological and ecological importance. Quaternary processes also led to the site being regarded for its high landscape value, with An Foras Forbartha also identifying it within an area of Outstanding Landscape in its 1977 Inventory a few years earlier⁴¹.

The slopes and lowlands are primarily used for sheep grazing. The area was brought to national attention between 1992 and 2009 in the context of a long dispute between a local farmer and hillwalkers⁴².

Current conservation status and site boundary

Today most of the original site is covered by three main designations. It forms part of the extensive Ben Bulbin, Gleniff and Glenade Complex, which is an SAC, pNHA and which also contains smaller SPAs recorded as the Sligo/Leitrim Uplands. All three designations fall within the main boundary lines on the SPNR map. Most of the area within the SPNR boundary is protected by these designations, with the exception being the lowlands to the far north-west, and the lowland bog area nestled to the north-east. The current designation boundaries stretch across the entire plateau beyond the SPNR site to the east. The upland plateau of Ben Bulbin itself is also protected as a County Geological Site by Sligo County Council⁴³.

Key habitats and species

On the area proposed by the SPNR, the key habitats as identified by the NPWS Site Synopsis⁴⁴, appear to be petrifying springs with tufa deposits, European dry heaths and Alpine and Boreal heaths, calcareous rocky slopes with chasmophytic vegetation, as well as calcareous and catschist screes.

The wider SAC is home to particular fauna listed in the EU Birds and Habitats Directive, including Otter and Peregrine falcon. In addition, a smaller listed species, the rare Whorl snail, *Vertigo geyeri*, has also been discovered at the site (noted in 2003). These are the first records for County Leitrim for this rare mollusc.

With regard to botanical interest, the chief importance of the SAC lies in the profusion of alpine plants occurring on the cliffs throughout the area, including some species not found elsewhere in Ireland. The SPNR site displays evidence of such habitats and species. Six rare plant species which are legally protected under the Flora Protection Order (1987) have been recorded from the SAC: Mountain rock cress (*Cardaminopsis petraea*), Alpine bistort (*Polygonum viviparum*), Small white orchid (*Pseudorchis albida*), Chickweed willowherb (*Epilobium alsinifolium*) and Alpine saxifrage (*Saxifraga nivalis*) and, in particular, Fringed sandwort (*Arenaria ciliata*) which has a recent recording from this year (2013)⁴⁵. Research in 2012 identified *Arenaria ciliata* as an ice-age survivor⁴⁶. It is one of two species listed by the SPNR. Its most recent recorded sighting was broadcast on Irish Television as part of the *Nationwide* programme⁴⁷, in which Dr Conor Meade from the National University of Ireland, Maynooth, identifies the species in full bloom during late Spring of this year. *Epilobium alsinifolium*, *Saxifraga nivalis* and *Arenaria ciliata* have their only known Irish stations at this site, in addition to the other SPNR species, *Polygala babingtonii* (better known as *Polygala babingtonii* Druce or *P. grandiflora* Druce). Although it is still known to be evident, it was not observed during the site visit.

Threats and opportunities

The blanket bog and heath is vulnerable to overgrazing and erosion on the plateau and slopes. Some small-scale turbary is also evident on the base of the lower slopes to the north east. Evidence of eroding peat deposits was noted on the site visit,

with exposed arteries and cavities of naturally eroded limestone, causing a diminishing of the blanket bog cover on top, particularly towards the south of the site (see Figure 11 and 12). Afforestation was identified as a threat for this area in An Foras Forbartha's *Inventory of Outstanding Landscapes*⁴⁸. Today there are still some minor patches of coniferous afforestation bordering the SPNR site boundary to the north and north-west.



Figure 11: Blanket Bog on plateau (Photo: E.Sikora)



Figure 12: Exposed Limestone (Source: Bing Maps 2013)

The Natura 2000 Data Form for the SAC noted unimproved grassland as being vulnerable to agricultural improvement, as well as the threat from the spread of *Rhododendron ponticum* and of *Epilobium brunnescens* on some of the woodland and important cliff communities. However this was not observed during the site visit. Some of the very rare plants on the site are vulnerable to over-collection. *Vertigo geyeri* is vulnerable to over grazing⁴⁹.

Current land ownership of site

Today the site is held in multiple private ownership and is managed by the NPWS.

40 An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

41 An Foras Forbartha (1977), *National Heritage Inventory: Outstanding Landscapes In Ireland*. Dublin

42 <http://www.sligotoday.ie/details.php?id=5939>

43 http://www.sligococo.ie/media/CDP%2020112017_AppendixE_Geological%20heritage%20sites.pdf

44 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000623.pdf>

45 Jebb, M. and Crowley, Co. 2013. *Secrets of the Irish Landscape*. Cork University Press, Cork.

46 <http://www.independent.ie/irish-news/researchers-find-first-hardy-irish-plant-that-beat-ice-age-26888195.html>

47 <http://www.rte.ie/player/ie/show/10163368/>

48 An Foras Forbartha (1977), *National Heritage Inventory: Outstanding Landscapes In Ireland*. Dublin

49 <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF000623.pdf>



BRANDON MOUNTAIN, COUNTY KERRY



Figure 13: View of Mount Brandon's eastern slope, L. Cruttia and Brandon Bay. (Photo: E. Sikora)

Site synopsis

Mount Brandon lies in the north of County Kerry, in the south west of Ireland, close to the northern coast of the Dingle peninsula. Overlooking Brandon Bay, it is the second highest mountain in Ireland (920m). The mountain contains several steep cliffs and a relatively flat plateau along the top, with several lakes on lower ground to the east. The SPNR documents do not give any reasons for the site's inclusion on the list, nor do they mention any particular species. Key habitats present today include alpine and boreal heaths, lake and inland cliffs. The site is largely intact and is currently protected by European designations

Potential threats to the lower slopes are posed by overgrazing, burning and afforestation.

Site context and description

Mount Brandon is a dramatic landform with steep cliffs, and a summit height of c.920m on the Dingle peninsula in southwest Ireland. The underlying rock is composed of sandstone and Devonian beds. The landscape is rugged and dramatic, with sweeping views to the coast, with heaths and grassland on the lower slopes. The mountain is also a place of pilgrimage to St. Brendan, and there is a grotto on the eastern approach. A rough narrow track leads much of the way to the summit.

SPNR site description

The SPNR documents do not describe the site or the reasons for inclusion in the list of SPNR reserves. Annotations on the map suggest that at the time the land was in the possession of the Irish Land Commission, being formerly the property of Lord Ventry. The map indicates that the area proposed as a reserve included a tract of land which included the summit of the Brandon Mountain and its dramatic inland cliffs, along with a small lough, Lough Avoonane, but excluding the larger lakes Lough Cruttia and Lough Nalacken to the east. The proposed reserve is outlined in blue in Figure 14 below.



Figure 14: Map of proposed SPNR Reserve (Source: TWT)



Figure 15: Map of current site (SAC and NHA) (Source: NPWS)

Evolution of SPNR site

Brandon Mountain was listed as a site of National Importance in the Areas of Scientific Interest in Ireland⁵⁰ on account of the extensive blanket bog and cliff habitats, and cited as the greatest concentration of alpine and arctic-alpine plants in Co Kerry. Rare invertebrate species are also referred to in this publication.

Current conservation status and site boundary

The original site as proposed by the SPNR is now part of a much larger SAC, Mount Brandon. This SAC covers a considerable proportion of the whole Dingle peninsula, from the centre to the Northern coast. The site is also a proposed pNHA⁵¹. Part of the site, (3%) is covered by a Nature Reserve which is restricted to mainly blanket bog and heath on the mountain side – however this appears to be outside the SPNR area.

Key habitats and species

The NPWS have published a Site Synopsis and Conservation Statement for the SAC which is considerably larger than the original SPNR proposed reserve. It is estimated that there are four key habitats on the area originally proposed as a reserve by the SPNR. Three of these contain arctic and alpine-arctic species: Calcareous rocky slopes with chasmophytic vegetation, Siliceous rocky slopes with chasmophytic vegetation, and Alpine and Boreal heaths, while the other habitat present is Northern Atlantic wet heaths with *Erica tetralix*⁵².

These habitats occur on the cliffs and the plateau of the mountain, and appear to be in good condition although there is some evidence of erosion on the cliffs to the east.



Figure 16: Cliffs on Mount Brandon (Photo: E. Sikora)

Species recorded by the NPWS on the cliffs and alpine heaths above 750m include *Salix herbacea* (Dwarf willow), *Polygonum viviparum* (Alpine bistort), *Saussurea alpina* (Alpine saw wort) *Oxyria digyna* (Mountain sorrel), *Alchemilla alpina* (Alpine lady's mantle), *Deschampsia alpina* (Alpine hair grass), *Poa alpina* (Alpine meadow grass), *Rhodiola rosea* (Roseroot), *Saxifragas* (*Saxifraga stellaris* and *S. rosocaea*) and ferns such as *Alplenium viride* and *Hymenophyllum wilsonii* and *Cystopteris fragilis*. There are also important byrophytes and lichens.

Other key species that occur within the SAC are *Trichomanes speciosum* (the Killarney Fern) and the Freshwater pearl mussel, (*Margaritafera margaritafera*) although it is not clear whether these occur within the boundaries of the proposed SPNR site.

The inland cliff habitats, as well as the alpine heath, support five species on the Red Data Book. Lloyd Praeger (1950) mentions Brandon as an important area for alpine plants, in particular the *Lastrea abbreviate*, and also refers to mossy saxifrages and other rare flora on Brandon, as well as Ravens and Peregrine falcons on the inland cliffs and Choughs on the sea cliffs⁵³.

Threats and opportunities

The Site Synopsis and Conservation Statements identify overgrazing, peat cutting and afforestation on adjacent land as threats on the site⁵⁴. The site visit revealed evidence of threats from burning of the heath, as well as the presence of some coniferous forestry plantations on the lower slopes to the east. While there is a defined path from the grotto most of the way to the summit, recreation does not appear as a major threat to the site.

Current land ownership of site

The small Nature Reserve is state-owned, while the summit of Mount Brandon is a mixture of individually owned land with some commonage.

51 NPWS <http://www.npws.ie/protectedsites/specialareasofconservationsac/mountbrandonsac/>

52 NPWS Conservation Statement 2009

53 Lloyd Praeger, R. (1950), *Natural History of Ireland*.

54 NPWS <http://www.npws.ie/protectedsites/specialareasofconservationsac/mountbrandonsac/>, NPWS Conservation Statement 2009



CLOONEE VALLEY, COUNTY KERRY



Figure 17: Cloonee Valley looking south to L. Inchiquin, and Uragh Stone Circle in foreground. (Photo: E. Sikora)

Site synopsis

The remote Cloonee Valley lies in Co. Kerry, to the south of the Kenmare estuary. It was proposed for preservation by the SPNR on account of its beauty, and also its flora and fauna, in particular the Strawberry tree (*Arbutus unedo*). Key habitats on site include a chain of (oligotrophic) lakes as well as Uragh Wood, an ancient oak woodland. The site is intact and is designated as an SAC and pNHA. *Arbutus unedo* is recorded as present on site by the NPWS. Potential threats include coniferous afforestation and deer over grazing.

Site location and context

The Cloonee Valley lies to the west of Kenmare Town on the Beara peninsula, in the south west of Ireland. It consists of a U-shaped valley to the south of the Kenmare River estuary and north of the Cahahane mountains. The underlying rock is Old Red Sandstone. The valley was part of the former Lansdowne Estate.

This remote valley consists of a chain of lakes, the Cloonee Loughs, the largest being Lough Inchiquin, surrounded by largely bare hillsides, and some smaller upland lakes. The smaller Cloonee loughs have some vegetated islands. To the west of Lough Inchiquin lies Uragh Wood, a sessile oak wood. Prehistoric remains include two stone circles.



Figure 18: SPNR Map of Cloonee Valley (Source: TWT)

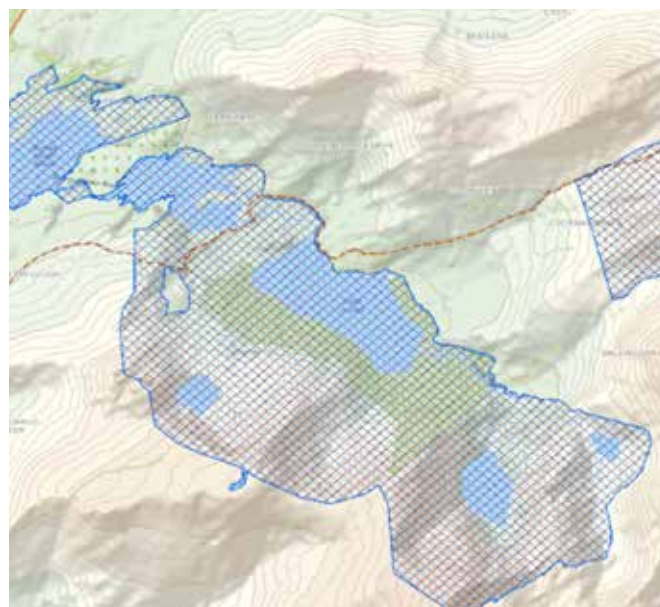


Figure 19: Current map showing SAC, pNHA (Source: NPWS)

SPNR site description

The SPNR had initially proposed that a substantial proportion of this valley, which included woodland and lake habitats (Uragh Wood and Loughs Napeasta and Cummeenadalure), as well as some land bordering Cloonee Lough Upper, be protected on account of its beauty and flora and fauna. The area proposed was initially an area of c. 2130 acres, which excluded the Cloonee and Inchiquin lakes (see Figure 18 above).

A letter from a Mr Brennan to Lord Lansdowne (1914) notes that the proposed reserve in Cloonee Valley was thought to contain *Arbutus unedo*, the Strawberry Tree, and that while there were not any on the mainland near Cloonee Lake, there were some near the islands in the lake, the author suspecting that it was indigenous (it is now accepted that *Arbutus unedo* is native to the extreme south west Ireland).

Following the visit to Lord Lansdowne's estate and the Cloonee Valley, Mr Druce (1914) notes the beauty of the area and the presence of 'characteristic vegetation'. A letter from Lord Lansdowne refers to the financial difficulty of the Society and proposes a smaller area of land (947 acres) in the Uragh townland, comprising the Uragh Woods and some smaller promontories in between the lakes. A reply from the Committee (1914) declines the offer of either renting or buying the land, and states that the area was not so rich in 'interesting flora and fauna' as they had hoped, but internal correspondence indicates that the main obstacle was the lack of funds, including funds to fence the woods from grazing cattle which was thought to be the cause of the *Arbutus* occurring more frequently on the lake islands.

Evolution of SPNR site

An area of 250ha comprising Uragh Wood and Cloonee Lough was indicated as an Area of Scientific Interest (ASI) for its ecological and zoological interest, and the valley noted for its diversity (An Foras Forbartha 1981). Uragh Wood was designated as a Nature Reserve in 1992.

Current conservation status and site boundary

Today the whole of the area outlined on the SPNR map is protected as the SAC of *Cloonee and Inchiquin Loughs and Uragh Wood*, and is also a pNHA. The boundary of the protected site, while similar, exceeds that of the original proposed SPNR reserve; although on part of the west side the current boundary appears to be the same as that proposed by the SPNR. The SAC however includes the three Cloonee loughs as well as Lough Inchiquin and land which reaches to the coastline of the Kenmare River estuary (see Figure 18). Uragh Wood is now fenced to reduce grazing by cattle, an issue mentioned in the SPNR correspondence.

The main land uses on the SPNR site today include forestry, farming and some recreational uses. Part of the proposed SPNR reserve to the south of the Valley is privately owned and known

as Gleninchiquin Park, and some small scale visitor facilities are present, charging a small fee for entrance⁵⁵. This area includes Loughs Napeasta and Cumeenadalure and the waterfall to the south of Lough Inchiquin. The Beara Way walking trail runs through the site.

Key habitats and species

The NPWS have published a comprehensive Site Synopsis⁵⁶ which identifies two main habitat types in the SAC. These are Uragh Wood, a semi-natural Oak woodland, described as 'Old Sessile Oak woods with *Ilex* and *Blechnum*' (byrophytes)⁵⁷, and the Cloonee Loughs chain of three connected lowland oligotrophic lakes, 'Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalis uniflorae*)'⁵⁸. The only species mentioned by the SPNR is the *Arbutus unedo*, which still exists in the woodland.

The SAC contains a diverse variety of flora and fauna. Key species recorded by the NPWS include the Killarney fern, Kerry slug, the Lesser horseshoe bat, and the Slender naiad, an aquatic plant.

Uragh Wood

This oak wood, designated as a Nature Reserve in 1982, is described by Perrin and Daly (2010) as Ancient Woodland⁵⁹.



Figure 20: Uragh Wood, an ancient sessile Oak woodland. (Photo: E. Sikora)

Most of the main tree species listed by the NPWS were observed in the woodland, apart from the Strawberry Tree, Aspen, Juniper and Yew. A good range of understorey and ground flora was also observed. The site's hyper-oceanic byrophytes are internationally important, and *Leptogium juressianum*, a rare lichen, occurs only on this site in Ireland.

Oligotrophic lakes

The lake water is home to several significant species of marginal plants, submerged flora and fish species including the Slender naiad (*Najas flexilis*), Pipewort (*Eriocaulon aquaticum*), Quillwort (*Isotes lacustris*), Six stemmed waterwort (*Elatine hexandra*), Water lobelia (*Lobelia dortmanna*) and Intermediate bladderwort (*Utricularia intermedia*).



Figure 21: Cloonee Lough Upper and Red Trout Lake in foreground. (Photo: K. Ray)

Other species found on the site

The NPWS note that heath and bog land surrounding the woodland is also home to Oblong leaved sundew (*Drosera ontermedia*) Brown beak sedge (*Rhynchospora fusca*) and Large flowered butterwort (*Pinguicula grandiflora*). Chamomile (*Chamaemelum nobile*) and Moonwort (*Botrychium lunaria*), both of which are scarce, are also found. Butterwort was observed on the site visit near Cloonee Lough Upper.

Blue eyed grass *Sisyrinchium bermudiana* is recorded on the site found in drier areas. The Site Synopsis also records the presence of the Lesser horseshoe bat. Peregrine falcons are also known at the site.

Threats and opportunities

The NPWS identify deer grazing as the main threat to the woodland habitat, while sheep and goats are now prevented by fencing. Agricultural intensification could have an impact on rare species in the open lands and fields, as well as the potential to cause run-off into the surrounding lakes. The coniferous plantations (adjacent to Uragh Wood, to the south and east of Lough Inchiquin) have been identified as the largest threat to the site⁶⁰. Some have been partially felled. Small pockets of coniferous planting were observed on the site visit at the southern edge of the Uragh woodlands and Lough Inchiquin (see Fig 22).

While the literature identifies agricultural intensification as a threat, agriculturally improved areas in the valley are not on a large scale. Some burning of the heath areas between the Cloonee lakes was also observed on the site visit and is a potential threat to the lakeshore and heath habitats and species.



Figure 22: Coniferous forestry and felling adjacent to Uragh Wood and waterfall (Photo: E. Sikora)

The Kerry County Development Plan (2009-2015) states that it is an objective to ensure that development which would have a serious negative impact on the SAC sites will not normally be permitted, but that does not restrict all development on protected sites.

Current land ownership of site

The site is in joint ownership between the NPWS (87ha), Coillte, the semi-state forestry body, and other private owners. The area to the south of Lough Inchiquin and L. Cumeenadalure and Napeasta is privately owned and open as Gleninchiquin Park.

55 <http://www.gleninchiquin.com/>

56 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY001342.pdf>

57 Ibid

58 Ibid

59 Perrin, P.M. & Daly, O.H. (2010). A provisional inventory of ancient and long-established woodland in Ireland. Irish Wildlife Manuals, No. 46. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

60 Ibid



ERRISBEG AND L. NAGRAIGUEBEG, COUNTY GALWAY



Figure 23: Errisbeg with Roundstone Bog in foreground. (Photo: E. Sikora)

Site synopsis

Errisbeg lies on the south coast of Co. Galway in the west of Ireland, and Lough Nagraiguebeg lies in the bogland to the north. The main habitats at these sites, proposed for preservation by the SPNR, are wet and dry heaths on Errisbeg, and lowland atlantic blanket bog and lake habitats in the area around L. Nagraiguebeg. The sites were noted for their Lusitanian flora. Species identified by the SPNR were *Erica mackiana* and *Erica mediterranea* (both observed on the site visit), *Arabis ciliatus*, *Najas flexilus*, and *Castalia alba occidentali*.

Both sites are largely intact and are protected by European designations. Bog and heath burning and some grazing are potential threats to both sites.

Site description and context

Errisbeg Hill is northwest of the coastal village of Roundstone. To the north and west of Errisbeg lies Roundstone bog, an extensive Atlantic blanket bog with many lakes which covers a large area, extending as far west as the town of Clifden. Errisbeg, (or Iorras Beg), rises to a height of just under 300m. The underlying geology in the area is composed mainly of granite, with some gneiss and gabro near Errisbeg, which is mainly covered by heath with rock outcrops. The second of the two areas proposed by the SPNR, an area to the north of Errisbeg around Lough Nagraiguebeg, lies in Roundstone bog, an extensive tract of bog with rocky outcrops.



Figure 24: Proposed SPNR Reserve (Source: TWT)



Figure 25: Errisbeg: Current SAC (Source: NPWS)



Figure 26: Proposed SPNR Reserve (Source: TWT)



Figure 27: L. Nagraiguebeg SAC and SPA (Source: NPWS)

SPNR site description

The documents provided by the SPNR indicate two distinct areas proposed for preservation, although it should be noted that the two sites were listed separately in the Provisional Schedule of Areas list drawn up by the SPNR⁶¹.

The first area is the hill of Errisbeg, although the boundary does include some bogland to the north, as well as some coastline to the south. The second area is an area of lowland Atlantic bog and lakes to the north of Errisbeg, part of a much larger bog known as Roundstone Bog.

These two areas were proposed for preservation, mainly on account of the presence of Lusitanian flora. Rare species listed on Errisbeg by the SPNR were *Erica mediterranea*⁶², *Arabis ciliatus*, *Najas flexilus*, *Castalia alba occidentali*, while the Lough Nagraiguebeg area was the location for the rare heather *Erica mackayi*⁶³.

Annotations on the SPNR map indicate that Errisbeg was then owned by the Congested Districts Board and the Irish Land

61 See reproduction of list in Cabot, D (1999). *Ireland – A Natural History*. London: HarperCollins, p434.

62 Also known as *Erica erigena*.

63 Now known as *Erica mackiana*.

Commission, formerly owned by Richard Berridge, while the area around L. Nagraiguebeg was still owned by Mr Berridge at the time.

Evolution of SPNR site

Errisbeg and the surrounding bogland is a well-known area to botanists and ecologists, on account of its rare flora and as an example of extensive Atlantic blanket bog. It has been written about, both before and after proposed designation by the SPNR. Robert Lloyd Praeger described Errisbeg at a symposium of bogs held in the area in 1935⁶⁴, and, more recently the topographical author and cartographer Tim Robinson refers to it in his series of publications on Connemara⁶⁵.

The Provisional Survey of Areas of Scientific Importance in Co. Galway⁶⁶ identified Roundstone Bog (Bog north of Errisbeg) as internationally important on account of its interesting bog formation and rare heather species, and Errisbeg on account of its geology and rare species. The Survey also proposed that both Errisbeg and the bogland to the north (Roundstone Bog) be protected by Special Area Amenity Order, and the bog be publicly acquired and subject to a Conservation Order. Errisbeg and the bogland to the north, as described in the Areas of Scientific Interest in 1981, contained habitats of blanket bog, exposed rock and heath. Errisbeg itself was noted for its heath vegetation and cliff flora. The report also described the bog, with its lakes and wooded islands, as "one of the most important blanket bog areas in Ireland and is largely intact"⁶⁷.

Current conservation status and site boundaries

The two reserves proposed by the SPNR were proposed for designation in 1997, under European Habitats and Birds directives.

Both proposed SPNR Reserves, Errisbeg and the area to the north, around L. Nagraiguebeg, are part of the much larger Connemara Bog Complex candidate SAC (and proposed NHA), which covers some 49,228 ha from Spiddal on the south Galway coast to Clifden on the west coast. The second SPNR reserve, the area of lake and bog surrounding L. Nagraiguebeg is also part of the larger Connemara Bog Complex Special Protection Area (SPA)⁶⁸.

Key habitats and species

The SPNR areas were much smaller than the present SAC and SPA designations, so that today they appear as two small areas within a large SAC and, in the case of the L. Nagraiguebeg area, a SPA.

A Site Synopsis by the NPWS indicates that the main habitat in the SAC is lowland Atlantic blanket bog (a Priority habitat) and consists of areas of very deep peat, which contrast with rock outcrops and lakes, giving a good diversity of habitats. The NPWS list eleven habitats, which occur in the bog complex. These include coastal lagoons⁶⁹, floating river vegetation, alkaline fen, transition mires, lowland oligotrophic lakes, dystrophic lakes, *Rhynchosporion*, old oak woodlands, *Molinia* meadows and reefs, as well as both wet and dry heaths.⁷⁰

The SAC Site Synopsis lists four key species – one of which is mentioned by the SPNR (*Najas flaxilis*), as well as *Euphydryas aurinia*, and the Otter and Atlantic salmon. Local knowledge casts doubt on whether *Najas flaxilis* is still extant on the site.

Errisbeg

It appears from the site visit that heaths and some cliffs are the main habitat on Errisbeg itself, as well as blanket bog on the lower slopes, while the L. Nagraiguebeg area contains lowland Atlantic blanket bog and lake habitats.

Errisbeg is mentioned in the Areas of Scientific Interest report as the only known site of the fern *Asplenium septentrionale* in Ireland, and it is listed here by the NPWS along with Parsley fern (*Cryptogramma crispa*) Bog-hair grass (*Deschampsia setacea*), Slender cotton grass (*Eriophorum gracile*), Bog orchid (*Hammarbya padulosa*), Slender naiad (*Najas flaxilis*), Heath cudweed (*Omalotheca sylvatica*), Pillwort (*Pillularia globulifera*) and Pale dog violet (*Viola lactea*), all species occurring in the site protected under the Flora (Protection) Order 1999. The heathers *Erica ciliaris*, *E. mackiana* and the orchid *Orchis morio* also occur and area all listed in the Irish Red Data Book of threatened species⁷¹. Of the species recorded here by the SPNR, there is no mention of *Arabis ciliatus* or *Castalia alba occidentalis*, but the other species still occur. The rare heather *E. mackiana* was observed here during the site visit.

Lough Nagraiguebeg

A number of sources refer to the presence of rare heather species as well as Lusitanian flora in both sites identified by the SPNR. Robinson⁷² describes the important discovery of the heather *Erica mackiana* in 1835 at a location known locally as Na Cregaí Móra, which seems to be close to L. Nagraiguebeg, as recorded by the SPNR. This area is also described by Robinson as the current location for the rare *Erica ciliaris*, although recent reports suggest that this population is under threat (Robinson, personal comment). The entry in the Areas of Scientific Interest also recorded *Erica mackiana*, *E. ciliaris* and *E. erigena* as occurring near Craigmmore Lough⁷³. *Erica mackiana* was observed growing around L. Nagraiguebeg at the time of the site visit.

The Connemara Bog Complex SPA is noted by the NPWS for its breeding populations of Merlin, Golden plover and Greenland white-fronted goose⁷⁴.

Threats and opportunities

Current threats identified to the wider SAC and SPA by the NPWS include afforestation, as well as grazing by cattle and sheep, burning of heath and bog, and peat harvesting, are also threats to the bog⁷⁵. From the site inspection, there is only evidence of occasional small scale turf cutting near L. Nagraiguebeg, while forestation is not a threat to either of the SPNR sites. A local newspaper has recorded burning of bog and heath as a major occurrence in the area in Spring 2013, a fact which is corroborated by locals⁷⁶, which represents a significant threat to the plant species and habitats recorded.

Both sites have been threatened by development since the SPNR proposed protection for the sites. Robinson refers to plans by the then Electricity Supply Board (ESB) to erect wind turbines on Errisbeg in the 1950s, however the plan never materialised⁷⁷. Quinn also refers to the threat of building development on Errisbeg in the 1970s⁷⁸.

A further threat to the wider Roundstone Bog is described by⁷⁹ Robinson when proposals were mooted to build an airstrip in the west of the bog near to Clifden. Although this is outside the proposed SPNR Reserve, the case brought certain issues to the fore. The bog was, as described above, an Area of Scientific Interest which was of international importance, and this was one of the main reasons that the County Council refused permission. However this was challenged and the Supreme Court ruled that ASI designations in general, were unconstitutional. However the airport was not built.

Current status of land ownership

Most of the land is privately owned by multiple owners, while part of Errisbeg is commonage.

64 See Praeger (first published 1937, reprinted 2008). *The Way that I Went*. Cork: Collins Press.

65 Robinson, T. (2006) *Connemara: listening to the wind*. Dublin, Penguin Books Ireland

66 Quinn, A (1971). *Provisional Survey of Areas of Scientific Interest in Co. Galway*. Dublin: An Foras Forbartha

67 An Foras Forbartha (1981). *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

68 NPWS – see <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF002034.pdf>

69 Active blanket bog and coastal lagoons are Priority Habitats under the EU Habitats Directive

70 NPWS – see <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY002034.pdf>

71 See NPWS Site Synopsis

72 Robinson, T (2006). *Connemara: Listening to the wind*. Dublin: Penguin Ireland.

73 An Foras Forbartha (1981). *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

74 <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF004181.pdf>

75 <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF002034.pdf>

76 The Connemara Journal, May 2013.

77 Robinson, T (2006). *Connemara: Listening to the wind*. Dublin: Penguin Ireland pp71

78 Quinn, A (1971). *Provisional Survey of Areas of Scientific Interest in Co. Galway*. Dublin: An Foras Forbartha

79 Robinson, T (2006). *Connemara: Listening to the wind*. Dublin: Penguin Ireland



GAP OF DUNLOE, COUNTY KERRY



Figure 28: Looking south through the Gap of Dunloe (Photo: K. Ray)

Site synopsis

The Gap of Dunloe was proposed as an SPNR nature reserve without any elaboration as to why it was chosen, apart from its general scenic and botanical interest. There is little official data specific to this site as it falls within the larger SAC and pNHA of the Killarney National Park and McGillicuddy Reeks, although the Gap itself lies just outside the National Park boundary itself. The SPNR boundary stretches along a narrow gap running approximately 11km in length, and which runs in a north-south direction. It is an example of a glacially breeched watershed dominated by blanket bog and open water habitats. There are no particular threats identified for this site which is largely intact.

Site location and context

The Gap of Dunloe is a narrow mountain pass over 200m deep on the Iveragh Peninsula in County Kerry⁸⁰. Across the main body of the McGillicuddy's Reeks, the Gap cuts through from north to south, with its river and string of lakes. To the east of the lakes, which lie along the valley floor, are the Tomies Mountain and Purple Mountain. The five lakes are connected by the River Loe. The Gap marks, roughly, the western end of the district of lakes, mountains, waterfalls, cliffs, islands and other geomorphologically and geologically dramatic terrains and features. It is the best example of a glacially-breeched watershed in Ireland⁸¹. The landscape character of the site can be summarized as a narrow glaciated cradle valley with steep slopes and lake-lands. As evident on site visit, the constant wetting and water-logging processes have resulted in most of the site being covered in blanket bog..

SPNR site description

The original survey provides little information as to why it was proposed by the Society for preservation. The original SPNR data for Killarney is, in itself, limited, with no specific references to habitats or species, but rather to a general 'scenic and botanical interest'.

There is no site description or details in the documents, nor any mention of habitats or species. No data exists other than ownership of the land at the time. There is however a faint boundary on the SPNR map (see Figure 29) which frames the long gorge and associated lake-land valley to the north, west and south. The eastern boundary is missing from the map. It can be assumed that the edge of the OS map acts as this boundary as it is roughly where the peak of the eastern side of the gap lies.



Figure 29: Proposed SPNR Reserve (Source: TWT)

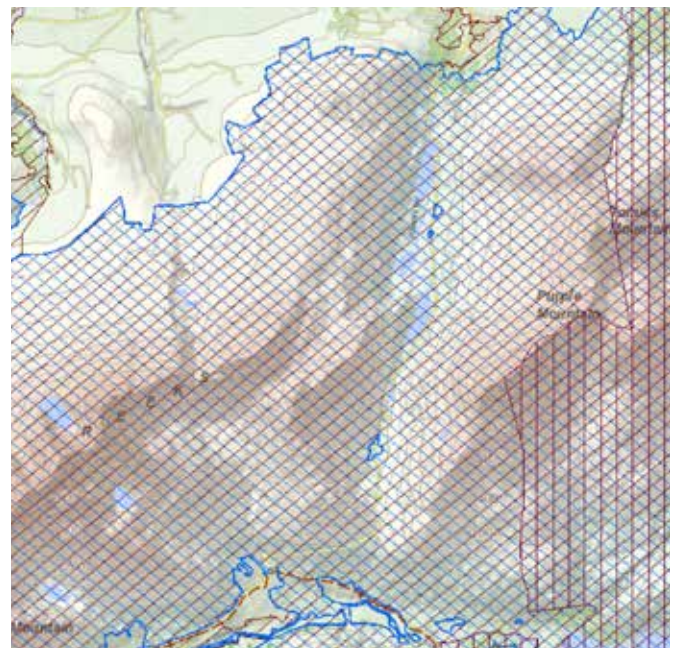


Figure 30: Current SAC and pNHA Designations (Source: NPWS)

Evolution of SPNR site

In the nineteenth century the naturalist H.C.Hart noted the walk along the ridge above the gap as "the grandest bit of mountaineering to be met with in Ireland"⁸². In 1981 and 1989 it was recorded by An Foras Forbartha as an Area of Scientific Interest (ASI), particularly for its geomorphological history. The 1981 inventory⁸³ noted how this spectacular landmark is "the best example of a glacially-breeched watershed in Ireland".

The Gap presents a sequence of lateral and recessional moraines at its mouth and is therefore a key feature of a quaternary landscape, evolved from glacial processes during the ice age. This particular site would have formed as a tongue of ice forced its way across a ridge, gouging out a deep valley, reflecting the ice-scoured land around the Upper Lake at Killarney⁸⁴.

The Gap was also identified as an area of low conservation value in terms of blanket bog in a 1991 survey commissioned by the

⁸⁰ Crowley, J. and Sheehan, J (2009). *The Iveragh Peninsula: A Cultural Atlas of the Ring of Kerry*. Cork University Press, Cork.

⁸¹ An Foras Forbartha, (1981). *Areas of Scientific Interest in Ireland*. Dublin

⁸² De Buitléar, É. (1993). *Ireland's Wild Countryside*. Boxtree Limited, London

⁸³ An Foras Forbartha (1981). *Areas of Scientific Interest in Ireland*. Dublin

⁸⁴ Mitchell, F and Ryan, M. (2007). *Reading the Irish Landscape*. Townhouse, Dublin.

NPWS and Office of Public Works (OPW)⁸⁵. The survey provides one of the only official sources, not just for information on the landscape and geomorphology of the site, but also for information on habitats and species specific to the site and this is referenced in relation to key habitats and species below.

Sheep grazing on the lowlands is the only identified land use (see below).



Figure 31: Grazing on valley floor



Figure 32: Heath, bracken and bog landcover



Figure 33: Mixed woodland. (Photos: K. Ray)

Current conservation status and site boundary

Today the site is part of the Killarney National Park and MacGillcuddy's Reeks SAC and pNHA. It is also bordered to the east by an SPA. There is little current information on the conservation details for the site apart from those for the SAC as a whole..

The original site boundary, while relatively loose, is more or less defined by the steep elevations of the sides of the gap, clearly evident on the NPWS map. It does not specifically match a conservation designation boundary, but more so falls within the larger SAC boundary of Killarney National Park, with the north-western edges of the SPNR boundary displaying similarities to the edges of the SAC.

Key habitats and species

The blanket bog survey of 1991 notes Greater butterwort (*Pinguicula grandiflora*) as the main species of interest, with the survey's overall evaluation reaching the conclusion that the area

is not very intact and is of little scientific value for blanket bogs. Greater butterwort is only found in Kerry, West Cork and very few other places in Britain and Ireland, and was observed on site visit.

Common heathers and bracken were observed as dominant species, on the site visit as well as a small area of mixed woodland at the northern entrance (Figure 33). St Patrick's cabbage (*Saxifraga spathularis*) was also observed (Figure 34).



Figure 34: *S. spathularis* (Photo: K. Ray)

Otters and Kerry slugs have also been noted.

Threats and opportunities

There are no obvious threats facing the site.

Current land ownership of site

The Gap of Dunloe is largely in private ownership.

KENMARE RIVER OR AREA SOUTH OF KENMARE RIVER, COUNTY KERRY

Site location and SPNR site description

The list of provisional SPNR reserves⁸⁶ names this as 'Area South of the Kenmare River', and the SPNR document describes the area as Kenmare (River) and in the 'Area South of Kerry', in the ownership of the Marquis of Lansdowne. While it initially appeared that this meant the Kenmare Estuary, there is no indication on the maps or any other documents that this area refers to the Kenmare River estuary.

Correspondence in the Kenmare (River) file (SPNR ref no. 55) contains a letter from Mr Richard Barrington (1913) which describes this site as 'about 2000 acres and to the south of the Kenmare River and east of Derreen (his residence)'. From reading the Cloonee Valley file, this corresponds to the Cloonee site in both location and in acreage (Cloonee was 2130), and this was also owned by Lord Lansdowne. The Cloonee Valley lies to the south of the Kenmare River, which is the name of the estuary.

In addition, the letter states that the area was suggested by the Irish Dept of Forestry as a nature reserve - and the Cloonee Valley letters refer to the fact that the site was subsequently not going to be afforested - so it seems possible that the SPNR file 55 Kenmare River was a precursor to file 88 Cloonee Valley, as the site described seems very similar.

It is suggested that the SPNR documents on both Reserve 55 Kenmare (River) and those of the Cloonee Valley are examined. See site description of Cloonee Valley, Co. Kerry (p30).

85 http://www.npws.ie/publications/archive/Mooney_et_al_1991_Mountain_Blanket_Bog.pdf

86 Cabot, D. (1999). *Ireland - A Natural History*. London: HarperCollins.



KILLARNEY, COUNTY KERRY



Figure 35: Looking northwest over Upper Lake and surroundings. (Photo: K. Ray)

Site synopsis

The Upper Lake and surroundings were identified as the main area of interest in the survey of Killarney, although the SPNR map also included the nearby Muckross Lake and surroundings to the north. It is recorded for its 'very lovely scenery of botanical interest', but there is no reference to any particular habitats and species. The site is one of the most extensive of the Rothschild Reserves and today forms a large part of the Killarney National Park which is over 10,289ha in its entirety. As well as a National Park, the site is also designated an SAC, a pNHA and part of it is an SPA. There are no acute threats facing the site due to the stringent management plan in operation. However there are some issues facing the entire park where the most vulnerable habitats are the woodlands (sensitive to overgrazing and the invasive spread of *Rhododendron ponticum*) and bogs (sensitive to grazing, burning, turbary and afforestation).

Site location and context

South and west of the town of Killarney on the Iveragh Peninsula in Co. Kerry is an expanse of rugged mountainous country. This includes the McGillicuddy's Reeks, the highest mountain range in Ireland which rises to a height of over 1000 metres. The lower slopes of these mountains are covered in rich woodland. At the foot of these mountains are the world famous lakes of Killarney and one of Ireland's main tourist attractions. The Killarney National Park occupies the 10,236 hectare (26,000 acres) and the SPNR reserve occupies a high percentage of this. The distinctive landscape character which combines mountains, lakes, woods and waterfalls provides the area with a high scenic value. The landscape character of the of the site can be described as a series of glaciated lake-land valleys surrounded by rugged slopes dominated by both deciduous and coniferous woodland and expansive areas of heathlands.

SPNR site description

Whilst the SPNR locates the specific reserve as the Upper Lake and its surroundings, and is one of the most extensive and well established sites of the Rothschild Reserves identified for this study, the map suggests a larger area encompassing much of the National Park, including Muckross Lake and surroundings to the north. It was proposed to the Society for having 'very lovely scenery of botanical interest'.



Figure 36: Proposed SPNR Reserve (Source: TWT)

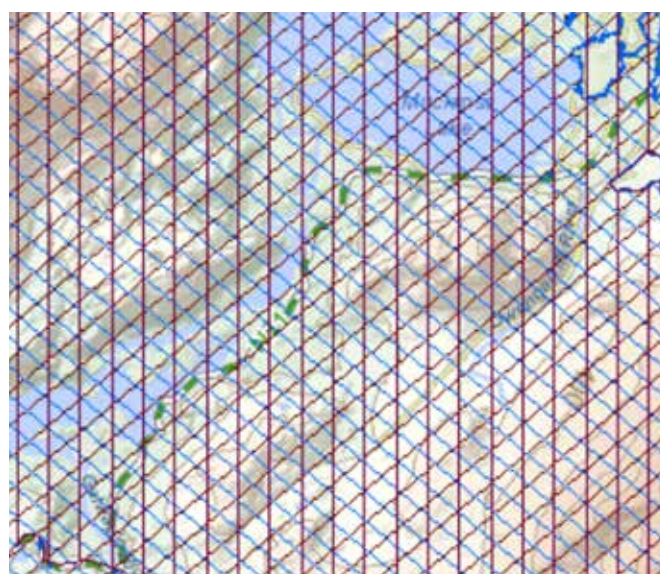


Figure 37: Current SAC, SPA Designations (Source: NPWS)

Evolution of SPNR site

Today the specific site is within the Killarney National Park. The nucleus of the National Park is the 4,300 hectare Bourn Vincent Memorial Park which was presented to the Irish State in 1932. It was then that it was established as Ireland's first national park. The park now covers more than double the original area acquired in 1932. The park was designated as a Biosphere Reserve in 1981 by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

The NPWS synopsis⁸⁷ provides a detailed account of the larger area and its quaternary evolution, noting how its dramatic sandstone ridges and valleys have been shaped by glacial processes and how many of the lakes are impounded by glacial moraines. Located close to the Atlantic in the south-west of Ireland, the site is also subject to strong oceanic influences. Generally, the Lusitanian flora and fauna is well represented, while the high peaks and cliffs support arctic-alpine relicts. The oak woodlands, occurring mostly around the Killarney lakes, are the habitat for which the area is perhaps best known, and has accommodated for rich and diverse species. They form the most extensive area of native ancient woodland remaining in Ireland⁸⁸. These woods survived here as they were part of a large private estate and are now protected as part of the park.

87 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000365.pdf>

88 Hall, V. (2011). *The Making of Ireland's Landscape Since the Ice Age*. The Collins Press, Cork

The NPWS Site

The SPNR map (Figure 36) features dense woodland around the Upper Lake - the lake at the centre of the Rothschild site. In the context of the wider park, the larger Muckross Lake to the north-east of the site holds the best known of the Irish Yew woodlands and is thought to be at least 3000 years old, making it the oldest stand of Yew in Europe⁸⁹.



Figure 38: Sign near Upper Lake showing map of National Park (Photo: K. Ray)



Figure 39: Conifers and deciduous planting (Photo: K. Ray)

Like many of the proposed Irish SPNR reserves, the site was identified by An Foras Forbartha in 1977⁹⁰ as an Area of Outstanding Landscape, and in 1981⁹¹ as an Area of Scientific Interest, noting its ecological, botanical, zoological, geological and geomorphological interests. In recognition of its importance the Killarney National Park has also been designated a World Biosphere Reserve 1981 by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

As part of the national park, the site has become a major tourist destination due to its striking scenery and the park's central role as a stopping point on the 'Ring of Kerry'.

Current conservation status and site boundary

In addition to its national park designation, the site is also an SAC, pNHA and SPA.

Key habitats and species

No habitats or species are listed in the SPNR documentation. Today however, they are well documented due to the extensive and established nature of the park and its designations. Key habitats on the site include a range of wetland habitats, wet and dry heaths, blanket bog, alluvial woodland and oak woodland. Species of interest listed by the NPWS Site Synopsis⁹² include the Kerry slug (*Geomalacus maculosus*), Freshwater pearl mussel (*Margaritifera margaritifera*), Marsh fritillary (*Euphydryas aurinia*), Sea lamprey (*Petromyzon marinus*), Brook lamprey (*Lampetra planeri*), River lamprey (*Lampetra fluviatilis*), Twaite shad (*Alosa fallax fallax*), Salmon (*Salmo salar*), Lesser horseshoe bat (*Rhinolophus hipposideros*), Otter (*Lutra lutra*), Killarney fern (*Trichomanes speciosum*), Slender naiad (*Najas flexili*).

The image below (Figure 40) shows the view of the Upper Lake from the eastern slopes with evidence of heathland, bracken and juniper in the foreground, as well as woodlands on the lower western slopes by the lakeshore.



Figure 40: Landcover surrounding Upper Lake (Photo K. Ray)

Threats and opportunities:

Generally the larger site suffers from overgrazing by sheep, with the high and exposed nature of much of the site exacerbating the problem. The woodlands are vulnerable to grazing and to invasion by *Rhododendron ponticum* (which has affected 75% of the woods)⁹³. The invasion of this species in native broadleaf woodlands is well documented and has almost certainly led to the reduction in diversity of breeding birds through shading of the ground vegetation and consequent absence of nesting sites. Its control has been a priority of habitat management over many decades.

The blanket bogs are also vulnerable to grazing along with turbary, burning and afforestation. The oligotrophic waters are mostly very acid sensitive and vulnerable to afforestation of the catchments. Agricultural inputs and sewage threaten some rivers and lowland lakes. Killarney is a popular tourist destination and there is some threat from recreation and development pressures, yet this is more so around the more famous Muckross Lake.

Sensitive management of the park by the NPWS is therefore critical in maintaining its biodiversity and habitats. The park is managed in accordance with international criteria set down by the World Conservation Union (IUCN) and is included in the United Nations List of National Parks and Equivalent Reserves. The park therefore possesses its own five year management plan⁹⁴ which sets out a framework for the conservation of the natural and built heritage throughout the entire park.

Current land ownership of site

Private: multiple owners, as well as the State: National Parks & Wildlife Service own and manage Killarney National Park (10,129 ha), Eirk Bog Nature Reserve (16 ha) and Cumberagh River Bog Nature Reserve (45.55 ha)

Coillte own Derrycunihy Wood Nature Reserve (136 ha) and some of the forestry plantations within the site. Lough Caragh and Lough Currane are state-owned.

⁸⁹ Nairn, R and O' Halloran, J. (2012). *Bird Habitats in Ireland*. The Collins Press: Cork

⁹⁰ An Foras Forbartha (1977), *National Heritage Inventory: Outstanding Landscapes in Ireland*. Dublin

⁹¹ An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

⁹² <http://www.npws.ie/protectedsites/specialareasofconservationsac/killarneynationalparketsac/>

⁹³ <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF000365.pdf>

⁹⁴ <http://www.npws.ie/publications/archive/KNPMP.pdf>



BOGS NEAR KILLUCAN, COUNTY WESTMEATH



Figure 41: Bog Cotton (*Eriophorum* spp) at proposed SPNR Reserve near Killucan (Photo K. Ray)

Site synopsis:

The SPNR proposed that three main areas of bog in County Westmeath, be protected on account of their peatland habitats. The bogs were noted for the presence of the Marsh ringlet butterfly *Coenonympha typhon*, as well as being representative of 'typical primeval country'. Bog cotton (*Eriophorum angustifolium*) was also noted in this area and was observed on the site visit. None of the sites are currently protected by European or national designations. Of the three main areas of bog, two appear partly intact while one area appears to be partly afforested and partly converted to agriculturally improved grassland.



Figure 42: Proposed Reserves (Source: TWT)



Figure 43: Aerial image of sites (Source: NPWS)

Site location and context

The Killucan bogs are located in County Westmeath, in the midlands of Ireland, approximately 9km due east of Mullingar town. The bogs are partly contiguous and occur in an area of mainly flat or gently undulating landscape. Mature trees are a feature of this landscape, and agriculture and forestry appearing as the main land uses in the immediate area. The bogs were in the ownership of the Irish Land Commission at the time of the proposed designation by the SPNR.

SPNR site description

The SPNR documents indicate that there were a number of bogs (see Figure 1) proposed for designation on account that they represented 'typical primeval country'⁹⁵ as well as a breeding place for 'one or more scarce creatures'. The site(s) were of importance for the presence of the butterfly *Coenonympha typhon*. In addition, correspondence from the SPNR archive suggests that the Killucan area has 'excellent bog'⁹⁶.

The sites proposed were indicated on the map but without a definitive site boundary, and at the time of proposal appear as an almost continuous area of bog from Cookesborough in the north, to the Kerrinstown townland further south. However the extent of the sites can only be estimated – initially by the extent of the bogland on the original maps as well as on current aerial images.

Evolution of the SPNR site

There is little documentary evidence of the fate of these sites in the intervening years.

Current conservation status and site boundaries.

The sites identified by the SPNR are not currently protected under any European or International or National designation.

The sites appear to have undergone considerable change. In two of the areas indicated, some bog appears to remain. In the most northern area (Cookesborough) which includes a small lake, a considerable part of the bog seems to exist, with some evidence of turf cutting to the north of the site (see Figure 44). The second area of bog indicated is directly south of this, and appears to be afforested with a small amount of scrub, while the remainder of the site is improved grassland.

⁹⁵ See SPNR Form for Bogs near Killucan.

⁹⁶ See SPNR correspondence for Site 80 bogs near Ahascragh.



Figure 44: Bog near Cookesborough (Source: NPWS)



Figure 46: Partly intact bog near Kerinstown (Source: NPWS)



Figure 45: Afforestation on bog in Castledown (Source: NPWS/OSI/ESRI)

The third area of bog indicated (Kerinstown) appears mainly intact with some turf cutting observed at the edges during the site visit.

Key habitats and species

There is no published data on the habitats and species on the site at present as the sites are not under protection.

As mentioned, the SPNR documents indicate that the site was of interest as a result of the presence of *Coenonympha typhoon*. Correspondence between W.J. de V Kane and the Society indicates that the common Bog cotton *Eriophorum angustifolium* grew widely on these areas and this was observed in the Kerrinstown bog during the site visit.

Threats and opportunities

The Westmeath County Development Plan does not have specific policies for this area, but contains policies for the boglands which form a considerable part of the landscape of the County. The County Council cite peat extraction, drainage, afforestation and dumping as threats to the County's peatlands. Threats observed on the site visit include afforestation and turf cutting.

Ownership status of site:

The sites appear to be private land.



BOGS NEAR MOHILL, COUNTY LEITRIM



Figure 47 View across bog near Mohill, with evidence of grazing (Photo K. Ray)

Site synopsis

Four bogs near Mohill in Co. Leitrim were also proposed as nature reserves on account of the presence of the rare butterfly *Coenonympha typhon*, Bog cotton (*Eriophorum angustifolium*), as well as their representation of a 'typical primeval country'. Both species were observed during the site visit.

Of the four bogs, one is largely intact, two are partially intact, having been affected by turf cutting and afforestation, and the remaining site is heavily forested. None are protected by national or European designations.

Current site location and context

The site lies to the north of Mohill village in County Leitrim, in the northwest of Ireland. The landscape in this area is gently undulating, and views to some sites are therefore somewhat restricted. Small scale farming appears to be the main land use in the area.

SPNR site description

The SPNR documentation refers to bogs close to Mohill, describing the area as a 'typical piece of primeval country', as well as a 'breeding place for scarce creatures'⁹⁷. The presence of the butterfly *Coenonympha typhon* was noted here, as well as in the bogs near Killucan.

The annotated maps accompanying the form indicate four main areas of bog to the north of Mohill village, which were proposed for protection, but do not specify site boundaries. The sites were in the ownership of the Irish Land Commission and lie in the townlands of Aghadrumcarn, Drumcroy and Drumboy and Clooncahir. A written reference on the border of the map refers to Cloonboney Bog, which is also referred to in SPNR correspondence, but the location is difficult to determine as it is not located on the map.



Figure 48: Proposed SPNR Reserve (Source: TWT)



Figure 49: Current aerial view of sites (Source: NPWS)

Evolution of SPNR site

There is currently no data of which we are aware to suggest that these sites were proposed for protection after inclusion in the SPNR list.

⁹⁷ See SPNR form 81.

Current conservation status and site boundary

The four areas of bog north of Mohill are not protected by any known international, European, national or local designation.

Comparison of the original sites identified with current mapping and aerial photography as well as sites visits, indicates that of the four areas, the northern site, Aghadrumcarn, appears to be largely intact bogland with some scrub at the edges (see Figure 50). This site was difficult to access but the main part appears intact.

The second bog area, Drumcroy, was again difficult to access, but appears to be now under coniferous forestry with some grassland. The third bog area, Drumboy, has been affected by turf cutting at the edges - a comparatively small area of intact bog appears to remain in the centre of the site while the outer areas of bog have been harvested. Evidence of turf cutting at the outer edges was observed on site.



Figure 50: Aghadrumcarn (Source: NPWS)



Figure 50a : Drumcroy (Source: NPWS)



Figure 51 Drumboy (Source: NPWS)

The fourth bog at Clooncahir appears to be partly afforested – a combination of historic broadleaf woodland, some ornamental planting and more recent coniferous planting by the semi-state forestry company Coillte. Some of the bog and scrub remains in between the forestry plantation, and it was at this site that the butterfly *Coenonympha typhon* which the SPNR had noted, was observed on the site visit.

We do not have any data for the bog at Cloonboney which is mentioned but not marked in any map.



Figure 52: Bog near Clooncahir (Source: NPWS)



Figure 53: Clooncahir today (Photo: E. Sikora)

Key habitats and species

As mentioned above, the SPNR documents refer to the presence of the butterfly *Coenonympha typhon*, as well as the presence of Bog cotton (*Eriophorum angustifolium*), both of which were observed at Clooncahir.

Threats and opportunities

The main threats to the areas appear to be forestation, agricultural improvement and small scale turf cutting. The surrounding land use is mainly farming. In the cases of the bogs which have been most affected by change at Drumboy and Drumcroy, turf cutting and afforestation are apparent.

The Leitrim County Development Plan includes an objective to conserve and protect peatlands in the County.



NORTH BULL, DUBLIN BAY



Figure 54: View Looking south across the dunes on North Bull Island (Photo: K. Ray)

Site summary

North Bull or Bull was proposed as a nature reserve by the SPNR, but without any site description. The island is a unique landform on the east coast of Ireland, close to Dublin city. It covers an area of around 1944ha and is still growing. It accommodates a diverse range of coastal habitats, including mud and sand flats, lagoons, salt marshes, sand dunes, beaches, and grassland, and is particularly noted for its birdlife. The site holds more conservation designations than any other site in the report. Along with its SAC, SPA, and pNHA designations, it is also a Nature Reserve, a RAMSAR wetland site, UNESCO Man and Biosphere Reserve, Public Open Space/Park, Bird Sanctuary and Special Amenity Area.

While there are no acute threats, managing recreational pressures such as dog walking, dumping, and invasive plant species are management priorities.

Site location and context

The North Bull (Bull Island) is a sandy island in Dublin Bay, located near the mainland. The island is particularly notable for its birdlife and is now a nature reserve managed by Dublin City Council⁹⁸. At almost 5 km long and 1 km wide, it runs parallel to the coast between Clontarf and Sutton⁹⁹. It is connected to the mainland by a pedestrian/vehicular causeway extending across the lagoon, mudflats and salt marshes between the island and the mainland. The island is one of the finest sand dune systems in Ireland with a wealth of biodiversity. The landscape character of the site can be described as an extensive low-lying island sand-spit dominated by sand-dunes, salt-marshes, salt and mudflats and a lagoon, with recreational development in the form of two golf courses.

SPNR site description

There are no details of site description on the original survey. The site boundary is however self-evident as the defined island perimeter on the SPNR map.



Figure 55: Proposed SPNR Reserve (Source: TWT)

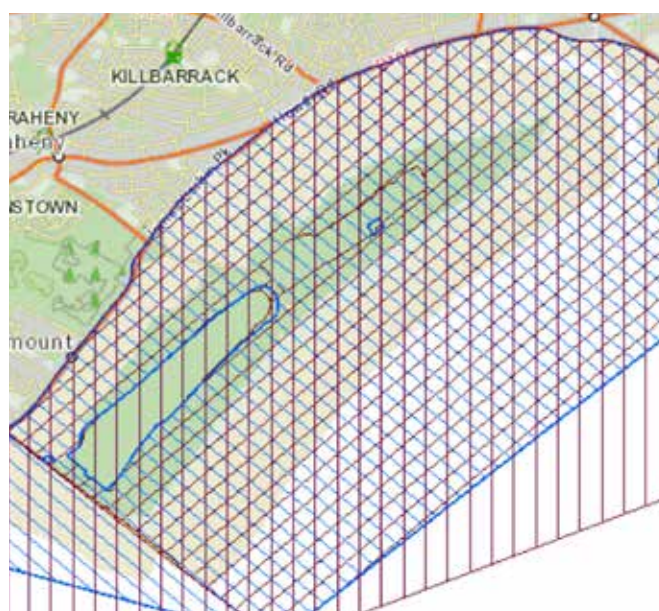


Figure 56: Current SAC, SPA, pNHA (Source: NPWS)

Evolution of SPNR site

The site comprises a sand spit - a relatively recent depositional feature just over 200 years old and still growing, formed as a result of improvements to Dublin Port during the 18th and 19th centuries and the building of the North Bull Wall. These works brought about a change in tidal circulation and within a few years sand banks began to build up eventually forming North Bull Island. Centuries of human sewage entering Dublin Bay had produced an organic ooze of soft mud in the inner reaches where the tidal currents are weakest, and the growth of North Bull Island isolated a large sheltered lagoon from the main part of the bay.

The island has been covered by designative legislation since the 1930s when it was identified as a Bird Sanctuary in 1931 (under the 1930 Wildbird Protection Act). In 1955 a Public Open Space/ Park status was granted. It was recognised as an Area of Scientific

98 <http://www.wildlifetrusts.org/who-we-are/history/rothschild-reserves/north-bull-ireland>
 99 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY004006.pdf>
 100 http://www.npws.ie/publications/archive/Goodwillie_&_Fahy_1973_ASI_Dublin.pdf
 101 An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin
 102 <http://www.irishstatutebook.ie/1976/en/act/pub/0039/print.html>
 103 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY004006.pdf>

Interest (ASI) in the late 1970s¹⁰⁰ and 1980s¹⁰¹, with emphasis on its ecological, geological and geomorphological interest. More importantly for the island, it was designated as a National Nature Reserve in 1988, as a result of the Wildlife Act, 1976¹⁰². 1994 saw Dublin City Council designate the island as a Special Amenity Area.

Nature conservation and amenity activities are the main land uses on the site, while part of the interior of the island has been converted to golf courses¹⁰³.

Current conservation status and site boundary

The site falls within a larger SPA, with most of the site also being covered by a pNHA and an SAC. These three designations also cover a large part of the surrounding marshes and mudflats. In addition, the site holds two internationally important designations: UNESCO Man and the Biosphere Reserve (1981) of which the Alder marsh (colonized by alder tress) within the dunes is of interest (see Figure 57) and a designated International Wetland under the Ramsar Convention (1988) – making it the only RAMSAR site in this study.



Figure 57: Alder marsh within the dunes (Photo: K. Ray)

The *Dublin City Development Plan 2011-2017*¹⁰⁴ also identifies the importance of the landscape of the area, and includes objectives to investigate the site's suitability to be designated as a Landscape Conservation Area.

The *North Bull Island Management Plan* (2009)¹⁰⁵ notes the presence of several coastal habitats that are either rare or are threatened, the use of the site by national and internationally important numbers of wintering waders and wildfowl and the presence of rare plant and animal species.

The site seems intact since the SPNR designation while undergoing continuous natural deposition at the northern tip.

Key habitats and species

This site has varied and important coastal habitats. These include the well-developed and dynamic dune systems. Marram grass (*Ammophila arenaria*) is dominant on the outer dune ridges, keeping them quite intact. A feature of the dune system is a large dune slack with a rich flora. The water table is very near the surface and is only slightly brackish. Saltmarshes, mudflats and lagoons also dominate a large part of the surrounding island, providing a habitat for species such as orchids, curlews and other plants and waders.

The lagoon contains enormous quantities of worms, crustaceans, bivalve molluscs and especially the tiny gastropod *Hydrobia*¹⁰⁶.

The site is used by over 20,000 wintering waterbirds and is of international importance for its waterfowl assemblage. The numbers

of three species exceed the international threshold – Light-bellied brent goose (1,548), Black-tailed godwit (367) and Bar-tailed godwit (1,529). Also of significance is the regular presence of Golden plover and Bar-tailed godwit, Ruff and Short-eared owl¹⁰⁷.

Bird species observed on the site visit comprised a large flock of Brent geese landing on the mudflats (an important habitat for wildfowl and waders), Oystercatchers at the seashore, and a Curlew on the saltmarshes.



Figure 58: Brent Geese landing on the mudflats north of the causeway. (Photo: K. Ray)

A population of Irish hare is also resident on the island¹⁰⁸ yet threatened and in decline, as informed on the site visit. It was also learned that the site is home to Badgers, Pygmy shrews, and a healthy colony of seals.

The site has five Red Data Book vascular plant species, four rare bryophyte species, and is nationally important for three insect species. The rare liverwort, *Petalophyllum ralfsii*, was first recorded on North Bull Island in 1874 and its presence has recently been re-confirmed.

Threats and opportunities

Protection of this nature reserve is largely a case of managing people. This includes limiting of areas to be used by vehicles, laying of path surfaces to prevent erosion, and helping visitors to appreciate the natural environment around them¹⁰⁹.

There are a number of threats identified in 1988 and 1993 as well as in the more recent North Bull Management Plan (2009) including pollution, bait digging and recreational pressures. While there are however no particular threats to the wintering birds, oil spillages from Dublin Port and shipping is an ever-present general threat. On the site visit it was learned that the island is still threatened by pollution from a large rubbish tip, as well as from sewage pollution. There is some disturbance from walkers, free-running dogs, and sailing activities. Erosive pedestrian tracks in the mobile dunes, fixed dunes and dune slack habitats, some of which are bare of vegetation, are extensive (Ryle *et al.* 2009)¹¹⁰. It was learned that fires can be a problem in such accessible dune areas, especially where the dunes are particularly thin. Disturbance from amenity activities is probably responsible for the abandonment of the site by Little terns (*Sterna albifrons*)¹¹¹.

Dublin City Council has raised awareness of the wildlife interest of the site through the provision of signage and an interpretive centre. The City Council's 'code' aims to control recreational activities such as dog-walking, power boating, and horse-riding which may interfere with the wildlife. The site is also subject to the Parks and Open Spaces Bye-laws (DCC 2002) which prohibit activities such as camping and the use of quad bikes on the island. Other threats being managed include the removal of exotic species such as Buckthorn (*Hippophae rhamnoides*) planted in the golf courses and which has subsequently spread to other parts (Figure 59). This was observed on the site visit.

104 <http://www.dublincity.ie/Planning/DublinCityDevelopmentPlan/Pages/CityDevelopmentPlan.aspx>

105 <http://www.dublincity.ie/RecreationandCulture/DublinCityParks/VisitaPark/Documents/North%20Bull%20Island%20Management%20Plan%20Final.pdf>

106 De Buitléar, É. (1993). *Ireland's Wild Countryside*. Boxtree Limited, London

107 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY004006.pdf>

108 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY004006.pdf>

109 De Buitléar, É. (1993). *Ireland's Wild Countryside*. Boxtree Limited, London

110 <http://www.dublincity.ie/RecreationandCulture/DublinCityParks/VisitaPark/Documents/North%20Bull%20Island%20Management%20Plan%20Final.pdf>

111 <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF004006.pdf>



Figure 59: Sea Buckthorn near causeway



Figure 60: Saltmarsh extending over mudflats (Photo: K. Ray)

Common cordgrass (*Spartina anglica*) is also proving problematic, due to its trapping of sediment, giving rise to new growth leading to the migration of saltmarshes over the mudflats (see Figure 60).

European designated habitats on the site have been surveyed, for the NPWS, as part of Ireland's Coastal Monitoring Project¹¹² (Ryle *et al.* 2009) and the Saltmarsh Monitoring Project¹¹³ (McCorry 2007). These reports concluded that in general, the sand dune and salt marsh habitats were in fairly good condition and that the sand dunes are actively accreting at North Bull Island and this has a very positive influence. The stability of the dune system and the variety and interest of diverse habitats and associated flora was also noted as well as the range of designations that should enhance future conservation prospects. Not surprisingly recreational pressures will remain high because of its location close to Dublin.

Current land ownership of site

Multiple private ownership and managed by Dublin City Council.

112 <http://www.npws.ie/media/npws/publications/reports/media,6709,en.pdf>

113 http://www.npws.ie/media/npws/publications/reports/McCorry_&_Ryle_2009_Saltmarsh_survey_V1.pdf



RAVEN'S POINT, COUNTY WEXFORD



Figure 61: Looking south over Raven's Point (Photo: K. Ray)

Site summary

Whilst the Raven's Point or 'The Raven' in Wexford Harbour, was identified as a proposed reserve by the SPNR, no information is provided other than land ownership at the time. The site is dominated by coastal dune and coniferous woodland habitats and covers an 589ha. It is designated as a Nature Reserve, SAC, SPA and pNHA and is important area for particularly rare flora and fauna including species of national importance that have elsewhere disappeared. It also forms part of the larger Wexford Wildfowl Reserve. Despite the ongoing management measures to conserve the site's habitats and species, the reserve has been facing significant problems of anti-social behaviour and high levels of littering in the woods and on the dunes.

Site location and context

Raven's Point or 'The Raven' is a type of coastal spit peninsula, protruding out into the estuary at Wexford Harbour at Curracloe, and is situated 8km north east of Wexford town. A dynamic sand dune system, it forms the eastern part of the North Slob, which is included in the Wexford Wildfowl Reserve. These dunes are not particularly high, generally reaching heights of not more than 5m. The landscape character of the site can be described as a dynamic coastal dune peninsula with coniferous woodland, set within a patchwork of farmed mudflats to the west, forming the North Slob.

SPNR site description

There is no information as to why it was selected by the SPNR. The site maintains the same geographical spread and identity as that identified in the NPWS's conservation designations, with the only obvious changes being at the tip due to continual natural processes. The SPNR boundary encompasses the entire dune system and more recently planted forest as well as a thin strip of the sloblands (reclaimed mudflats) to the east.



Figure 62: Proposed SPNR Reserve (Source: TWT)

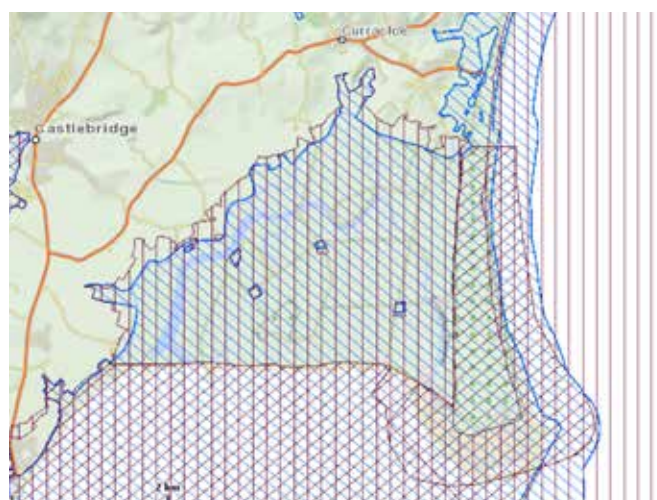


Figure 63: Current Designations (Source: NPWS)



Figure 64: Dynamic changes at southern tip of Raven's Point. (Source: Bing Maps 2013)

Evolution of SPNR site

The site is now part of a major sand dune system, which is largely stable except for the lagoons and sand bar at its southern tip¹¹⁴. An area of 240ha of commercial coniferous forest was planted on a large part of the site in the 1930s and 1950s partly to stabilise the dunes¹¹⁵.

114 <http://www.npws.ie/naturereserves/wexford/>

115 http://www.academia.edu/483482/Red_Squirrels_of_Raven_Point_A_priority_for_protection

Due to its protruding and dune-based land form, the site is susceptible to natural hydrological processes particularly toward the tip. The pronounced and curvilinear southern corners in the SPNR map have reduced, particularly at the south-west end. It was not possible to confirm this from ground level due to the presence of dangerous and expansive quick sand at the tip. However recent aerial images confirm these changing dynamics of the tip (see Figure 64).

There is evidence from other sources that the dunes here are reshaping. After visiting the site in 1993, De Buitléar noted the occurrence of new foredunes at Ravens Point, resulting from the reworking of existing dunes around the estuary¹¹⁶. Nairn (2007) also records the tip of Raven Point as the most dynamic section of the site, changing shape with each winter storm¹¹⁷.

In 1981 the site's ecological interest was recorded as part of its identification as an Area of Scientific Interest by An Foras Forbartha¹¹⁸.

Most of the land is now sown with agricultural crops with the slobes being immensely attractive to wildfowl and wading birds¹¹⁹.

Current conservation status and site boundary

In 1983 the site attained its status as a Nature Reserve and still maintains this today. In addition the site is an SAC which covers most of the original boundary, with the exception of a narrow area within the upper western SPNR boundary in the sloblands. The entire site lies within a pNHA and SPA.

Key habitats and species:

The key habitats and species listed by the NPWS¹²⁰ were observed on site. These include mudflats and sandflats, annual vegetation of drift lines, Atlantic salt meadows and five dune types. In addition the forest has now developed its own key species and is particularly important as a habitat for the red squirrel.

The Raven's Point Nature Reserve is an excellent example of a dynamic dune system that contains a suite of these important coastal habitats. It also provides a roosting site for an internationally important flock of Greenland white-fronted geese. Golden plover and Bar-tailed godwit also occur, these species being of special conservation interest. The Raven has been an important breeding site for Little tern (e.g. 26 pairs in 1984) but in recent years conditions have been less suitable due to the spread of Marram grass and the terns have bred elsewhere in Wexford Harbour.

The reserve is internationally important for birds. 35% of the world's population of Greenland white-fronted geese spend winter in this area. They feed by day on the Wexford Wildfowl Reserve and return each evening to roost in the relative safety of the sand bar, on the southern tip of the Raven. Large numbers of waders roost here throughout the year. Little terns nest on the sandy beaches and Crossbills are occasionally seen in the woods. The dunes are rich in wild flowers, including several rarities, such as the sub species of Round-leaved wintergreen, which is found only in Ireland on the site¹²¹.

Marram grass (*Ammophila arenaria*) was observed in a band along the eastern and south-eastern sides of the site, along with Thrift (*Armeria maritima*) and Common saltmarsh-grass (*Puccinellia maritima*). Yet other important and rare species occur. A number of rare and protected plants have also been recorded from this dune system including Round-leaved wintergreen (*Pyrola rotundifolia* subsp. *maritima*), Lesser centaury (*Centaureum pulchellum*) and, as evident on site visit, Wild asparagus (*Asparagus officinalis* subsp. *prostratus*).



Figure 65: (*Morchella eleta*) on the dunes.(Photo: K.Ray)

A number of ponds within the woodland were noted on the site visit. These are primarily in place as water reservoirs for forest-fire control, but more have been created as part of the introduction to the site of the Natterjack toad (*Bufo calamita*), a rare, legally protected Red Data Book species. The toads are breeding successfully and appear to have established themselves in the site¹²².

Also identified in the dunes was a selection of fungi (see Figure 65).

Threats and opportunities

Although the site has protective designations it is suffering some of the most acute threats, including habitat degradation and associated management challenges, with its wildlife becoming increasingly vulnerable.

The NPWS Site Synopsis¹²³ has recorded heavy erosion along the eastern side of the site in recent years, but the sand dune system on the south-western end of the Raven is accreting, building towards the west along the wall which is the southern boundary of the Wexford Slobes, at about 3m per year. The Site Synopsis¹²⁴ emphasizes recreational activity as the major hazard for the site and this is confirmed by reports of actions taken by interest groups, such as the calls for the enforcement of bye-laws by the Friends of the Raven Coastcare Group¹²⁵. The segmented responsibilities for the site mean that enforcement of some bye-laws is proving difficult. Curracloe, is a popular summer resort and parts of the Raven receive high recreational pressure. As well as anti-social behaviour and littering, pony trekking has caused erosion of the embryonic dunes and driftlines in some places.

The synopsis noted, in 2000, plans to gradually remove all the conifers from the sand dune system, with some selected areas to be clear-felled, while others to be left as scrub pine. After harvesting the conifers, certain areas behind the dunes will be planted with hardwoods, including Alder (*Alnus glutinosa*) and Sessile oak (*Quercus petraea*). Other areas, in particular the more low-lying areas of former dune slack, will be left to regenerate naturally. A recent report in 2011 on the conservation objectives of the site makes reference to this plan, and notes how some clear-felling has led to the regeneration of shrubs and trees, and that if the long-term intention is to promote restoration of the fixed dune, then appropriate grazing regimes may have to be implemented¹²⁶.

A series of signs at the entrance to the reserve raises awareness of the natural value and conservation measures operating on the site, along with warning signs on the specific threats facing the area.

Ownership status of site:

The site is in State ownership and site is managed by the NPWS.

116 De Buitléar, É. (1993). *Ireland's Wild Countryside*. Boxtree Limited, London

117 Nairn, R. (2007). *Ireland's Coastline: Exploring its nature and heritage*. The Collins Press, Cork

118 Ibid

119 <http://www.askaboutireland.ie/reading-room/environment-geography/flora-fauna/flora-and-fauna-of-wexfor/>

120 <http://www.npws.ie/protectedsites/specialareasofconservationsac/ravenpointnaturereservesac/>

121 <http://www.npws.ie/naturereserves/wexford/>

122 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000710.pdf>

123 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000710.pdf>

124 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000710.pdf>

125 <http://www.independent.ie/regional/wexfordpeople/news/problems-at-raven-point-27725466.html>

126 http://www.npws.ie/publications/archive/000710_Raven%20Point%20Nature%20Reserve%20SAC%20Coastal%20Supporting%20Doc_V1.pdf



ROSTONSTOWN BURROW (LADY'S ISLAND LAKE), COUNTY WEXFORD



Figure 66: Looking east across the shingle spit of Lady's Island Lake.
(Photo: K. Ray)

Site synopsis

The sand and shingle barrier at Rostonstown's Burrow (Lady's Island Lake), Wexford was identified as a potential SPNR reserve, without information as to why it was chosen. The SPNR site is a 200m long spit which is continually breached and supports a rich variety of plant species. Its existence gives rise to a brackish lake just inside the coastline, which is home to an important breeding population of terns. Today the site is protected as an SAC, SPA and IBA (Important Bird Area). The lake area adjacent to the SPNR site covers about 450ha. Potential threats to the site include the periodic breaching of the barrier which can affect wildlife, as well as horse riding and motor cycling outside.

Site location and context

Rostonstown Burrow (Lady's Island Lake) lies on the south-east corner of Wexford, north of Wexford town. It includes a natural, brackish, percolating lagoon, internationally recognised for its important habitats and birdlife. The lake is technically a back-barrier seepage lagoon, one of only two in Ireland. It is impounded by a sand and shingle barrier which has no natural outlet but is periodically breached to relieve flooding. The site sits within a flat agricultural landscape, with farming and wind energy (slightly visible on left horizon in Figure 66 above) as the most notable land uses.

SPNR site description

There is little data on the original survey to inform a site description other than the SNPR map which identifies only the sand/shingle bar that separates the lake from the sea.



Figure 67: Proposed SPNR Reserve (Source: TWT)

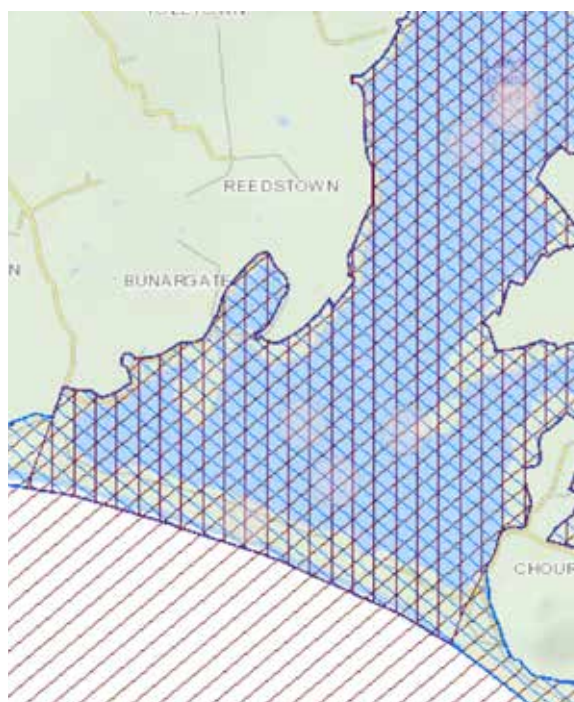


Figure 68: Current Designations (Source: NPWS)

Evolution of SPNR site

Both the sand spit and the lake have been the subject of a long term study by Dr Healy of UCD (1997)¹²⁷ and have become of international importance for their nesting tern colonies and wintering waterbirds. The proposed SPNR reserve has evolved as a natural shingle barrier, where longshore drift has gradually caused the build up of a horizontal line of shingle which impedes the flow of water into and out of the bay. In this way, the site is critical in the formation of the lagoon now known as Lady's Island Lake, and has given rise to a variety of rich habitats and diverse species. It is now one of the most important coastal lagoons for waterbirds in Ireland¹²⁸.

127 http://www.npws.ie/publications/archive/Healy_1997_Lagoons_III_Site_Reports.pdf

128 Nairn, R and O' Halloran, J. (2012). *Bird Habitats in Ireland*. The Collins Press: Cork



Figure 69: Evidence of Spring breaching (Photo: K. Ray)

The lake was identified by An Foras Forbartha in 1981 as an Area of Scientific Interest¹²⁹, which noted its ecological and geomorphological interest as well as its lake, marsh and grassland habitats. The flora is noted as especially well developed at the southern and eastern ends of the area¹³⁰ with many clover species and other annual herbs.

The barrier has been continually breached since the 17th Century to relieve flooding in adjoining farmland¹³¹. Today breaching of the barrier continues with mechanical diggers¹³² and is usually carried out in April or May (as evident on site visit, see Figure 69), after which 'the cut' naturally begins to reseal.

Current conservation status and site boundary

The barrier and lake are now within a designated SAC and SPA. There appears to be little difference between the SNPR and contemporary site boundary, with the only notable addition being the existence of the breach through the dunes. The two sites together are of high conservation value, having three habitats which are listed in the EU Habitats Directive and one of these (lagoons) with priority status.

Key habitats and species

The main habitats consist of a sand and shingle spit with perennial vegetation of stony banks, and reefs and coastal lagoons adjacent to the site.



Figure 70: Cottonweed on shingle spit (Photo: K. Ray)

Sand and Shingle Spit

Focusing on the specific site of the SPNR reserve, the NFWS Site Synopsis¹³³ provides detail on its particular associated habitats and species. The barrier comprises the best example in Ireland of a landward moving (transgressive) system of gravel-based barrier. The sequence of back barrier washover and seepage structures are among the best in Europe, and, indeed, Lady's Island remains the last "intact" example in Europe. The substrate is predominantly sandy. The barrier is overlain for the most part by sand dunes, principally embryonic shifting dunes and marram dunes but also some more fixed areas.

The vegetation is very typical of shingle or stony bank habitat. Species present include Marram grass (*Ammophila arenaria*), Sea rocket (*Cakile maritima*), Sea samphire (*Crithmum maritimum*), Sea holly (*Eryngium maritimum*), Yellow-horned poppy (*Glaucium flavum*) Sea sandwort (*Honkenya peploides*) and Mayweed (*Tripleurospermum maritimum*) – that latter four of which were observed on site. Of particular note is the occurrence of Cottonweed (*Othanthus maritimum*) - an extremely rare plant which has its main Irish population here, and as previously mentioned given particular emphasis by An Foras Forbartha in 1981. This was also identified in the shingle on the edges of the breach (Figure 70). In addition to Cottonweed, three other Red Data Book species occur within the site: Lesser centaury (*Centaureum pulchellum*), Penny royal (*Mentha pulegium*) (observed on site), and Golden dock (*Rumex maritimus*).

Several bird species were identified on the site visit, including terns (the most important bird species breeding at the lake), Gadwall, Shelduck and Oystercatcher.

Lagoon

The 1997 report (see p47) notes how it is the best documented lagoon in Ireland and is the best example of a distinct and relatively rare geomorphological formation in Europe. The lagoon habitat within the site is an excellent example of a sedimentary lagoon with a sand/shingle barrier and has a rich variety of habitats and species. It is by far the largest and best example of this type of lagoon in the country and is in a relatively natural condition, despite regular breaching of the barrier. The site also has important ornithological interests, with many notable birds breeding on islands.



Figure 71: Oystercatchers on sand and shingle spit by lakeshore (Photo: K. Ray)

Threats and opportunities

Regular breaching of the gravel barrier may weaken it in the long-term. Horse riding and motor cycling activities have caused damage to the surface vegetation of the barrier in the past and remain threats. Removal of sand and gravel is also a continuous threat. Deliberate breaching of the barrier leads to increased salinity of the lagoon which could be detrimental to the flora and fauna. Signage on the opposite eastern end of the spit, beyond the breach, warns of the prohibition of Quad bikes under the Foreshore Act, suggesting that such activity has been noted on site. Game shooting also seems to be an activity on the spit.

Increased recreational activities in the area, including water sports, would lead to disturbance of breeding birds. The reef community is not known to be threatened though would be vulnerable to oil pollution.¹³⁴

Current land ownership of site

The site is in state, semi-state and private ownership. The site is now managed by the NPWS.

¹²⁹ An Foras Forbartha (1981), *Areas of Scientific Interest in Ireland*

¹³⁰ An Foras Forbartha (1981), *Areas of Scientific Interest in Ireland*

¹³¹ http://www.npws.ie/publications/archive/Healy_1997_Lagoons_III_Site_Reports.pdf

¹³² <http://www.npws.ie/publications/archive/Ladys%20Island%20Lake.pdf>

¹³³ <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000704.pdf>

¹³⁴ <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF000704.pdf>



SALTEE ISLANDS, COUNTY WEXFORD



Figure 72: Puffin on the southern cliffs of Great Saltee (Photo: K. Ray)

Site synopsis

Great Saltee and Little Saltee, two small islands off the coast of Wexford – were together identified as a proposed SPNR reserve. They are noted as a 'wonderful breeding place for seabirds' and a locality for scarce plants, but with no additional details. The site has the most impressive bird population of all the sites, with massive breeding colonies of a large variety of seabirds. The islands are presently uninhabited, but a bird observatory exists on Great Saltee. Today the islands are designated as an SAC, SPA and pNHA and they cover an area of 120ha. Together they form one of Ireland's most famous bird sanctuaries. There are no particular threats to the sites.

Site location and context

The Saltee Islands lie approximately 5km off Wexford's southern coast in St. Georges Channel and comprise of the Great Saltee and Little Saltee. Collectively these formations constitute a broken reef that protrudes from a seabed of sand and shell¹³⁵. Both islands are home to extensive colonies of gannets and other sea birds, combining to form one of the world's major bird sanctuaries¹³⁶ and with spectacular displays of wildlife¹³⁷.

The islands have a range of habitats, including exposed rocky cliffs on the south and east sides. These soft coastal cliffs have a special importance for invertebrate animals, and the north-west of the Great Saltee presents a particularly good example¹³⁸. The northern and western sides of both islands are fringed with shingle and boulder shores, with small areas of intertidal sandflats. Sea caves occur at the base of the cliffs on Great Saltee. They are among the ancient islands of Europe, based on Pre-Cambrian bedrock, between 600 and 2000 million years old¹³⁹. The landscape character of the islands can be summarised as small uninhabited rocky island landforms with shingle/border shores, soft coastal cliffs and sandflats, dominated by bracken/brambles, with evidence of past agricultural grassland and stone settlement boundaries (see Figure 73 below).



Figure 73: Landscape of Great Saltee, with Little Saltee in left background. (Photo: K. Ray)

SPNR site description

The original SPNR survey identifies the area as piece of 'typical primeval country' and 'a wonderful breeding place for sea birds', as well as being a locality for scarce plants. There is little other description with the exception of that in letters of correspondence regarding the potential purchasing of the islands in 1914, which reveal how at the time the islands had been 'left to nature – but bird and egg marauders visit it in summer'. Judging from written accounts in contemporary texts, it is assumed this purchase was not followed through at the time.



Figure 74: Proposed SPNR Reserve (Source: TWT)

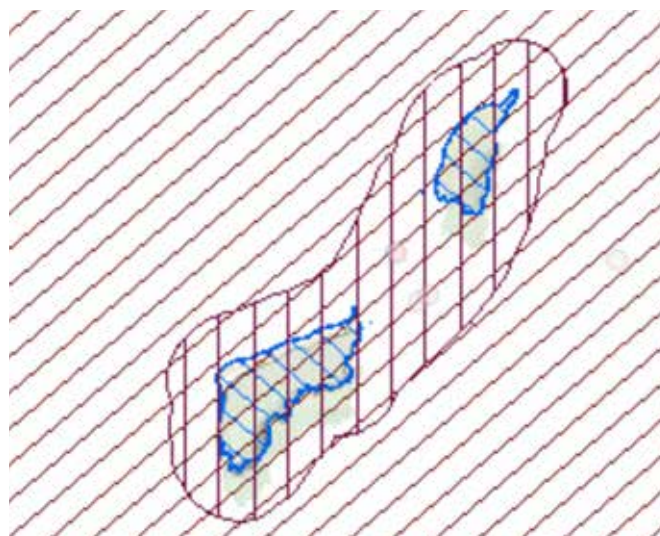


Figure 75: Current Designations (Source: NPWS)

Evolution of SPNR site

The islands have been privately owned by the Neale family since the 1940s – at which point farming stopped. Great Saltee is however open to visitors (visits to Little Saltee are not in operation due to hazardous landing conditions and so was not directly accessed for this study). Each island is currently uninhabited but a farmhouse on the Great Saltee has been converted into a bird observatory.

The botanist, H.C. Hart who visited Great Saltee in 1883 wrote: 'On this island, which is partly cultivated, there is a resident family. The Lesser Saltee is used as pasturage and contains but one cabin for the use of herd boys'. Naturalist Robert Lloyd Praeger also visited the island in 1913, after the resident family had left, and

¹³⁵ <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000707.pdf>

¹³⁶ <http://www.salteeislands.info>

¹³⁷ <http://iwt.ie/members-area/saltee-islands-co-wexford/>

¹³⁸ Nairn, R. (2007). *Ireland's Coastline: Exploring its nature and heritage*. The Collins Press, Cork

¹³⁹ <http://www.salteeislands.info/>

wrote "Up till ten years ago, the island was inhabited. Some 80 acres were under tillage and cattle and sheep grazed all over the higher, rocky grounds at either end"¹⁴⁰. It was also around this time that the islands were identified as a nature reserve by the SPNR, and so this account provides a comparative insight into the evolution of the condition of the reserve to that which exists today.

When Praeger returned in 1934, he mentioned that the island farm had been derelict for twenty years and that the flora of the large island was still in the process of re-organization after tillage¹⁴¹. This corresponds with letters within the 1914 SPNR letters which describe the area as having been "left to nature", although farming temporarily resumed in the late 1930s before being abandoned once again.

Since then, the terrestrial habitats of both islands have become dominated by bracken and brambles, while some grassland still survives in the fields. The islands are also dominated by vast colonies of bird life.

The islands were recorded as an Area of Scientific Interest in Ireland in the early 1980s¹⁴².

Current conservation status and site boundary

Today both islands have SAC, SPA and pNHA designations. The expanse of the SPA includes the immediate waters as well as a series of rocks and islets, while the SAC expands even further to cover a large coastal area. The blue pNHA boundary is identical to the boundaries of the island. The original SNPR boundaries match the latter, stopping at the islands' perimeters. The boundaries of Great Saltee and Little Saltee surround areas of approximately 89 ha and 37 ha respectively, with the highest point being on the South Summit of Great Saltee (198 feet)¹⁴³.

Key habitats and species

The NPWS Site Synopsis¹⁴⁴ stresses the high conservation importance of the marine habitats, with reefs, submerged/partly submerged sea caves, large shallow bays, and intertidal sediments. The reefs are regarded as being of exceptional value for their quality and diversity, with evidence of vast areas of kelp in the clear waters around Great Saltee on site visit. Other key habitats include mudflats and sandflats and vegetated sea cliffs of the Atlantic and Baltic coasts.

An Foras Forbartha's 1981 *National Heritage Inventory: Areas of Scientific Interest in Ireland*¹⁴⁵ identified the specific ecological interest of the islands, with emphasis on the habitats of exposed rock, heath and grassland. Its description of the island is as follows:

Islands of Pre-Cambrian gneiss and granite having large seabird breeding colonies, much studied in recent years. Nesting population includes fulmar (300 prs), gannet (270 prs on Great Saltee), puffin (1,430), guillemot (13,000), razorbills (6,400), kittiwake (1280 prs), cormorants (280 prs on Little Saltee) and shags (270). The calcifuge vegetation has also several features of interest in its heath and maritime communities.

Today, the Saltee Islands remain a haven for breeding seabirds like Gannets, Puffins, Razorbills and Manx shearwaters¹⁴⁶, providing the islands with international importance in this context. On site visit to the Great Saltee, all major bird species were observed, as well as others such as Oystercatchers, Sedge warblers, Blackcaps and Flycatchers. This island is a major site for

spring and autumn landbird migration, as implied in the SPNR letters. The Saltees are also internationally important for their colonies of breeding seabirds. Notable are the Gannets on Great Saltee (2,050 pairs in 2000), Cormorants on Little Saltee (273 pairs in 2000), Shags on both islands (265 pairs), Fulmars, (525 pairs 1998-2000), Kittiwakes (2,125 pairs in 199, and the auks – Guillemots (21,436 individuals), Razorbills (c.4,000 individuals) and Puffins (1,822 individuals). In comparison to the 1981 record above, Gannets, Kittiwakes and Guillemots have risen the most in numbers, with the Razorbills suffering the greatest decrease. There is also a small Manx shearwater colony (c.150-175 pairs) on Great Saltee. It is noted in some reports that the breeding populations of large gulls have declined dramatically in recent years, yet this is contradicted by evidence on site visit, with large numbers of Great Black Backed Gulls identified including some nesting females. The Lesser Black-backed Gull colony is also still important (245 pairs), but numbers of Herring Gull (c.50 pairs) have fallen. In addition, Peregrine falcons and Choughs occur¹⁴⁷. Most seabirds (with the addition of Oystercatchers) noted by the NPWS were observed, including all those listed for its SPA status (see Figure 76).

The NPWS Site Synopsis¹⁴⁸ indicates the presence of a healthy breeding colony of Grey Seals on Great Saltee. A minimum estimate of 246 grey seals was recorded at the site during the moult season in 2007¹⁴⁹. A number of seals were observed on site visit.

The reef communities are very species rich and are particularly notable for the range of colonial sea squirts present. In shallow water the reefs support a forest of mixed kelp species with scour tolerant fauna on tide-swept bedrock or a kelp forest of *Laminaria hyperborean* with a faunal cushion and foliose red algae.

In addition, the soft coastal cliffs have a typical sea-cliff flora, with Thrift (*Armeria maritima*), Sea campion (*Silene maritima*), Sea plantain (*Plantago maritima*), Sea aster (*Aster tripolium*), Scurvy grass (*Cochlearia officinalis*), Rock spurrey (*Spergularia rupicola*), Scentless mayweed (*Matricaria maritima*), Red fescue (*Festuca rubra*), Sea spleenwort (*Asplenium marinum*) and Sea samphire (*Crithmum maritimum*).

The formerly cultivated interior of the island has been reverting to rough grassland, with Bracken (*Pteridium aquifolium*) becoming dominant and often occurring in association with Bluebells (*Hyacinthoides non-scripta*). Dry grassland still occurs in some of the old fields.

Threats and opportunities

The Great Saltee is one of the most consistently used places for ringing and migration studies. While there are no significant threats at present (especially due to the uninhabited nature of the islands), the conservation objectives nevertheless stress that human activity must not be at a level that disturbs the grey seal population, or the ecology of the sea caves. In addition, Puffin and other cavity/burrow nesting seabirds can be particularly susceptible to rat (*Rattus* spp.) predation. However this threat is currently noted as "absent or under control" where the Saltees are concerned¹⁵⁰. In addition access restrictions and a relatively high passage fare ensure limited visitors, with mainly ornithologists and bird watchers travelling to the island.

Current land ownership of site

Both islands are privately owned by the Neale family, descendants of Prince Michael the First who bought the islands in 1943. They are managed by the NPWS.

140 Nairn, R. (2007). *Ireland's Coastline: Exploring its nature and heritage*. The Collins Press, Cork

141 Ibid

142 An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

143 <http://www.salteeislands.info>

144 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000707.pdf>

145 Ibid.

146 <http://www.wildlifetrusts.org/who-we-are/history/rothschild-reserves/saltee-islands-ireland>

147 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000707.pdf>

148 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY000707.pdf>

149 http://www.npws.ie/publications/archive/000707_Saltee%20Islands%20SAC%20Marine%20Supporting_Doc_V1.pdf

150 <http://www.npws.ie/media/npwsie/content/images/protectedsites/conservationobjectives/CO000707.pdf>

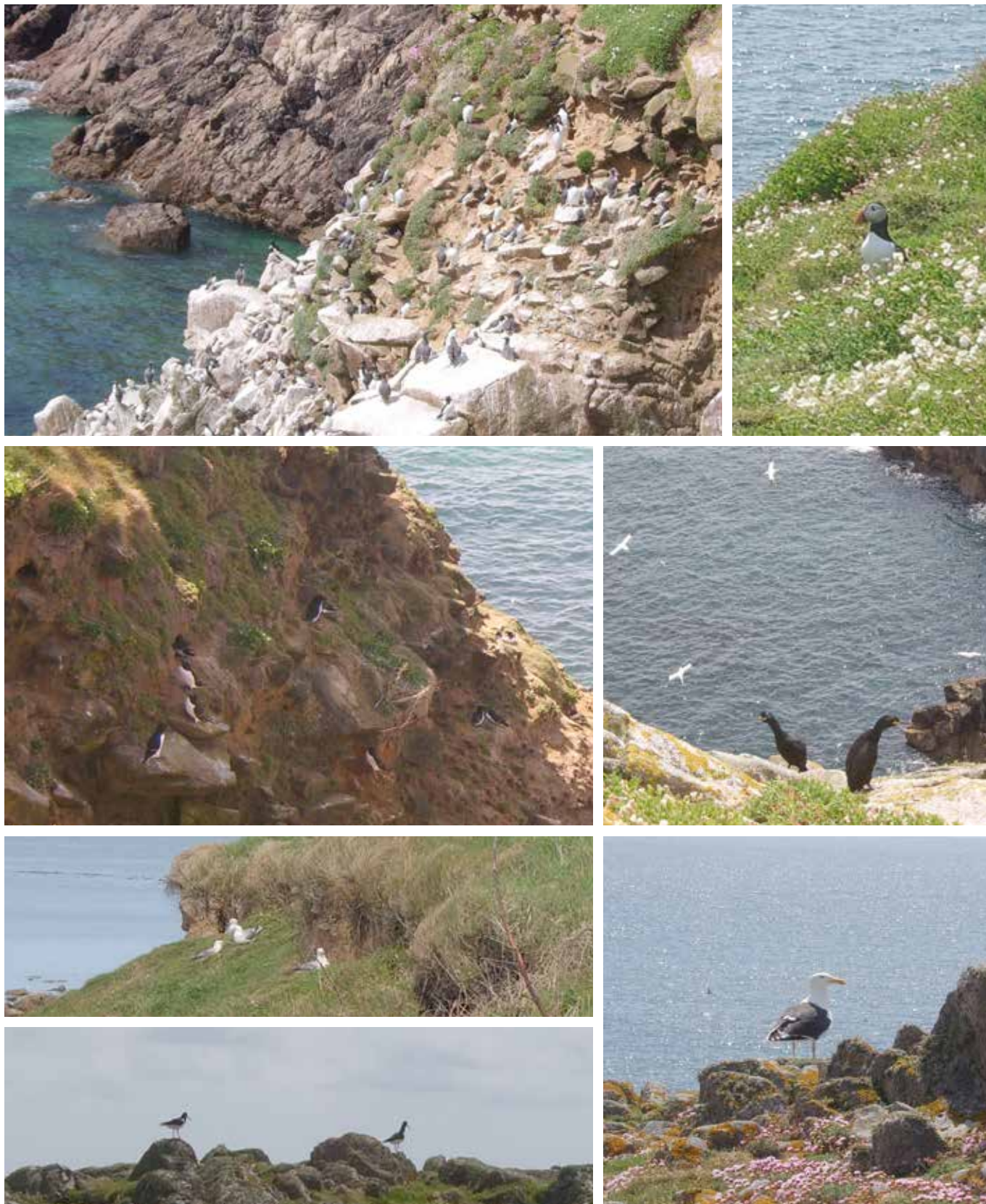


Figure 76: Bird species observed on site visit – Guillemots, Puffin, Cormorants and Shags, Black Headed Gull, Kittiwakes, Oystercatchers and Razorbills



BOGS BORDERING THE SHANNON AT SHANNON HARBOUR, COUNTY GALWAY

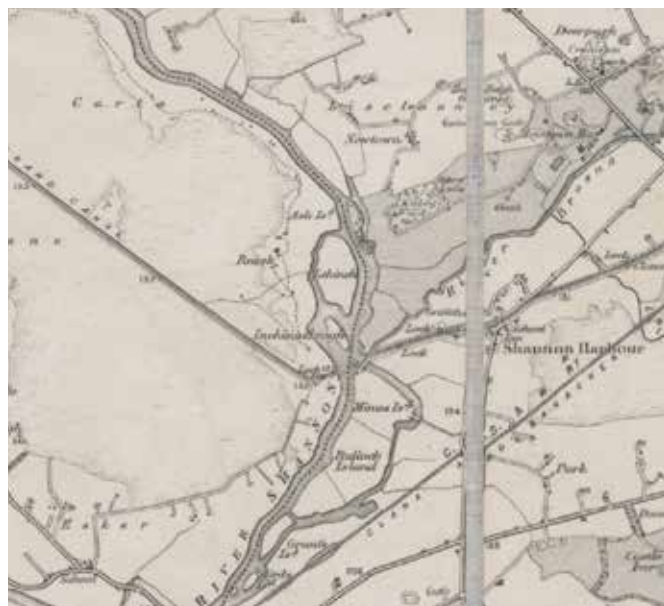


Figure 77: Original Map from SPNR showing extensive bog but no annotations. (Source: TWT)



Figure 78: Current image of industrially harvested bog, and adjacent SAC and SPAs. (Source: NPWS)

Site synopsis

The SPNR proposed that the bog bordering the River Shannon at the junction between the River Shannon and Grand Canal, be protected as a 'typical example of primeval country' and a 'breeding place of scarce creatures'. Whilst there is no exact site boundary, the majority of the bog habitat in this location has been industrially harvested and is largely destroyed. Adjacent to the site are the Shannon Callows SAC and SPA which are seasonally flooded grassland habitats, protected under European designations. As the bog habitat no longer exists, much of the site data relates to these areas. Threats to the Shannon Callows include agricultural intensification and summer flooding which can affect bird populations.

Site location and context

The site lies along the River Shannon, near Shannon Harbour, at the junction with the Grand Canal in eastern Co. Galway, near the village of Shannon Harbour. The Shannon is Ireland's longest river, and much of it and the shoreline and wetlands (callows) are protected under European Habitats and Birds directives. The area is surrounded by large tracts of bog, many of which appear to have been industrially harvested.

SPNR site description

The documents provide only a written description of the site to be protected, and no indication of the area to be protected on the map (see Fig 77 above). The site is described as a 'bog bordering the Shannon at the junction of the Grand Canal (Ballinasloe Branch) with the Shannon opposite Shannon Harbour, close to Fannin Lock (Canal) some 10 miles from Ballinasloe'¹⁵¹. This description is repeated in the letter from W.J. de V. Kane, in his letter dated May 15 1914, and is in the context of bogs where the insects *Coenonympha typhon* and *S. plumaria* were to be found. The form states that this bog was a piece of 'typical primeval country', and a 'breeding place for scarce creatures', owned by the Grand Canal Company.

The exact area of the proposed SPNR reserve is difficult to determine in the absence of annotations on a map. Examination of the 6" map indicates a very large tract of bog, which extended from Fanning's Lock, which seems to be consistent with the SPNR description. However it is difficult to determine whether the entire bog was sought for preservation, or just the area of bog and wet grassland (callows) which borders the Shannon. As there is no mention of grassland in the SPNR documents, it is assumed that the bog was the key habitat.

Evolution of SPNR site

Although the exact reserve boundary is not known, the bog to the west of the Shannon and Fanning's Lock, and some of the grassland between the bog and the River Shannon, are considered as potentially part of the SPNR reserve. The bog (Kilmacshane) in this location appears from aerial photography to have been industrially harvested in the intervening years. A document published by Bórd na Móna indicates that this bog is one of several where they are experimenting with uses on cutaway bog¹⁵².

This section of the River Shannon callows (wet grasslands) from Athlone to Banagher, was listed in the Areas of Scientific Interest¹⁵³ on account of importance of the site as a wintering site for migrating birds, including wigeon, mallard, teal, wild swan, white fronted geese, black-tailed godwit and other waders.

Current conservation status

The bog itself is not covered by any European or National designations, and has been largely cut away through industrialised peat extraction.

The Shannon Callows, seasonally flooded grasslands, extend on both sides of the River Shannon, are designated as both SAC (River

¹⁵¹ See SPNR form for site 82a.

¹⁵² http://www.bordnamona.ie/wp-content/uploads/2013/02/BAP_review2012/BNM_BAP_2012_DF_lowres.pdf

¹⁵³ An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

¹⁵⁴ <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF000216.pdf>

Shannon Callows 000216) and SPA (Middle Shannon Callows SPA 004096) and are considered of high conservation importance. Both designations cover a section of approx. 50km along the river between the towns of Athlone and Portumna, from .75km up to 1.5km wide. The Shannon Callows are considered the largest semi-natural floodplain grassland in Ireland and Britain, and one of the most important wetland systems in the country¹⁵⁴. The Callows are extremely diverse in terms of its flora, and of especial significance for several species of rare and protected birds.

A nature reserve managed by BirdWatch Ireland and the Irish Wildlife Trust lies in close proximity on Bullock Island, across the river Shannon from the site.

Key habitats and species

Access to the bog was not possible as access to the harvested boglands is prohibited and the bog could not be seen from outside the site. Access to the Callows is also restricted due to the pattern of development in the area – most of the river bank is only accessible by foot.

The NPWS Site Synopsis for the Shannon Callows SAC identifies the main habitats as *Molinia*, and lowland hay meadows. Flora include the Opposite-leaved pondweed (*Groenlandia densa*) and Meadow barley (*Hordeum secalinum*), protected under the Flora Protection Order (1999) and the Green-winged orchid (*Orchis morio*), a Red Data Book species. Important fauna include the Otter¹⁵⁵.

The site is internationally important for both breeding and wintering waterfowl. Bird species found in the SPA include the Corncrake, Whooper swan, Golden plover, Bewick's swan, and Greenland white-fronted Goose, while the Merlin (*Falco columbarius*) was listed as breeding on the site in 1996¹⁵⁶. The Hen harrier and Merlin are also seen to hunt on the callows, and the Kingfisher is also seen. In addition, two waterbird species listed in the Irish Red Data Book, Black-tailed godwit, and shoveler, have been recorded. The Corncrake is considered to be the most important species on the SPA, which holds 40% of the Irish total and is the only globally endangered species in Ireland¹⁵⁷.

Threats and opportunities

The bogland has already been subject to peat extraction on an industrial scale. There is some evidence that Bórd na Móna are considering methods of habitat restoration on this area of bog, with documents referring to reed bed trials¹⁵⁸.

The Shannon Callows SPA and SAC area considered by the NPWS to be good examples of habitats with a low level of disturbance. The Site Synopsis for the SAC identifies a number of potential threats, the main one being agricultural intensification of the grasslands. Threats to breeding birds include summer flooding¹⁵⁹.

Since 1991 a programme aimed at conserving the Corncrake has been in operation, and a stabilisation of the numbers has been noted¹⁶⁰. In 2005 the Breeding Wader Project was introduced to investigate reasons for a sharp decline in breeding populations of waders (Redshank, Lapwing, Snipe and Curlew), and this project includes both habitat management and research components.¹⁶¹

Current land ownership of site

As mentioned above, the lack of a defined SPNR reserve boundary makes exact description difficult. The cutaway bog is owned by Bord na Mona while the SAC and SPA are mainly in private ownership with Bird Watch Ireland in possession of two small areas (c. 21ha).

155 Ibid.

156 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY004096.pdf>

157 Ibid.

158 http://www.bordnamona.ie/wpcontent/uploads/2013/02/BAP_review2012/BNM_BAP_2012_DF_lowres.pdf

159 <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY004096.pdf>

160 <http://www.npws.ie/media/npwsie/content/images/protectedsites/natura2000/NF000216.pdf>

161 <http://www.birdwatchireland.ie/Ourwork/Researchmonitoring/BreedingwadersShannonCallows/tabid/257/Default.aspx>



THE BURREN NEAR BALLYVAUGHAN, COUNTY CLARE



Figure 79: Coastal limestone pavement identified by the SPNR, near Black Head. (Photo: E. Sikora)

Site synopsis

Three sites within the Burren, an extensive area of limestone pavement in the west of Ireland, were proposed as nature reserves on account of their 'great botanical interest'. The sites lie in northwest Co Clare, near the village of Ballyvaughan, which lies on the southern shore of Galway Bay. The habitats proposed for preservation by the SPNR include an extensive area (almost 270ha) of coastal limestone pavement near Black Head, as well as sand dunes, a river with tufa formation and a turlough site (temporary lake). Two of the sites are now designated under European Habitats Directives as candidate SACs. The third site, a small area of limestone pavement is partially intact and not designated.

The main threats to the sites are from recreational pressures and agricultural intensification including overgrazing.

Site context and description

The SPNR sites are located in the Burren, a large area of limestone pavement in the north of County Clare and south County Galway. The Burren is an extremely distinctive landscape, composed of large areas of limestone pavement, with some scrub overlying the limestone in certain areas. The area is well known for its dramatic geological formations of extensive bare limestone pavement, including hills and turloughs (disappearing or dry lakes) which support a great diversity of habitats and species. It exhibits a diverse range of plant communities, which are found side by side, and this uniqueness and diversity of flora in particular has been noted with botanical observations going back as far as the 1640s¹⁶². In the 1930s, Robert Lloyd Praeger wrote of the Burren's fame among botanists, and concluded that there was 'nothing else like it in Ireland, or in Britain'¹⁶³ on the same scale, while Cabot describes it as Ireland's premier 'natural history jewel'¹⁶⁴.

SPNR site description: Three sites.

The maps and documents refer to three separate areas in the north-western part of the Burren, the largest to the west of the village of Ballyvaughan, and bordering the coastline near Black Head (see Figure 80). This site boundary follows the coastline and includes the dunes to the west of Black Head as far south as Fanore Bridge, and the Caher River is also included. Other sites indicated on the map are a small turlough to the south of the village, and an area appearing as limestone outcrop and fields to the east of the town near Bishops Quarter (see Figure 82). The form does not specify particular habitats and species, or describe the areas chosen for preservation. However, the SPNR's Provisional Schedule of Areas in Ireland¹⁶⁵ compiled in 1915, lists 'Burren, nr. Ballyvaughan, Co. Clare (great botanical interest)'.

(However, letters referring to other sites¹⁶⁶ refer to a diversity of moths near Ballyvaughan, in an area between Ballyvaughan and Ardahan where *Platyptila tesseradactyla* and its food plant, *Antennaria dioica*, occur.)



Figure 80: Proposed SPNR Reserve (Source: TWT)

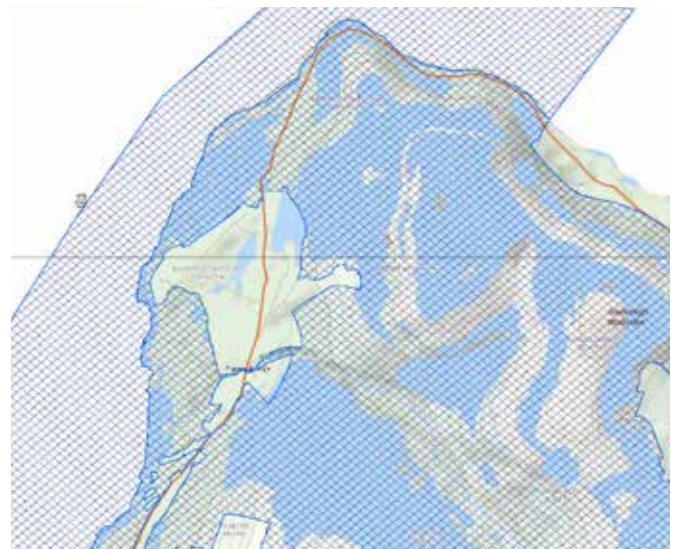


Figure 81: Current Designations (Source: NPWS)



Figure 82: Other Proposed SPNR Reserves (Source: TWT)

¹⁶² See 1 above.

¹⁶³ Praeger, R.L.(1937). *The Way that I Went*. Cork: Collins Press.

¹⁶⁴ See 1 above.

¹⁶⁵ Cabot, D. (1999). *Ireland - A Natural History*. London: HarperCollins.

¹⁶⁶ See SPNR documents and letters referring to sites 80, 80a, 80b Bogs Near .

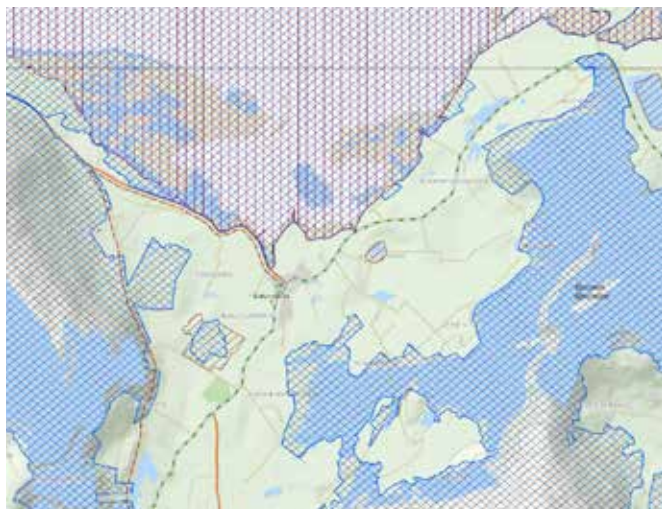


Figure 83: Current Designations (Source: NPWS)

Evolution of SPNR site

Much of the area known as the Burren was listed in the Areas of Scientific Interest in 1981 as of International Importance. The Black Head area of grassland, exposed rock and heath was designated on account of its representation of the whole range of rocky Burren habitats including coastal glacially-planed limestone pavement to high level heaths, and on account of several species of flora. Praeger also notes the presence of the extremely rare pondweed *Potamogeton perpygmaeus*¹⁶⁷.

The Ballyvaughan Turlough, also proposed by the SPNR, was listed as site of Regional importance on account of its turlough habitat and the occurrence of one of the best stands of Shrubby cinquefoil (*Potentilla fruticosa*) in Ireland¹⁶⁸. An area of approximately 1500ha in the southeast of the Burren was designated as the Burren National Park in 1992, although this does not include the areas proposed by the SPNR.

Current conservation status and site boundaries

The largest area to the west of Ballyvaughan which the SPNR proposed for protection is now part of the larger Black Head-Poulsallagh Complex cSAC and pNHA, although the site boundaries are similar. Like many of the other SPNR sites, the current SAC far exceeds the extent of the original SPNR designation. The second site proposed by the SPNR, the Ballyvaughan Turlough, to the south of the village, is also an SAC and an NHA (see Figure 81).

Of the three SPNR sites marked on the map, the remaining site to the east of the village appears to be partly intact, and is not protected by European or national designation, however it lies adjacent to the Moneen Mountain SAC and pNHA.

Key habitats and species

Black Head - Poulsallagh area

Of the two SPNR sites that are currently protected, the Black Head – Poulsallagh Complex SAC contains the whole of the larger part of the SPNR reserve. In this SAC, the NPWS have listed 10 Annex I habitats, the main ones being limestone pavement, heath and shore marine habitats including reef habitats. The Site Synopsis describes the shores in the SAC as some of the most interesting open coast shores in Ireland and Britain¹⁶⁹. Of particular note among the species found on the shore and in rock pools are the Brown alga (*Bifurcaria bifurcata*), the Sea urchin (*Paracentrotus lividus*), which are both close to the northern limits of their distribution.

As the SPNR reserve indicates only the coastal area to the west of the road (see Figure 79 above), it is probable that the key habitats here include limestone pavement, reefs, as well as perennial

vegetation of stony banks. The Caher River, a shallow limestone fed river, is the probable location for the petrifying spring with tufa formation habitat, and is a significant component of the SAC as it is the only river in the area. The rare pondweed identified by Praeger along this river is not mentioned in the NPWS site notes.

The other main habitat in this site is the Fanore sand dunes, which include both stable and mobile areas, and also some exposed limestone pavement. Key species recorded here by the NPWS include the rare liverwort (*Petalophyllum ralfsii*).

Ballyvaughan Turlough

The Ballyvaughan turlough is also a SAC and NHA. Turloughs are considered a Priority habitat at European level, and the site is still considered important for the presence of Shrubby cinquefoil (*Potentilla fruticosa*). Hazel scrub and some woodland occur around the periphery of the turlough.



Figure 84: Ballyvaughan turlough (Photo: E. Sikora)

Bishops quarter site

There is no published data on the third SPNR area to the east of Ballyvaughan village. The site consists of a number of fields with limestone outcrops. There are now three detached dwellings on the site.

Threats and opportunities

The NPWS have identified a number of threats to the Black Head - Poulsallagh SAC Complex, primarily overgrazing, agricultural intensification and threats as a result of leisure activities. A particular threat to this SAC includes leisure/tourism - the erosion and deterioration of the Fanore Dunes due to the presence of a caravan park¹⁷⁰. A portion of the sand dunes to the south of the caravan park have been fenced off by Clare County Council in order to restrict trampling.

There are no apparent threats at the Ballyvaughan turlough. There is a walking trail running just west of the turlough to the village of Ballyvaughan but little evidence of recreational pressures as a result of this. Development of houses has posed a threat to the third SPNR site at Bishop's quarter.

Positive developments in the SPNR sites include the implementation of the Burren LIFE project in three SACs, including the Black Head - Poulsallagh SAC. A project part funded by the EU, this addressed the changing farming practices and the impact on the Burren landscape, as departure from traditional grazing methods being has resulted in scrub encroachment and change or loss of habitats¹⁷¹. In 2010 this concluded and was succeeded by the Burren Farming for Conservation Programme.¹⁷²

Planning policy in the area includes objectives to protect the Burren National Park and wildlife sanctuaries, nature reserves and all species designated under European and National regulations. The Development Plan also includes objectives to pursue the designation of the Burren as a Geopark and to consult on possible UNESCO world heritage designation¹⁷³.

Ownership status of site

Unknown/private.

¹⁶⁷ See 4 above.

¹⁶⁸ An Foras Forbartha (1981), *National Heritage Inventory: Areas of Scientific Interest in Ireland*. Dublin

¹⁶⁹ <http://www.npws.ie/protectedsites/specialareasofconservationsac/blackhead-poulsallaghcomplexsac/>

¹⁷⁰ Ibid.

¹⁷¹ http://www.burrenlife.com/the_project.php

¹⁷² <http://www.burrenlife.com/phase-ii-overview.php>

¹⁷³ Clare County Council (2011), *Clare County Development Plan 2011-2016*.



WICKLOW SAND DUNES (MAGHERABEG), COUNTY WICKLOW



Figure 85: Looking south across to Magherabeg Dunes. (Photo: E. Sikora)

Site synopsis

The Magherabeg Dunes on the Wicklow Coast were identified by the SPNR as a proposed nature reserve. The site documentation lacks detail on the reasons for its inclusion on Rothschild's list, yet the map delineates a clearly defined site with a border to the edges of the dunes. Today, the site has SAC and pNHA designations and a conservation plan. Wildlife interest lies primarily with the dune systems and petrifying springs. The site covers an area of around 74ha. The site identified by the SPNR appears largely intact. While there are some potential management issues, threats are reduced by limited access.

Site location and context



Figure 86: Three Mile Water (Photo: K. Ray)

Located on the south-east coast of Wicklow, at Ardmore Point, about 5km south of Wicklow head, lies an extensive area of sand dunes, including the site of the Magherabeg Sand Dunes. The site consists of a well-established and dynamic sand dune system, with various stages in the natural succession from embryonic dunes to present woodland. It is bisected by the Three Mile Water River (see Figure 86) and the site accommodates a rich biodiversity¹⁷⁴. The presence of this river has led to the development of fen vegetation in the centre of the site. The character of the site can be described as a well established dune and woodland landscape bisected by a small river and set within largely agricultural lowlands. Public access is very restricted, although the adjacent beach of Magheramore is well used, although separated by a rocky headland.

SPNR site description

Apart from the blue boundary indicated on the SPNR map below (see Figure 87), there is no descriptive information of the site within the SPNR documentation.



Figure 87: Proposed SPNR Reserve (Source: TWT)

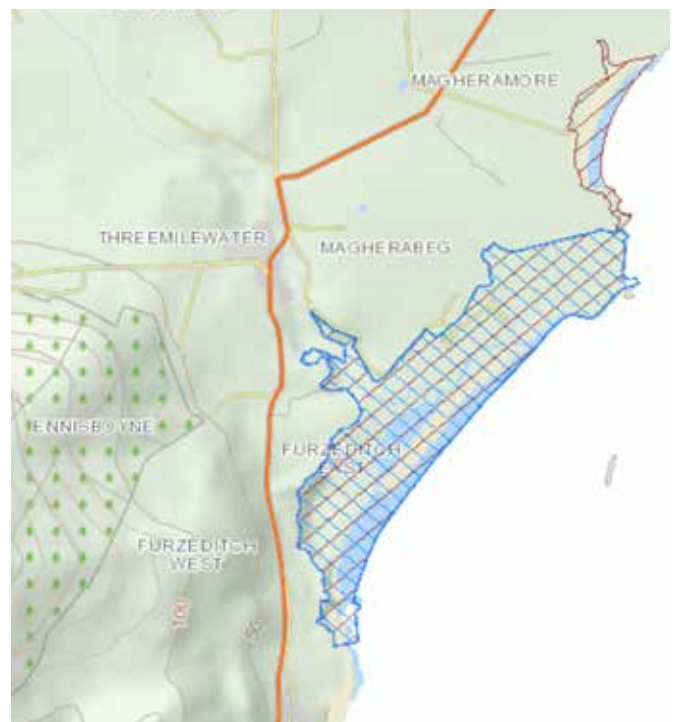


Figure 88: Current Designations (Source: NPWS)

Evolution of SPNR site

There are only minor physical changes to the SPNR site. Close to the site boundary on the southern end, a holiday home scheme of around 30 houses has been developed, and this trend is continued further south beyond the site. Within the site border itself, at least four new houses have been built. Slight changes in field boundaries have also occurred towards the southern western edge. The site was previously listed as an Area of Scientific Interest (ASI) and the Wicklow County Development Plan (1989) listed it for conservation on this basis¹⁷⁵.

174 <http://www.npws.ie/media/npwsie/content/images/protectedsites/conservationplan/CP001766.pdf>

Current conservation status and site boundary

Today the site is designated as part of an SAC and has also been identified as a pNHA. The SAC boundary is similar to the SPNR boundary, with the only notable change being the extension of the original boundary north-westwards to include part of the catchment area of the Three Mile Water River. Agricultural lands bound the site to the north, west and south, with open seas located along its eastern boundary. The site is also part of an extensive designated Area of Outstanding Natural Beauty (AONB) identified in the *Wicklow County Development Plan*¹⁷⁶, resulting in a “very high” classification of vulnerability along the coast.

Key habitats and species

The SAC's *Conservation Plan, 2005-2010*¹⁷⁷ identifies three priority habitats comprising of fixed coastal dunes with herbaceous vegetation, Atlantic decalcified fixed dunes, and petrifying springs with tufa formation.

Other important habitats include embryonic shifting dunes and annual vegetation of drift lines and shifting dunes along the shoreline with *Ammophila arenaria*. All of these priority and important habitats were observed on site visit (along with dry broadleaf woodland – see Figure 89).



Figure 89: Diverse habitats on Magherabeg Dunes. (Photo : K. Ray)

In terms of species, the rare Moore's horsetail (*Equisetum x moorei*) and a rare species of hybrid sedge (*Carex grossii*/*Carex vesicaria* x *hirta*) (observed on site) occur within the site. Otter and Kingfisher are also known to occur here.



Figure 90: High dunes showing signs of natural erosion (Photo: K. Ray)

The high dunes (see Figure 90 below) are largely dominated by Marram grass (*Ammophila arenaria*). The Three Mile Water River, which flows through the dunes, provides habitat for wetland species, in particular, sedges, including Bladder sedge (*Carex vesicaria*), Fox sedge (*C. otrubae*) and Grey sedge (*C. divulsa*) (the latter observed on site). Common reed (*Phragmites australis*) is also found along the river¹⁷⁸ (observed on site).

Threats and opportunities

Main threats to this type of habitat include both over and under grazing, land claim (eg. for golf courses, evident by the development of two courses to the north of the site towards Wicklow town), recreational activities, holiday home development, increased rabbit population, and by erosion (*County Wicklow Biodiversity Action Plan 2010-15*). The threats affecting these particular dunes however are not so acute as in similar areas along the Wicklow coast. Livestock has been removed from the dunes and recreational access is limited.

Nevertheless the vulnerability of dune systems remains a concern and Magherabeg still faces both natural and manmade threats. The succession of scrub and woodland for instance has occurred as a result of the removal of domestic stock. While these are ecologically valuable habitats in their own right, this on-going process will eventually cause a loss of fixed coastal dune habitat. This process, along with erosion by natural processes, unsustainable grazing, water quality and water pollution are still core issues being addressed in the *Conservation Plan 2005-2010*¹⁷⁹.

Despite some holiday home pressures to the south of the site, most applications for tourism developments close to the dunes have been refused over the years, with decisions expressing concerns over issues such as visual amenity, scenic values, effluent disposal, sewage treatment, water quality and general risk of pollution to the SAC (planning applications available on County Council website)¹⁸⁰. It is an objective of the County Development Plan that “no development will be permitted that has an adverse impact on the environmental and ecological quality of the Magherabeg pNHA/cSAC”.

There are possible threats from water pollution upstream of the Three Mile Water River.

The *County Wicklow Biodiversity Action Plan 2010-2015*¹⁸¹ includes objectives for reintroducing sustainable grazing in order to maintain existing habitats, maintaining low levels of recreational use, monitoring the ecological status of the sites, and maintaining effective liaisons with relevant stakeholders.

Current land ownership of site

The site is in multiple private landownership and the owners are sympathetic to the conservation needs. It is also managed by the NPWS.

¹⁷⁵ <http://www.npws.ie/media/npwsie/content/images/protectedsites/conservationplan/CP001766.pdf>

¹⁷⁶ *Wicklow County Development Plan, 2010-2016*

¹⁷⁷ <http://www.npws.ie/media/npwsie/content/images/protectedsites/conservationplan/CP001766.pdf>

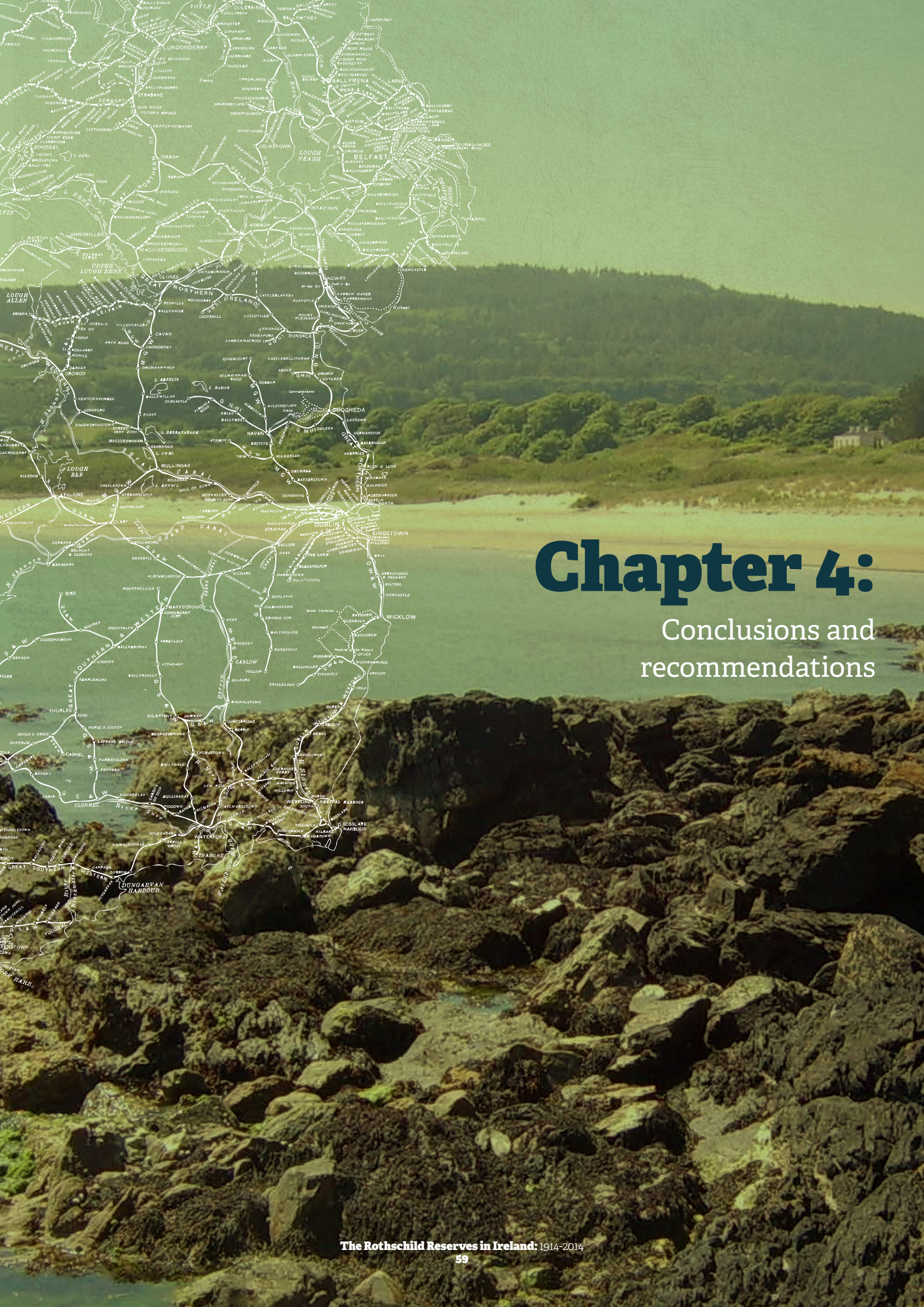
¹⁷⁸ <http://www.npws.ie/media/npwsie/content/images/protectedsites/sitesynopsis/SY001766.pdf>

¹⁷⁹ <http://www.npws.ie/media/npwsie/content/images/protectedsites/conservationplan/CP001766.pdf>

¹⁸⁰ <http://www.wicklow.ie/Apps/WicklowBeta/Planning/ePlan.aspx>

¹⁸¹ <http://www.wicklow.ie/apps/wicklowbeta/publications/Heritage/County%20Wicklow%20Biodiversity%20Action%20Plan.pdf>





Chapter 4:

Conclusions and recommendations

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What conclusions can we draw from this short study of the sites in Ireland recommended for protection by the Society for the Protection of Nature Reserves (SPNR) in its 1915 list?

At the beginning of the report, we set out a list of key expected short and long term outcomes that we wanted for the project:

- Improved awareness and understanding of the fate of the 'Rothschild Reserves' in Ireland, so putting Charles Rothschild's early vision of protecting places for nature into an Irish context;
- Improved awareness and understanding of the importance of healthy ecosystems and nature conservation;
- Discussion and debate on the fate of the Rothschild reserves and the key issues impacting on these sites and the wider natural environment ;
- The forging of stronger strategic links with those involved in nature conservation in Ireland and the UK;
- Improved opportunities for sharing best practice between conservation bodies in Ireland and the UK;
- Development of policy that promotes healthier ecosystems.

The report as it stands has made a good start in meeting the short-term outcomes and expectations agreed at the beginning of the project, and lays the foundation for addressing and setting long-term outcomes.

Protected status and condition

The Report provides a snapshot in time of the status of the Rothschild sites. It is perhaps not as thorough as we would like, but, overall, it is encouraging that a majority of the sites still exist today as when first selected by the SPNR. The data allows us to determine 'what next' for the SPNR sites. We can look to one site specifically, the Burren, as an exemplar of future site and landscape management options and opportunities and to the Irish National Biodiversity Plan (2011-2016), which if implemented fully, could deliver positive long term outcomes for nature in Ireland and the wider issues of ecosystem health and function at a landscape scale.

We must add a note of caution to any impression that might have been given that all is well with the majority of sites on the SPNR list. In addition to the site near the River Shannon that has been lost entirely, three other sites have lost important habitat and the remaining parts of two of these (bogs at Killucan and Mohill) do not benefit from any protective designations. We note that the SPNR sites that have suffered most damage have been peatlands, despite the international importance of these habitats.

Ireland's raised bogs are national treasures – a fundamentally important part of the country's natural heritage and landscape. Of the 775,000 ha of raised bog originally found in the Republic of Ireland, 86% has been lost. The total area of active raised bog has decreased by over 35% from 1995-2005. It is estimated that the carbon emitted annually from degraded bogs in Ireland is broadly equivalent to Ireland's annual emissions from cars. The re-wetting and restoration of bogs has the capacity to secure existing carbon stocks and re-initiate the carbon storing ability of degraded bogs. Peatland restoration is an important mechanism for countries such as Ireland to meet its national greenhouse gas targets and contribute towards tackling climate change. The Irish habitats that are most threatened by climate change include many that are found on the SPNR list. On the Rothschild list the bogs, coastal habitats and montane ecosystems which contain arctic-alpine plant communities at the southernmost point of their distribution range are the most likely to suffer the negative impacts of climate change first. Similarly the poor condition of peatland habitats will be exacerbated by cracking during drier summers and the encroachment of vascular plants which will cause further water loss.

A further reason for caution is that until the Government fulfils its obligations under the European Habitats Directive and Candidate SACs become full SACs, some sites will continue to exist without management plans. Similarly the vast majority

of NHAs in Ireland, including several on the SPNR list, are still 'proposed' rather than fully designated NHAs which substantially weakens their status in the face of any threats. Moreover, our study has illustrated the many threats that these sites face, for example from drainage, peat-stripping, forestation, development pressures, recreation, and intensification of farming. As a result of such pressures recent studies of the state of wildlife habitats and species in Ireland paint a fairly gloomy overall picture of declining biodiversity.

Survival of SPNR sites

We must recognise the foresight of Charles Rothschild and the SPNR in identifying some of what are still today the most iconic landscapes and wildlife habitats in Ireland, sites such as the Killarney Lakes, the Burren, Ben Bulbin, Connemara and Mount Brandon. And whilst there was little action on the part of Government at the time, our study has shown that a majority of these sites have subsequently been protected and survived largely intact until today. Only one of the sites on the SPNR list (bogs near the River Shannon) has been entirely lost, although three others have lost some habitat, principally bogs.

However, it should be noted that a thorough condition assessment of the sites was not carried out as part of the project. With this in mind, drawing a comparison between the existing baseline ecological records for each site against what we know from most recent records has proven difficult in terms of assessing overall ecological condition, and whether or not the sites were in favourable ecological condition when they were selected as SPNR's and remain so today. If we were to benchmark the sites against the national decline in biodiversity (a recent report on the state of Ireland's habitats, carried out by the National Parks and Wildlife Service highlighted the degraded status of many key habitats), it might well be the case that the sites are not as they were first selected by the SPNR.

With regards to the future survival of these sites, we can perhaps look to Ireland's National Biodiversity Plan 2011-16. On the face of it, halting further biodiversity loss, planning for the protection, conservation and sustainable recovery of biodiversity and the acknowledgement of the intrinsic, social and economic value of biodiversity and associated ecosystems, and the cross-sectorial benefits they provide, appear to be onward organising principles for underpinning government duties and responsibilities. However the scale of the challenge is reflected in a recent report on the state of Ireland's habitats, carried out by the National Parks and Wildlife Service, which highlighted the degraded status of many key habitats such as bogs, coastal dunes and upland heaths. Of the 58 habitats assessed only five are considered to be in 'good' condition. Up to a third of all species assessed so far are threatened with extinction to one degree or another. The Food Harvest 2020 (FH2020) plan to increase agricultural productivity will put further pressure on Ireland's habitats and species.

Representative nature of the sites

We note that the SPNR sites are perhaps not altogether representative of important present day landscapes and wildlife habitats in Ireland. As Cabot points out the main focus of the list was on the "bogs, salt marshes, shingle beaches and sand dunes [which] were the most characteristic types of wild country in Ireland and had no exact counterpart on the continent"¹⁸². In this sense woodland, marine, grasslands, lakes and rivers habitats were perhaps considered less worthy of preservation, than they are today. And this perhaps accounts for what those with an interest in Irish wildlife might consider to be omissions from the list, sites such as the woodlands at Glengarriff and the unique marine ecosystem of Lough Ine, both in County Cork. Nevertheless, as Cabot acknowledges the SPNR list was a 'milestone in history of Irish Nature Conservation' which 'set an important foundation for future development'¹⁸³ as amply illustrated by our study.

For the future – looking out

The future of these sites cannot be considered in isolation of the wider countryside that surrounds them, and in many ways, their future depends on how the adjoining land and landscapes are

¹⁸² Cabot, D. (1999) *Ireland. The New Naturalist series*, HarperCollins London, p.433

¹⁸³ Ibid. p.435

managed. Wildlife protection must afford special attention, but to ensure site safeguard we must look to rebuilding robust and resilient ecosystems and, this means working at a landscape scale. At scale, we can start to address many of the detrimental land management practices and threats that these sites still face such as overgrazing, drainage, and afforestation that lead to habitat degradation, fragmentation and loss.

It is possible to achieve productive agricultural systems and at the same time rebuild biodiversity, an evolving approach called high nature value farming. One of the SPNR sites has followed this model of thinking through the Burren Farming for Conservation Programme. It is a new agri-environment scheme specifically targeting the Burren area on land that is not necessarily designated for conservation protection. One hundred and seventeen Burren farmers have been selected to take part in the scheme based on environmental criteria of their holdings. Farm plans have been drawn up for each holding, all designed to rebuild nature and habitat quality. At this kind of scale and sympathetic management, rebuilding biodiversity and ecosystems is possible.

Ireland's natural capital is the foundation upon which its agriculture, forestry, fisheries and tourism sector depends and is vital for sustaining vital societal services such as crop pollination, carbon sequestration and climate regulation, the purification of water and air and flood control. This is not to mention the cultural and recreational benefits that are sustained by wild places and landscapes. A land-use strategy, incorporating sustainable farming alongside planning and habitat protection, could make an important contribution to balancing the competing demands on our wildlife and natural resources.

Biodiversity, knowledge and ecosystem services

Biodiversity and habitat loss and degradation are forcing ecosystems to near collapse, thus, building the knowledge base of Ireland's biological diversity, like everywhere else around the world, is important. The goods and services provided by biodiversity are estimated to contribute a minimum of €2.6 billion per annum to the Irish economy. This natural capital is the foundation upon which our agriculture, forestry, fisheries and tourism sector depends and is vital for sustaining vital societal services such as clean water, productive soil, clean air and wellbeing. As the Irish economy seeks ways to revitalise itself, gaining a greater understanding of Ireland's biodiversity and protecting Ireland's natural capital should be one of the building blocks of that recovery. The SPNR sites have a significant role to play in understanding the value of nature and our natural capital as well as having an important contribution to make to the national economy in terms of their intrinsic and economic value to society.

To end on a positive note, to be aware is to be forewarned. Knowledge of what has happened to the SPNR sites since the list was published in 1915 will hopefully raise awareness about the value of Irish wildlife and of the need to protect it from the many pressures that we have identified in the individual site reports. The wellbeing of these sites could perhaps become a useful barometer of the state of nature in the country as a whole. We hope the next report on their status will be a positive one.

Recommendations

1. We recommend that our findings be used as a contribution towards continuing the debate and discussion on the status of nature and habitat condition in the Republic of Ireland today.
2. We would encourage the Irish Government to move quickly to fulfil its obligations under the European Habitats Directive to continue the process of designation as proposed in the Prioritised Action Framework for Natura 2000⁶ of sites designated as Special Areas for Conservation (SAC) and review the list of Proposed Natural Heritage Areas (with a view to giving many more full status) urgently whilst avoiding downgrading any existing NHAs.
3. We would also encourage the Irish Government to produce and publish conservation objectives and management plans for those sites on the Society for the Promotion of Nature Reserves (SPNR) list currently without them, engaging with local communities in the process. We would welcome a full ecological condition assessment to be undertaken for the SPNR sites and a monitoring programme put in place thereafter to record habitat quality and collect species data.
4. We further encourage the Government to fulfil its obligations set out in the National Biodiversity Plan 2011-2016 and to invest more funds into the restoration, protection and conservation of biodiversity and associated ecosystems in and beyond protected sites.
5. We encourage the Government to use the CAP and Rural Development Programmes as opportunities for delivering biodiversity, ecosystems and landscape restoration, function and resilience. We support the development of high nature value farming partnerships and maximum funding being made available through the CAP to support agri-environment schemes and wildlife-friendly farming. The Rothschild sites could be used as the core zones of landscape restoration schemes.
6. We support work to restore and protect peatland habitats in Ireland. At a European scale Irish peatland is a habitat of significant importance and is a valuable part of the country's natural heritage. We support the Government in fulfilling its commitment to the cessation of peat-cutting on SACs.

Finally we welcome the fact that this report has provided an opportunity for voluntary groups in the Republic of Ireland to work together and to develop stronger links between wildlife conservation organisations in Ireland and the UK. We hope that this relationship will continue to grow and our work to restore wildlife in Ireland and the UK will benefit from this.