

The Curragh Plains

Conservation Management Plan

November 2024

Researched and written by

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On behalf of:

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Department of Defence

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Tánaiste & Minister for Defence Foreword

It gives me great pleasure to welcome this report on the future of the Curragh Plains. As Minister for Defence, I am the custodian of the Curragh, which at approximately 4,870 acres is one of the most open and accessible areas in the country. The site encompasses the central training facility for the State's military forces; the centre of the Irish horse racing industry; and additionally, is used by sheep owners who avail of rights of pasture on the lands. It is also a major natural amenity, not only for locals but for the many tourists who visit Co. Kildare.

For the last several years, the Department of Defence has been working, in co-operation with Kildare County Council, on this Curragh Consultancy Project, which has produced this Conservation Management Plan identifying suitable future management methods to allow the various stakeholders on the Curragh to exercise their rights while at the same time allowing public access and encouraging adherence to environmental restrictions.

Throughout this project, both the Department of Defence and Kildare County Council remained cognisant of the need to have in place a means of ensuring the conservation of this ancient landscape, while also enabling the area to receive the recognition it deserves. This report has laid out opportunities through which the area can be uniquely identified, and also scoped out the development potential of the area as a high value visitor attraction.

In addition, the consultation process identified that a review of the Curragh Bye-Laws and the Curragh of Kildare Act would be timely, with a view to identifying possible amendments that could potentially provide more effective solutions to a number of challenges the Curragh faces.

As part of the wider issue around management and protection, the report has also identified the need to consider the establishment of a dedicated agency responsible for the Curragh, or to assign responsibility for the site to an existing agency with the necessary skillset and expertise to maximise the potential of the Plains.

This report represents my commitment to achieving these goals, and to ensuring that the Curragh is protected into the future, while also ensuring maximum benefit to the local population, and to those who come to visit the Plains.



Micheál Martin

Micheál Martin
Tánaiste & Minister for Defence

Chief Executives Foreword

The Curragh Plains Conservation Management Plan is a collaboration between Kildare County Council and the Department of Defence, to highlight the importance and significance of the heritage associated with the Curragh Plains. The Paul Hogarth Company were appointed in 2020 to prepare the Curragh Plains Conservation Management Plan, building upon their previous publication of *'The Curragh of Kildare: Reflection on Potential'*.

The 5000 acres of open grassland of the Curragh Plains provides the setting for one of Ireland's most significant prehistoric landscapes. Almost 200 archaeological monuments have been documented within the Curragh. Ecologically the Plains are one of the largest tracts of semi-natural grasslands in Europe providing key habitats for a variety of bird species, including Golden Plover and Lapwing.

The large grassy Plain has featured prominently in our history and culture, with the landscape providing more than a physical setting. The importance of the Curragh as a distinct ecological habitat and an archaeological site is well documented. Its national significance from a geological, religious, military and equestrian perspective is also undisputed.

The Curragh plays a vital role in the training and development of our Defence Forces in the Curragh Camp, historically and into the future. The Curragh is also synonymous with Irish Horse Racing, the lands play a key agricultural role for local farmers while playing a huge part in the lives of local people who use it as a place to relax, exercise and explore. Each of these factors are of local, regional and national importance and must therefore be protected as much as possible.

A preliminary public consultation was held online in 2021 to help established an understanding of what aspects of the Curragh Plains are important and why. Stakeholder engagement included online meetings, workshops and interviews.

The response to an online survey was overwhelming, with 3,636 survey responses received and 44 emails.

I am fully appreciative of the complexity involved in managing this landscape, not just the environmental and archaeological significance, but its ongoing association with the Defence Forces, the Horse Racing Industry and the local farming community.

This Conservation Management Plan will aim to balance the needs of the respective users of the Curragh Plains while caring for its natural qualities, providing clear policies for the sustainable future use of the Plains.



A handwritten signature in blue ink that reads "Sonya Kavanagh". The signature is fluid and cursive, written over a white background.

Sonya Kavanagh
Chief Executive, Kildare County Council

1 Preface

The Curragh Forum was established in 2016 by the Department of Defence. In 2018 a vision document was commissioned by Kildare County Council on foot of an action arising from this Forum. The Paul Hogarth Company prepared 'The Curragh Plains - A Reflection of Potential'. This paper provided a series of observations for consideration in relation to The Curragh, with a particular focus on its physical presentation and potential. It recognised that further, more detailed research, as well as consultation with the many stakeholders of The Curragh, would be required to support and develop the suggestions outlined in that document. The Curragh Plains Conservation Management Plan was commissioned in 2019 following an agreement between Kildare County Council and the Department of Defence. The Paul Hogarth Company were appointed in 2020 for the preparation of the Curragh Plains Conservation Management Plan.

The Policies and Actions outlined in this document are based on an extensive public consultation process and are far reaching and ambitious.

Two key fundamental issues arise:

(i) **Legislative Change**

Legislative change is fundamental to progressing and implementing actions identified in this Conservation Management Plan. The Curragh of Kildare Act was last updated in 1969, over 50 years before the production of this Conservation Management Plan. While much of the Act has stood the test of time, the condition of the Curragh and the demands placed upon it have moved on considerably.

(ii) **Management of the Curragh**

The Curragh of Kildare is a nationally important asset, but also a uniquely complex landscape that is required to balance a series of very different uses and users. For the effective long-term management of the Curragh, the potential for establishing a responsible Agency should be considered.

For the above to happen it requires buy in by several Government Departments to progress the change in legislation and a commitment to significant funding and resources to deliver.

2 Introduction

2.1 Introduction

2.1.1 This Conservation Management Plan for the Curragh Plains was commissioned by Kildare County Council and the Department of Defence to highlight the importance and heritage significance of the Curragh Plains and to devise a number of heritage conservation policies and actions to ensure that the area is appropriately and sustainably conserved, managed, maintained, and interpreted into the future.

2.1.2 The Curragh Plains is a dynamic, multi-layered landscape, rich in built, natural, and cultural heritage. It is also a working, active landscape used by many and valued greatly by those who live and work near it. Accordingly, a key feature of this plan has been the extensive consultation undertaken with stakeholders and members of the public, the findings from which has shaped its content.

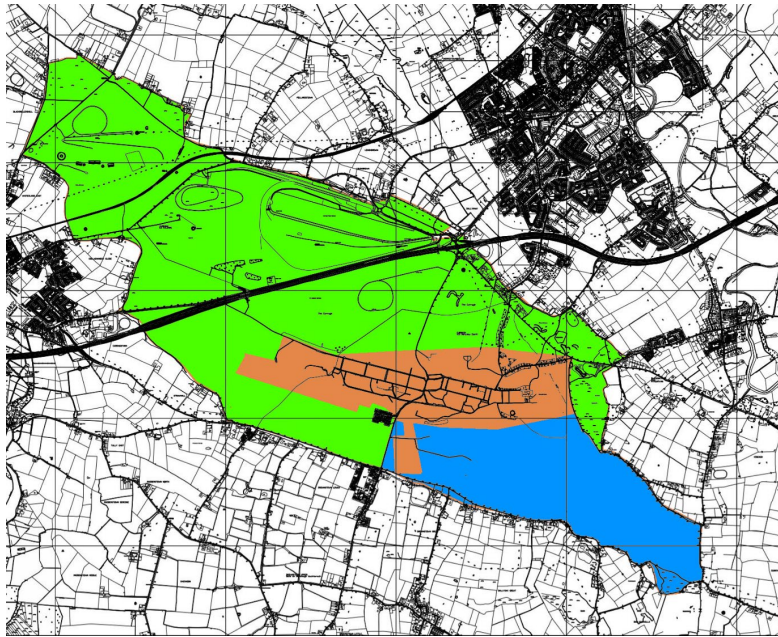
2.1.3 Unlike other types of management plans, a Conservation Management Plan is specifically driven by an assessment of significance, and how that will be managed. In arriving at policies and actions, a significant amount of information has been processed including previous and ongoing academic research, workshops with relevant stakeholders and experts, and feedback from extensive public consultation.

2.1.4 The Curragh lands are defined by statute that divide them into three zones referred to as the Brown Lands, the Blue Lands, and the Green Lands. These areas are illustrated at Plate 1, and are outlined as follows:

- Brown Lands: The area on which a permanent military camp had been established in 1858 and over which rights of common grazing were suspended by statute.
- Blue Lands (or Rifle Ground): Remaining subject to the rights of common grazing, is used for rifle practice and other military exercises.
- Green Lands: To continue to be used primarily for the common grazing of sheep by rights holders and, also in part, by the Irish Turf Club for horse racing and training and to a more limited extent than the Blue Lands can be used for military purposes such as reviews, drills and, in cases of emergency, temporary encampment.

2.1.5 This Conservation Management Plan relates to those areas of the Curragh Plains that are subject to common grazing rights and exclude the Brown Lands of the Curragh Camp more recently known as the Defence Forces Training Centre (DFTC). The Conservation Management Plan recognises however that the brown lands are a key component of the landscape and its heritage.

Plate 1 - Zone Map



2.2 Role of the Conservation Management Plan

- 2.2.1 The Curragh is a landscape that has been continually changing over thousands of years. The role of this Conservation Management Plan is to identify what is significant about the Curragh amidst these ongoing processes of change, in order to identify a framework of actions around which that significance can be promoted, protected, and sustained.
- 2.2.2 Whilst the issues and sensitivities on the Curragh are complex, the plan is based on a simple process which starts with a description of what is there, why it matters, what is happening to it and the principles by which it will be managed.
- 2.2.3 Given the inter-related nature of the issues and sensitivities, this Conservation Management Plan and the policies and actions outlined, seek to provide a framework for more detailed research and work programmes, and guide the management of the Curragh Plains in terms of maintenance, management, access, use and other issues in such a way as to have regard to what is significant.
- 2.2.4 As a plan, the Conservation Management Plan should not be regarded as a static document, rather a working strategy that is guided by a process of research and collaboration. The Curragh Conservation Management Plan will be constantly monitored and subject to reviews and updates.
- 2.2.5 Mindful of the objectives contained within the plan, it will be subject to a comprehensive review and update every 10 years.

2.3 Consultancy Team

- 2.3.1 In 2019, Kildare County Council in collaboration with the Department of Defence jointly commissioned:

“A comprehensive Conservation Management Plan, which will provide a framework for the future sustainable management of the Curragh of Kildare, having regard to the cultural significance of the Curragh’s Military past and present, it will provide clear policies for the sustainable future of the plains.”

- 2.3.2 A consultancy team, led by The Paul Hogarth Company, was appointed in June 2020. As an established Landscape Architecture, Urban Design and Planning practice, they brought to the project extensive experience of working in large, high profile, sensitive landscapes, including (but not limited to) the Wild Atlantic Way along Ireland's west coast, and Loch Lomond and the Trossachs National Park in Scotland.
- 2.3.3 As an integral part of researching and authoring the Conservation Management Plan, the commission required the appointed landscape-led consultancy team to engage with the public, a wide range of stakeholders from Central and Local Government Departments, Agencies to stakeholder groups and the general public.
- 2.3.4 The team appointed to research and write the Conservation Management Plan included a Research & Dig Heritage Consultancy, Gort Archaeology and WM Associates ecologists.
- 2.3.5 In parallel with the production of the Conservation Management Plan, the commission included a Branding, Interpretation and Wayfinding Plan that was informed by work undertaken as part of the Conservation Management Plan. In this regard, Tandem Design were appointed separately.

2.4 Methodology

- 2.4.1 The process to develop this Conservation Management Plan commenced in 2020 and was informed by a process of desktop research and extensive stakeholder engagement, substantially held online due to Covid-19 restrictions. Public surveys were undertaken alongside stakeholder engagement that included online meetings, workshops, and interviews.
- 2.4.2 The consultancy team reported regularly to a client steering group comprising representatives from Kildare County Council and the Department of Defence. Policies and actions identified in the Conservation Management Plan were subject to public consultation in 2022 and refined through this process.
- 2.4.3 The report incorporates relevant principles and processes of the Granada charter (1985), the Burra charter: the Australia ICOMOS charter for places of cultural significance (2013), and the Ename charter, the ICOMOS charter for the interpretation and presentation of cultural heritage sites (2008). The terminology used in this report is consistent with the Architectural Heritage Protection Guidelines (2011) and the Burra Charter (2013).

Limitations

- 2.4.4 The Conservation Management Plan is a strategy document directing the management of heritage in the Curragh Plains. Its role is to identify what is significant and provide a framework through which that significance is promoted and protected. Accordingly, an exhaustive inventory of the various monuments and heritage places is outside its scope.
- 2.4.5 Furthermore, due to the operational complexity of the Curragh Racecourse and the Curragh Camp, only high-level advice is provided in this document for those two areas, the latter of which is outside of the study area.
- 2.4.6 In order to ascertain the appropriateness of possible solutions to various issues, public consultation and semi-structured interviews were undertaken. The strength of semi-structured interviews over questionnaires and other quantitative approaches is that they can be useful in obtaining a person's true perception by allowing complexities and contradictions to be expressed.

3 The Curragh Plains

'To understand any area, one must first look to the landscape because it is the land itself that shapes the plant and animal communities that live upon it, that determines the nature of soils and water flows and influences the lives of the human community'

Anne Behan (1959-2004) Environmentalist, Redhills, Kildare.

3.1 Location and context

- 3.1.1 The Curragh of Kildare is located in the centre of County Kildare between the four settlements of Newbridge, Athgarvan, Kilcullen and Kildare. It is 30 kilometres west of the capital city, Dublin and is dissected by the main national transport corridor between Dublin and the South and West of Ireland
- 3.1.2 It is difficult to overstate the significance of the Curragh Plains. Comprising nearly 5000 acres of natural grasslands, the Curragh is a unique, multi layered landscape rich in natural, cultural, and built heritage. It is a product of the long and complex relationship between the underlying natural characteristic of the environment, and the people that have interacted with it.
- 3.1.3 The Curragh is one of Ireland's most significant prehistoric landscapes. Almost 200 archaeological monuments have been documented and many more sites are likely to remain undetected. The archaeology of the Curragh bears witness to a necropolis of late prehistoric burial mounds, some 135 of which stud the landscape, ceremonial henges and avenues, Iron Age linear earthworks of the 'Race of the Black Pig', prehistoric and medieval settlements, and monuments relating to its more recent agricultural and military training uses.
- 3.1.4 The Curragh provides a working environment for three main users, the Irish Defence Forces, the horse-racing and training industry, and sheep farmers.

3.2 Policy, statutory context and current protection

National

The National Planning Framework – Project Ireland 2040

- 3.2.1 The National Planning Framework (NPF) is the Government's high-level strategic plan for shaping the future growth and development of the country to the year 2040. There are no direct references to the Curragh Plains within the NPF.

National Biodiversity Action Plan 2023-2030

- 3.2.2 The National Biodiversity Action Plan sets out actions through which a range of Government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and follows on from the work of the first and second National Biodiversity Action Plans. There are no direct references to the Curragh Plains within the Biodiversity Action Plan.

Regional

Regional Spatial and Economic Strategy (RSES) - Eastern and Midland Regional Assembly

- 3.2.3 The RSES identifies the Eastern and Midland region's key strategic assets, opportunities and challenges and sets out policy responses to ensure that people's needs – such as access to housing, jobs, ease of travel and overall well-being – are met, up to 2030 and beyond.

- 3.2.4 Within the RSES, reference to the Curragh Plains is limited to the theme of 'Green Infrastructure'. More specifically, under the title of 'Strategic Natural, Cultural and Green Infrastructure Assets in the Region', the Plains are listed as a National/Regional Park and a Heritage Site.

County

Kildare County Development Plan (CDP) 2023-2029

- 3.2.5 The County Development Plan has been prepared in accordance with the requirements and provisions of the Planning and Development Act 2000 (as amended). It sets out an overall strategy for the proper planning and sustainable development of the functional area of County Kildare, over the period 2023-2029 and beyond. There are multiple references to the Curragh Plains located throughout the CDP, both in reference to the area as an important asset and policy justification but also as standalone policies dedicated to the area and its designations.
- 3.2.6 Key County Development Plan policy references in relation to the Curragh Plains are to be found under Chapter 4: Resilient Economy and Job Creation Chapter, Chapter 5: Sustainable Mobility and Transport, Chapter 9: Our Rural Economy, Chapter 11: Built and Cultural Heritage, Chapter 12 Biodiversity and Green Infrastructure, and Chapter 13: Landscape, Recreation and Amenity.

Kildare County Heritage Plan 2019-2025

- 3.2.7 The Heritage Plan 2019-2025 is a published document, the second for Kildare. It provides a strategic framework for the integration of Kildare's Built, Natural and Cultural & Archaeological heritage, referencing the Curragh at several locations. The aim of the County Kildare Heritage Plan is 'to recognise by all, the value and opportunity of Kildare's unique heritage recourse and to manage, conserve and protect it, in partnership, for present and future generations.

Kildare County Biodiversity Plan 2009 - 2014

- 3.2.8 The biodiversity plan provides a framework for conserving biodiversity and natural heritage at a local level. The plan is designed to ensure that national and international targets for the conservation of biodiversity can be achieved, while at the same time addressing local priorities. Action 3.3 of the plan is to "Initiate a conservation management strategy for the Curragh". In 2020 a series of Biodiversity Action Plans were commissioned for areas within the county including Kildare, Newbridge, and Kilcullen.

Kildare Local Economic and Community Plan 2024-2029

- 3.2.9 The purpose of the Local Economic and Community Plan (LECP) is to set out, for a six-year period, the objectives and actions needed to promote and support the economic development and the local and community development of Kildare.

Planning and Development Act 2000- As amended

- 3.2.10 There are no protected buildings located within the study area of the Curragh Plains. It should be noted however that within the Defence Force Training Camp (DFTC) there are 7 structures listed in the County Kildare Record of Protected Structures (RPS) and 12 buildings listed in the National Inventory of Architectural Heritage. There is however no Architectural Conservation Area.

National Monuments Acts 1930-2004

- 3.2.11 The area contains many archaeological sites listed within the Record of Monuments and Places (RMP). Being listed provides these places with protection under the *National Monuments Acts 1930-2004*. When the owner or occupier of a property, or any other person, proposes to carry out any work at, or in relation to, a recorded monument, they are required to give notice in writing to the Minister for Culture, Heritage and the Gaeltacht two months before commencing any work. There are no national monuments.

- 3.2.12 The Curragh Plains has at least two battlefield sites (i.e. 1234 Battle of the Curragh, 1798 Gibbet Rath Massacre). Despite their importance, neither have legal protection. Similarly, the World War I practice trenches, possible Crimean War encampment and World War II (i.e. The Emergency) defences do not have legal protection. There are no specific objectives in the current *Kildare County Development Plan (2023-2029)* concerning the protection of battlefields.

Natural Heritage

- 3.2.13 Protection of a number of species and designated landscapes are provided under the European Birds (1979) and Habitats (1992) directives, Birds and Natural Habitats Regulations 2011, the *Wildlife Acts 1976*, and the *Wildlife (Amendment) Act 2000-2010*. Where development is proposed that impacts upon a protected species or protected place, a derogation licence must be sought from the National Parks and Wildlife Service. The Curragh Plains are designated as a proposed Natural Heritage Area (pNHA). Because of the potential for impacts upon the nearby Pollardstown Fen Special Area of Conservation (SAC) some proposed projects may require 'Appropriate Assessment,' a process by which an analysis of potential effects on the site undertaken by qualified staff is presented in a Natura Impact Statement (NIS).

Intangible Heritage

- 3.2.14 There is no national legislation providing legal protection for intangible heritage. In December 2015, Ireland ratified the *UNESCO convention for the safeguarding of intangible cultural heritage* (2003). In it, article 11 (a) states that 'each State party shall: (a) take the necessary measures to ensure the safeguarding of the intangible cultural heritage present in its territory (ibid, p.5). Furthermore, Article 13 (a) states that 'each State Party shall endeavour to: (a) adopt a general policy aimed at promoting the function of the intangible cultural heritage in society, and at integrating the safeguarding of such heritage into planning programmes' (ibid, p.6).

The Curragh Acts

- 3.2.15 The current protection of the Curragh is largely attributable to the provisions of the Curragh of Kildare Acts; the most recent was the 1969 Act. The 1868 Act is repealed. All but sections 4, 5 and 6 of the 1870 Act (relating to the post of Curragh Ranger) remain in place; however, this was just a short addendum to the 1868 Act. Currently the combined Acts provide that:

The 'raising, taking, and carrying away of' sand, gravel, stone, clay or turf, requires ministerial authorisation.

Enclosure of areas of the Curragh requires ministerial authorisation.

A byelaw can be written to prevent 'the passage of vehicles other than on the public roads'.

Sheep grazing rights exist over the Blue Lands and the Green Lands (not otherwise leased out) by rights holders as specified in a schedule of the 1870 Act. It is not allowed to 'keep or graze an animal other than sheep on the Lands'.

The permitted sheep are required to be marked, and the grazing of unmarked sheep is prohibited.

The 1961 Act abolished the office of Curragh Ranger with the management duties of that office transferring to the Department of Defence who continue to oversee the management of the blue and green lands.

- 3.2.16 The maximum sheep numbers that graziers have a right to keep on the Curragh is informed by the Curragh of Kildare Act, rather than a calculation of land capacity or taking into account other environmental factors on the Curragh.
- 3.2.17 Currently around 6,000 rights, are owned by approximately 150 landowners and utilised by about 30 sheep graziers. For the purposes of the Acts, a lamb is only included in the count from the 1st day of September following its birth.

3.2.18 There is no further restriction, notably on the timing or duration of grazing.

Proposed Natural Heritage Area (NHA) Status

3.2.19 The Curragh, formerly an Area of Scientific Interest (ASI), was amongst the first tranche of sites to have their protection upgraded through the designation of the Natural Heritage Area, the boundary of which is published by the National Parks and Wildlife Service.

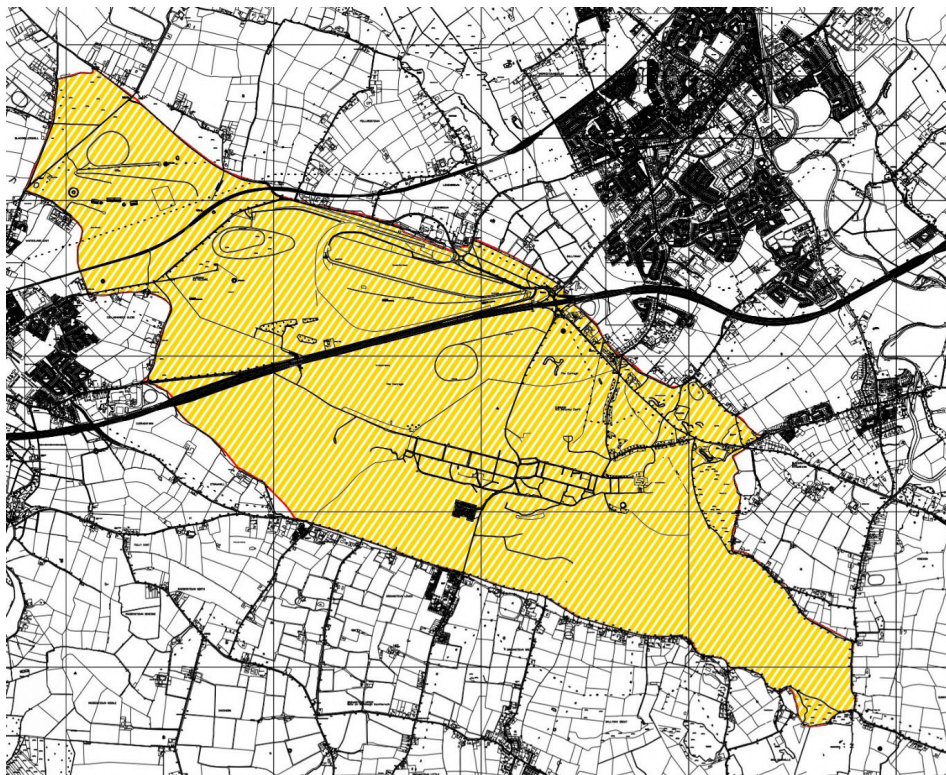
3.2.20 The designation is currently still only *proposed*, as such it has no legal basis. The pNHA status:

- Serves as an alert to planning authorities that a site has significant biodiversity value.
- Ensures that grant aid is not available for activities that are incompatible with protecting the environment.
- In the past, has qualified landowners for high payment levels in agri-environment schemes, notably the REPS.

3.2.21 The designation does not make the site subject to any level of NPWS control or require NPWS to conduct monitoring.

3.2.22 To date 75 raised bogs and 73 blanket bogs, have been designated NHAs, but the legal ratification of any of the remaining 630 pNHAs was not an objective of the National Biodiversity Action Plan for 2017-2021, and since the last round of designations in 2004, the NPWS have been obliged to focus their resources on the protection of Natura 2000 sites vis-à-vis Special Protection Areas and Special Areas of Conservation, for which Ireland has direct legal obligations.

Plate 2 - The pNHA designation



Other wildlife legislation

3.2.23 Without the designation of either Special Area of Conservation under the 'Birds Directive', or Special Area of Conservation under the 'Habitats Directive', the Curragh is not protected by these instruments, with the exception of a requirement to compile a Natura2000 statement for any proposals that could impact upon the Pollardstown Fen SAC via groundwater impacts (regardless of whether planning permission is required). If significant impacts cannot be ruled out, then that project would be disallowed under the Habitats Directive.

- 3.2.24 Likewise, the Water Framework Directive protects the Curragh Gravel Aquifer which is assigned to the 'High' vulnerability class by the Geological Survey of Ireland. It does not otherwise protect the habitats of the Curragh.

The Planning Process

- 3.2.25 The Council's planners have a high regard for the biodiversity value of the Curragh habitats, as informed by the County Biodiversity Plan. This protects the Curragh from avoidable impacts associated with projects that require planning permission, for example it is a default condition of planning permission for projects that require excavation in grassland that is to be subsequently re-instated, and that existing turves are stripped intact and reserved for replacement.

Custodianship and policing

Role of the Department of Defence

- 3.2.26 Management responsibility for the Curragh Plains falls to the Department of Defence, as established in the Curragh of Kildare Act, however, the Department does not have the necessary powers of enforcement. This stems from the primary interest in the site for military training purposes, although through necessity involves many other aspects of management concerning how the Plains are used, farmed and maintained.
- 3.2.27 In 1997 an Environmental Policy Board, which had been set up by the Department of Defence and the Defence Forces jointly, reported significant ongoing environmental damage to the Curragh Plains.
- 3.2.28 As a result of this report an Inter-Departmental Task Force on the Future Management and Development of the Curragh of Kildare was set up. Its terms of reference were to examine the ongoing threat to the integrity of the Curragh Plains which had arisen as a result of a marked increase in the level of activities among users and the level of developments taking place on the periphery of the Curragh. The Task Force was asked to report and make recommendations on the future management and development of the area.
- 3.2.29 In May 1999, the Task Force presented its report to Government. Significantly, the final paragraph of the Executive Summary of the report states: *"It is the view of the Task Force that the greatest single threat to the area is that no action will be taken to rectify the situation. If the unique environment of the Curragh is to be preserved action must be taken as a matter of urgency."* The recommendations of the Task Force were accepted by Government. While some relatively minor matters, such as new speed limits, sheep grids and sewage have been addressed by the Dept. of Defence, there has been no action on the main recommendations dealing with the need for legislation to set up a strong new management structure backed up by proper penalties and sanctions for persons or organisations causing damage to the Curragh Plains.
- 3.2.30 An abridged copy of the Task Force Report can be viewed on the Department of Defence website.
- 3.2.31 The Task Force stimulated significant measures to protect and enhance habitats on the Curragh, notably the clearance of gorse, also known as furze (*Ulex europaeus*), and upgrades to the treatment of sewage.

Plate 3 - Furze clearance by Department of Defence



- 3.2.32 It was pointed out by consultees that the effectiveness of the Department staff in protecting the Curragh has been hampered by staffing levels, and a lack of legal powers.

Staffing levels

- 3.2.33 The Task force review identified that their staff on the ground comprising the Maor (Bailiff) and 3nr. Fomhaor (Under Bailiffs) coming under the day-to-day control of the Assistant Properties Officer, based in Dublin, was an inadequate staff level to manage and care for the Curragh.
- 3.2.34 The number of staff managing the Conservation Management Plan area has reduced by one, comprising the Maor and 2nr. Fomhaor and compares unfavourably for example with the numbers of staff the OPW commit to Dublin's Phoenix Park, and the number of grounds staff employed by the Irish Horseracing Regulatory Board in their enclosure.
- 3.2.35 Grazing entitlement is based on landownership outside the Curragh – when this changes, the entitlement changes. Much Departmental staff time is occupied by the annual task of checking entitlement and administering the grazing rights and sheep marking.

Legal powers.

- 3.2.36 The ground staff engaged on the Curragh have limited legal powers to intervene if inappropriate behaviour or management practices are observed. While they regularly work in partnership with An Garda Síochána or the Military Police to resolve prevalent issues, their lack of powers (combined with limited resources) hinders an ability to adequately and efficiently tackle issues as they arise.

The NPWS Wildlife Ranger

- 3.2.37 The County Ranger has a remit that extends to all lands within their area, however NPWS have no legal basis to intervene to protect the habitats or prevent damage/damaging activities unless they are contrary to the Wildlife Act.

Shared grazing

- 3.2.38 It is noted that the sheep flocks grazing the Curragh tend to have home ranges as a result of sheep behaviour and deliberate hefting.
- 3.2.39 Nonetheless, all parts are equally accessible to all sheep, reducing any incentive for investment in the land by rights holders or graziers.
- 3.2.40 Wholesale cooperative agricultural improvement is also made less attractive by the limits on sheep headage imposed by the Curragh Acts.

Earth Science

- 3.2.41 The extraction of minerals from the Curragh would require both planning permission and the specific consent of the Minister under the Curragh Acts.
- 3.2.42 Parkes and Sheehan-Clarke (2005) consider that while geological value of the Curragh does not impact on the extent of nature conservation designations, it 'cements' their value.

Summary

- 3.2.43 The current level of legal protection of the Curragh Plains habitats needs to be modernised.
- 3.2.44 The current pNHA designation does not have any legal basis and serves mainly as a flag to indicate biodiversity value rather than as a mechanism to protect it.
- 3.2.45 The value of the Curragh habitats is already a material consideration in processing of proposals that require planning permission.
- 3.2.46 The Curragh Acts certainly provide a level of protection, especially through the imposition of limits to the numbers of grazing sheep (although not to the timing or duration of grazing).
- 3.2.47 However, neither the pNHA designation, nor the Curragh Acts, fully protect the Curragh Plains from agricultural intensification that would ruin the nature conservation value of the site habitats. The Acts do not preclude a range of potential agricultural improvements that would be disastrous for the biodiversity value, and do not set out to optimise management with respect to productivity and biodiversity.
- 3.2.48 The persistence and current biodiversity value of the flora and fauna of unimproved habitats of current biodiversity value can be attributed in no small measure to:
- The continuing traditions of management.
 - The diligence and stewardship of the Department of Defence effected by a small number of staff.
 - Recognition of the value of the Curragh, and the importance of its protection by the Planning Department.
 - The shared grazing system representing an economic disincentive to agricultural improvement.
- 3.2.49 At the current level of grazing intensity and timing, the species-richness of the GS3 Dry-humid acid grassland is thought to be suppressed. The sheep grazing pressure is currently well over that which would be prescribed on a habitat in other jurisdictions where grazing can be controlled. (e.g., UK Site of Special Scientific Interest). Adjusting the grazing regime to allow the grassland to recover species-richness, particularly with respect to the broad-leaved herbs, would represent an important biodiversity enhancement.

3.3 Management History

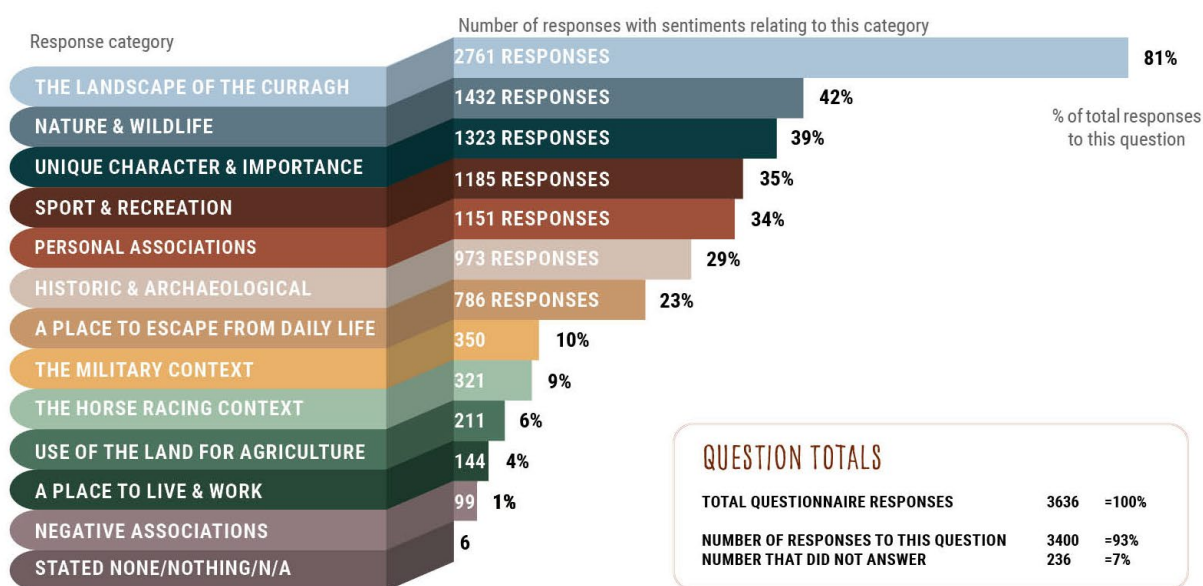
- 3.3.1 Feehan and McHugh (1992) note that *“the Curragh is perhaps the oldest, and certainly the most extensive tract of man-maintained semi-natural grassland in the country”* which has existed as such for at least the past 2000 years.
- 3.3.2 It is not the continuity of agricultural management that is unique, but the fact that the land has not been improved for agriculture in that time, e.g., through ploughing, re-seeding or fertilisation that has allowed a large block of lowland grassland to remain in semi-natural condition.
- 3.3.3 Although there is evidence of lazy beds on the Curragh, it is believed that there has been a long history on the Curragh where tillage was practically absent. This is supported by an often cited twelfth century observation by the monk Giraldus Cambrensis that *‘There are also here the most delightful plains, which are called the pasturage of St Brigid, into which no one dares to enter a plough’*. The Curragh land then was grazed in commonage, and a statute of Edward I, passed in 1299 forbidding the feeding of pigs on the Curragh is presumed to have been in response to soil damage.
- 3.3.4 Commonage was not an uncommon practice in lowland Ireland at that time, and tracts of unenclosed land held in commonage would not have been unusual.
- 3.3.5 Through the 16th and 17th centuries the Crown continued to issue grants of pasture commonage to landowners adjacent to the Curragh. Commonage was not a free-for-all but reserved for nominated holders of grazing rights. In 1687 the first reference was to a Curragh Ranger appointed and paid by the Crown and charged with protecting the grazing rights (and game) from encroachments.
- 3.3.6 With shared ownership, there is no incentive for individuals to invest in agricultural improvement, so this was a system that preserved grassland habitats in a semi-natural condition. On the Curragh, uniquely for such a large area in the lowlands, this has been an operative factor in maintaining a semi-natural condition through to modern times. By 1865 there were up to 20,000 sheep grazing on the Plains with approximately 250 owners (Williams, 2007).
- 3.3.7 Of significance in maintaining the commonage system was the passing of the first Curragh Act in 1868. This formalised the commonage arrangements by listing the persons whose claims to rights of common of pasture were allowed and setting out the number of sheep which each such person was entitled to graze.
- 3.3.8 Speaking in the Seanad Éireann at the reading of the 1961 Curragh of Kildare Bill, Senator Ted O’Sullivan described his dismay at witnessing the poor agricultural productivity of the Curragh and recounted having made enquiries about it, to discover ‘that it appeared to be nobody’s business’.
- 3.3.9 Currently there are around 150 holders of grazing rights, each with a nominated number of animals. Many are understood to allow their rights to other farmers so currently (at least in theory) less than 30 farmers could run around 6000 sheep on the green and blue lands.

3.4 Stakeholder Views

- 3.4.1 The Conservation Management Plan has been informed by a comprehensive body of research and consultation. From the outset it was considered of utmost importance that the plan is evidence based, informed by a multidisciplinary approach, and is collaborative.
- 3.4.2 In addition to the research that has been undertaken and the time spent in the field, the consultant team have worked closely with both the Department of Defence and Kildare County Council and have convened multiple workshops with relevant stakeholders on the Curragh.
- 3.4.3 A key aspect of the process was an online public consultation exercise undertaken between March and April 2021. This helped to establish an understanding of what aspects of the Curragh Plains are important to people and why.
- 3.4.4 It was clear from the responses how important this landscape is to the people that live around the Curragh. The strength of feeling for this important place and the need for its care was reflected in the 3636 survey responses and subsequent email responses submitted.

3.4.5 When the public were asked what makes the Curragh special:

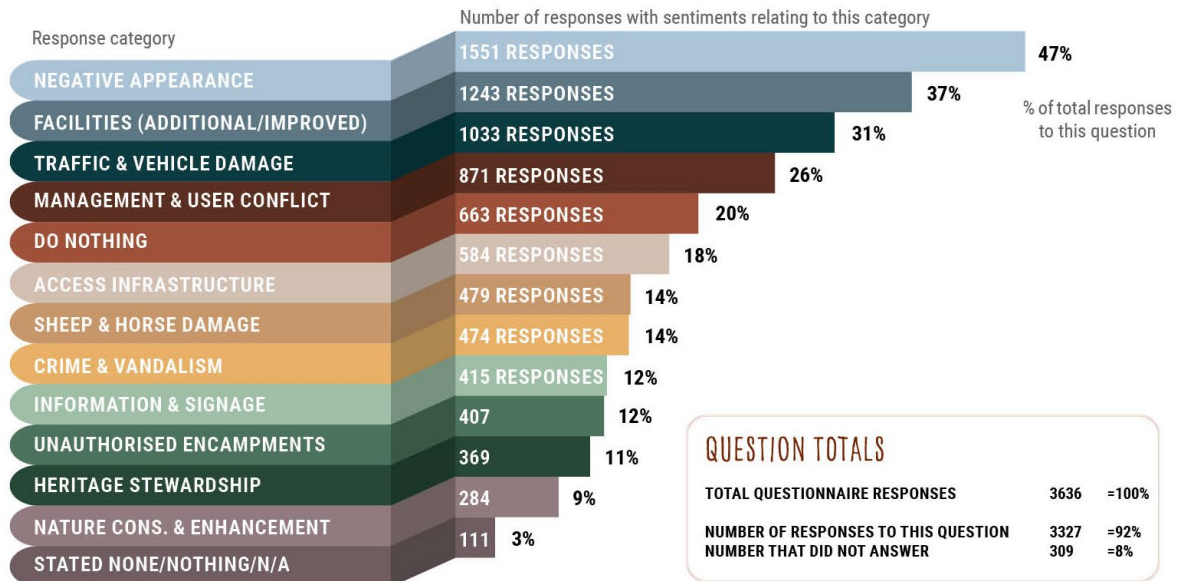
- 81% stated that it was the landscape of the Curragh that made it special, including its scale, scenery, and undeveloped nature.
- Closely linked, people cited its natural qualities, its wildlife, and the unique/unusual aspects of the Curragh such as its diversity, vastness, and magical qualities.
- The recreational value of the Curragh Plains and the importance it plays in people’s lives socially but also in terms of mental and physical health featured heavily.
- Its history and archaeology, particularly in relation to the story of the country, was recognised as important.



The Paul Hogarth Company, 2021

3.4.6 When the public were asked for suggestions on how the Curragh could be improved:

- A significant number referred to the negative appearance of the Curragh generally, whether through erosion, litter, derelict built form, broken fencing or another factor, albeit many of these related to an area of action which were captured alongside suggestions being made.
- Many respondents suggested facilities and infrastructure to enhance the recreational use of the Plains, such as parking areas, bins, seating, picnic areas, toilets, coffee outlets etc. This included dedicated trails, bridleways, cycle trails and walking routes to manage some of the user conflicts.
- Control over litter and fly-tipping featured heavily as did managing sheep grazing more stringently.
- A high proportion discussed ideas for zoning uses and creating dedicated facilities / timetables for activities such as scramblers, off road vehicles etc.
- A change in the management of the Curragh Plains was also highlighted, with this regularly being linked with issues surrounding user needs and conflicting requirements. Several suggested protection through National Park status, accompanied by the benefits that management personnel such as rangers, wardens and custodians would bring.
- Signage and education such as welcome and waymarking signage and signage that communicated the importance of the landscape and heritage features.
- The results also illustrated that for many, doing ‘nothing’ or maintaining a status quo was important, highlighting the important role that the Curragh Plains currently play.



The Paul Hogarth Company, 2021

3.4.7 See Appendix A for a full summary of consultation findings.

3.5 Biogeography

3.5.1 The Curragh extends to around 1,970 ha (= 4,870 acres) roughly between the towns of Kildare and Newbridge and the village of Kilcullen, this is a moderately populous part of the country. It is bisected by the M7 Motorway/N7 National Road and the Dublin to Cork main line railway line as well as a network of smaller roads.

3.5.2 County Kildare is a relatively flat county, with topography rising towards the foothills of the Wicklow Mountains to the east. Cupidstown Hill situated in East Kildare (east of Kilteel and on the county boundary), is Kildare's highest point at 379 m above the OS sea level datum. More locally, the Grange, Red and Dunmurry Hills north of Kildare town rise to 234 m.

3.5.3 The name Curragh is sometimes attributed to the Gaelic word for 'plain' (the word Curragh in Irish place names almost invariably mean 'marsh' but can also mean a 'racecourse' or 'chariot plain'). Much of the area is fairly level, at an altitude of around 105 m. Whilst some parts are impressively flat, particularly to lands crossed by the motorway, the south Curragh can be distinctly undulate.

3.5.4 The Curragh Camp occupies a low ridge fully across the Curragh lands known as the Long Hill. It includes two 'training hills' Semaphore Hill and Flagstaff Hill rising to nearly 150 m, the former now more commonly called 'Braveheart Hill'.

3.5.5 For comparison, enclosed agriculturally improved lowland farmlands generally give way to less enclosed and less improved habitats at altitudes varying between 150 - 300 m.

3.5.6 The mean annual rainfall in County Kildare varies from less than 750 mm per year in the low-lying region, to 1000 mm in the hilly eastern area (An Foras Talúntais, 1970). The Curragh probably receives between 750 and 875 mm per year on average. This constitutes relatively low rainfall, a factor that mitigates against peat soil formation.

3.5.7 A summary of contemporary management is useful as a backdrop to the site's biodiversity:

3.5.8 The Curragh lands are defined by statutes that divided them into three zones:

- Brown Lands: The area on which a permanent military camp had been established in 1858 and over which rights of common grazing were suspended by Statute.

- Blue Lands (for Rifle Ground): Remaining subject to the rights of common grazing, is used rifle practice and other military exercises.
- Green Lands: Are used primarily for the common grazing of sheep by rights holders, and also in part, by the Irish Turf Club for horse racing and training and to a more limited extent than the Blue Lands for military purposes such as reviews, drills and, in cases of emergency, temporary encampment.

- 3.5.9 Under Statute, the Department of Defence owns all lands within these zones. They continue to operate the Curragh Camp that is now the Defence Force Training Centre (DFTC).
- 3.5.10 The historic Turf Club was founded in 1790 in the Coffee Rooms, Kildare town. Now the Irish Horseracing Regulatory Board, they still part own the Curragh Racecourse Company, and since 1869 have enjoyed a lease for a western section of the Green Lands.
- 3.5.11 Apart from the racetrack, which was enclosed under the provisions of the 1963 Curragh Act, horses are widely exercised on formal gallops, following numerous informal desire lines. These are mainly the racehorses that are synonymous with Co. Kildare and especially the Curragh.
- 3.5.12 Shared grazing rights allow for continued sheep grazing of the Green and Blue Lands.
- 3.5.13 The Curragh also hosts several historically important Golf courses. The Royal Curragh Golf Course (straddling Green and Brown Lands) is possibly Ireland's oldest Golf Club and Course, Cill Dara Golf Course which lies in the western part of the Curragh, and the Athgarvan Pitch and Putt course which lies on the eastern edge of the Curragh. The latter course was based on part of the former Athgarvan 9-hole civilian links Golf Course and was one of the first pitch and putt courses in the country, a sport (based on golf) which was founded in Ireland.

3.6 Geology

- 3.6.1 The bedrock underlying the Curragh comprises limestones laid down after land subsidence, which during the Carboniferous geological period led to extensive ingress of seawater into the low-lying areas, resulting in the accumulation of shell-rich marine sediments with a laminar structure.
- 3.6.2 These deposits are now a thick (> 100m) layer of bedded limestone rocks with distinctive bands, resulting from various combinations of fine-grained detrital (transported) sand and mud (shale) deposits, crystalline quartz (chert) and the abundant shell detritus mainly derived from crinoids. Some sub-layers are highly dolomitized - a geological process by which calcium carbonate is replaced by magnesium carbonate, usually due to evaporation of water in shallow seas.

Plate 4 – Solid geology map

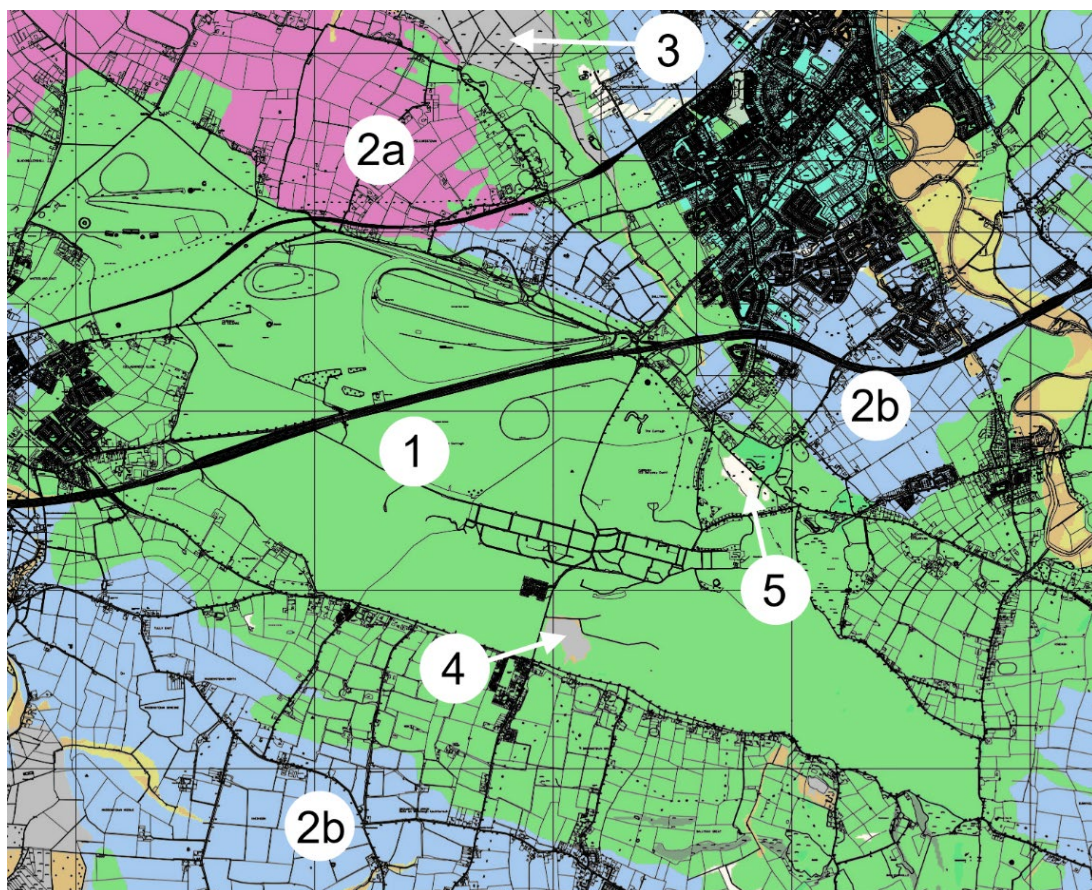


WM Associates based on NPWS Data

- 3.6.3 The solid geology in sequence from the north-west, to the south-east comprising.
- Boston Hill Formation: Nodular & muddy limestone & shale.
 - Rickardstown Formation: Cherty often dolomitised limestone.
 - Ballysteen Formation: Dark muddy limestone, shale.
 - Feighcullen Formation: Skeletal, oolitic & micritic limestone.
- 3.6.4 The rocks underlying the Curragh are covered by the 'drift' geology of overlying sediments laid down in the current geological period (the Quaternary).
- 3.6.5 Ice sheets are seldom static as ice has a plastic property that allows both ice sheets and glaciers to 'flow'. The most recent (Midlandian) ice sheet in Ireland pushed completely over County Kildare leaving only the crests of the higher ridges on the south-east protruding above the new landscape of ice.
- 3.6.6 This ice first built up in the west central midlands, from where it flowed outwards. Pushing along the north side of the Slieve Bloom mountains where it rasped off fragments of the carboniferous limestone bedrock that was in its path carrying these fragments eastwards into what is now north County Kildare, in considerable quantity.
- 3.6.7 Within Kildare this ice coalesced with ice pushing south from the northern part of the country combined to flow south-eastward to the foothills of the Wicklow Mountains, which finally stopped the ice sheet shortly beyond the county boundary.
- 3.6.8 When this ice eventually began to melt, around 10,000 years ago, the narrow gaps of the Slaney and the Barrow valleys could only cope with part of the waters released from this huge accumulation of ice. The surplus melt waters instead accumulated below the ice, and into this pool dropped the load of limestone fragments from the ice above and from the melt waters flowing through. In this way a broad belt of diverse tills and gravels was dumped across the centre of County Kildare.

- 3.6.9 Once the ice (in what is now County Dublin) had fallen sufficiently to allow melt waters to escape in that direction a new outlet opened from Newbridge to Dublin cutting a wide valley through the limestone barrier about Celbridge. The draining of large quantities of meltwater predominantly to the south-east (Glanville 1997), re-arranged and sorted the dumped load of limestone rock fragments. In this way deposits of sorted gravels were deposited by glacial meltwater over the Curragh in large quantity, covering the underlying limestone geology in a mantle known as an outwash plain, which is the largest example of such in the area. The sediments occupy a depression in the bedrock surface, which is indicated in borehole and depth to bedrock records for the area, which indicate that the depth of the gravel can exceed 70m. Nowhere is it less than 20m (Misstear and Brown 2008). The particle size ranges from fine gravel (3.35 mm) to cobble gravel (75 mm) with a mean size relatively small for comparable deposits in the Irish Midlands (Glanville 1997).
- 3.6.10 This is known as a proglacial fluvial landscape. The proglacial fluvial deposits are not confined to the Curragh Plains area but extend into the surrounding area to the north and south. The adjoining gravel pit sites such as Ballysax are outside the protected area of the Curragh but are within the same geomorphological feature. The fluvioglacial gravel deposits are eventually bounded by till soils, comprising unsorted, unstratified mixtures of clay, silt, sand, gravel, and boulders.
- 3.6.11 The extent of the proglacial fluvial deposit at the Curragh is of importance itself. The County Geological site report points out that it is *'one of the best examples of a proglacial fluvial landscape in Ireland, which is often unrecognised compared to the Curragh's other interests'*.

Plate 5 - Quaternary drift Map



WM Associates based on NPWS Data

1. Gravels derived from limestones.
- 2a. Glacial till deposits derived from sandstones.
- 2b. Glacial till deposits derived from limestones.

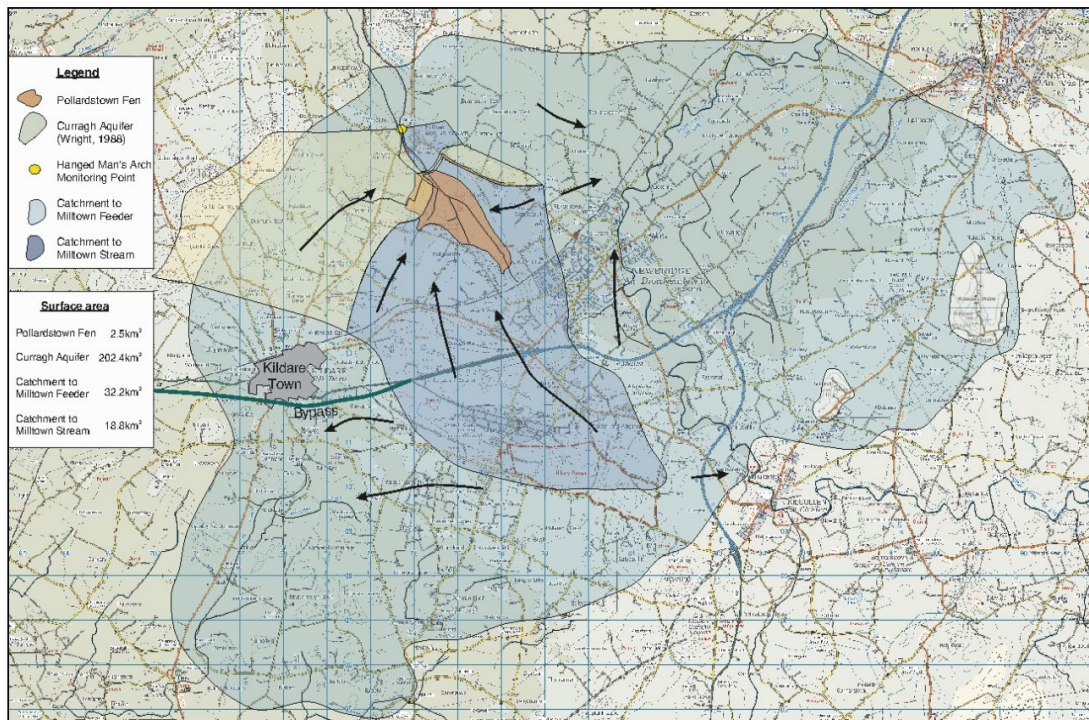
3. Pollardstown Fen: Fen peat over gravel.
4. Cutover raised peat.
5. Lake sediments (this area of rushy damp grass is now known as Lough Bawn).

3.6.12 At 4 and 5, impeded drainage has added a superficial layer of peat and lacustrine clays, respectively.

3.7 Hydrology

- 3.7.1 The fluvio-glacial gravel is adept at hydraulic storage and transfer, essentially the gaps between the gravels are accessible to water, which in place, forms an aquifer.
- 3.7.2 The characteristics of the aquifer were studied in detail prior to the construction of the M7, controversially in a cutting that penetrated the aquifer. This information more recently neatly summarised by Mitchel (2019).
- 3.7.3 The Geological Survey of Ireland classifies aquifers as Regionally Important, Locally Important and Poor Aquifers.
- 3.7.4 The Curragh Aquifer, which occupies the gravel deposits, is Regionally Important. Water flowing into and draining from the aquifer is called recharge and discharge, respectively.
- 3.7.5 The Curragh Aquifer strictly speaking is called the Curragh Gravel Aquifer West Groundwater Body. Limestone is a hydraulically conductive rock, so a further (and more extensive) limestone bedrock aquifer underlies the gravel aquifer, and this is also Regionally Important.
- 3.7.6 The Curragh aquifer is recharged from rainwater percolating through the topsoil and unsaturated sand and gravel deposits, largely over the Curragh Plains. The main discharges comprise of baseflow to rivers, seepages from the edges of the aquifer, and springs.
- 3.7.7 By far the majority flow is to rivers (up to 80 or 90 %). The Curragh Aquifer is a feeder for the Grand Canal and an important source of baseflow for the Rivers Liffey, Barrow and Boyne.
- 3.7.8 Springs and seepages are less significant in terms of volume, but highly significant in term of the habitats they support.
- 3.7.9 One of the case studies undertaken by Misstear and Brown (2008) representing highly conductive groundwater bodies, was the Curragh Aquifer. They present a map of the groundwater movement into Pollardstown Fen located some 1.6 km to the north of Curragh Plains but connected via the fluvio-glacial gravel deposits conducting the Curragh Aquifer.

Plate 6 - Pollardstown Fen map



WM Associates based on NPWS / Osi Data

3.7.10 This is highly significant from an ecological perspective as Pollardstown Fen, the largest spring-fed fen in Ireland has a specialised flora and fauna that relies upon the supply of water from the aquifer via some 40 springs chiefly at its margins and arranged along distinct seepage areas of mineral ground above the fen peat level. The continual inflow of calcium-rich water from the Curragh, and from the limestone ground to the north, creates waterlogged conditions which lead to new peat formation

3.7.11 The rate of supply to the fen from the aquifer principally dictates:

- Soil wetness.
- The rate of supply of calcium into the fen.
- The dilution of comparatively nutrient-rich surface run off into the fen.

3.7.12 Pollardstown Fen is a Special Area of Conservation (SAC) selected for Cladium Fen, Petrifying Spring and Alkaline Fen habitats and for the internationally protected Geyer's Whorl Snail, Narrow-mouthed Whorl Snail and Desmoulin's Whorl Snail.

3.7.13 The National Stud is located to the south of Kildare some 750 m from the edge of the Curragh Plains. The Stud includes a series of ponds that are spring fed from the Curragh Aquifer. These feed a series of water features within the adjacent Japanese Gardens, before discharging eventually into the Tully Stream, which runs south to the Rover Barrow.

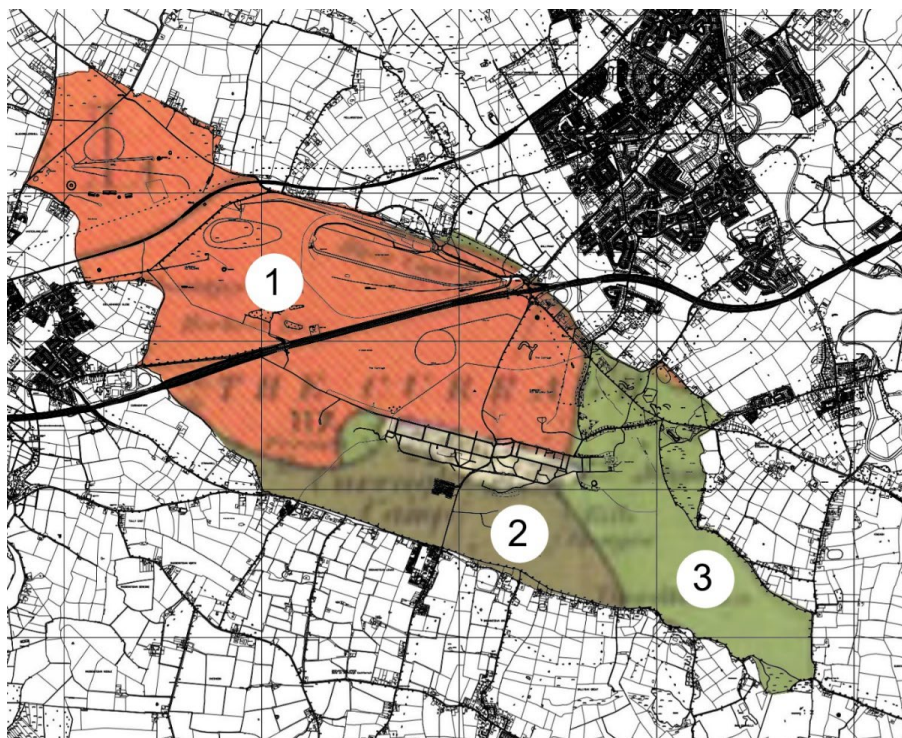
3.7.14 Suncroft Fen also to the south of the Curragh, is aquifer fed and important for its Alkaline Fen communities, albeit on a different scale to Pollardstown (Wolfe-Murphy 2004) but remains undesignated.

3.8 Soils

3.8.1 The combination of soil nutrient status and reaction is a fundamental determinant of the types of plants that will flourish.

- 3.8.2 In terms of the influence upon habitats, the prime axis upon which soils are initially grouped relates to soil reaction. Acidic, circumneutral and calcareous soils and habitats are normally recognised.
- 3.8.3 In the Curragh, although the soil parent material is calcareous, over the centuries rainfall washing through the soil has led to the removal of calcium carbonate from the surface layers, which have become acidified as a result. The action of the percolating water is known as leaching. The process by which the upper layer of a soil becomes acidic through the leaching of bases which are then deposited at lower levels in the soil is known as podzolisation.
- 3.8.4 While there has been no addition of fertilisers, the long history of grazing has also resulted in soils that have become nutrient poor.
- 3.8.5 In fertile soils competitive plants will outgrow species adapted to less fertile conditions. Our most important habitat sites for biodiversity are sites where low nutrient status excludes competitive species, and it is almost always the case that such sites require protection from nutrient inputs if the biodiversity value is to be maintained.
- 3.8.6 Curragh soils are mainly grey-brown podsols. The development of these soils is associated primarily with a leaching process; the principal constituent accumulated in the sub-surface soil is the finely divided clay fraction, which ends up with significantly higher clay content than either the soil layers above or below.
- 3.8.7 The County Kildare soil survey report by An Foras Talúntais (1970) describes the grey-brown podsols very favourably in agricultural terms. They are 'some of the most inherently fertile soils in the county' and the sandy sharper drainage examples are 'good all-purpose soils and, when adequately manured and managed, are very productive for most agricultural enterprises'. The clayey, less well-drained are 'good grassland soils, responding well to good manurial and management practices'.

Plate 7 - Soils map



WM Associates based on NPWS Data

- 3.8.8 Notes from An Foras Talúntais (1970)
- Elton Series Grey Brown Podsols – dominantly limestone derived. Noted for grass production. When adequately limed, fertilised and managed, very high levels of production can be obtained and the grassland can be grazed over a long season, but controlled grazing is necessary to prevent poaching.

- Mortarstown Series Grey Brown Podsoles - Heavy textured (clayey) soils rather stone-free in nature and relatively low in calcium carbonate. Response to fertilisers, particularly potassium, is good. Due to the heavy texture and rather weak structure of the soils, tilling and harvesting can be difficult in unfavourable seasons. For the same reason, poaching by grazing stock in wet periods is a hazard.
- Athy Complex – derived from calcareous, fluvioglacial coarse gravels and light textured (sandy). They generally have a wide range of agricultural uses suited to the production of a range of farm, fruit, and vegetable crops. They are easily tilled. Short-term grassland leys when adequately fertilised, are highly productive and the sward can be utilised fully. The only serious limitation to output is a moisture deficit in dry seasons.

3.9 Biodiversity – Habitats and Flora

- 3.9.1 Unimproved semi-natural grassland and heath vegetation along with the small, probably temporary, nutrient-poor pools in heathland in the Little Curragh are the habitats of high biodiversity importance in the Curragh and are the basis of the NHA designation. These are the product of a considerably long history of continuous low-input grazing management the duration of which we can only speculate.
- 3.9.2 The grasslands of the Green Zone are quite well documented. The heathland and gorse scrub areas have been described in less detail.
- 3.9.3 All habitats within the Blue Zone are comparatively less studied, presumably because of the health and safety risk associated with working in a live firing range.
- 3.9.4 It is remarkable that such a large area of lowland habitat has not been enclosed and comprehensively improved for agriculture – had this been the case, the Curragh habitats would have been practically indistinguishable from the surrounding farmland.
- 3.9.5 The endurance of semi-natural habitats at the Curragh Plains is not because the environmental conditions that prevail preclude agricultural improvement. Instead, the ownership, cultural and legal circumstances of the Curragh have mitigated against profound agricultural improvement and continue to do so.
- 3.9.6 Although The Curragh Plains have escaped comprehensive conversion to intensive farmland, they have not been subject to management practises that are ideal to maintain the open habitats in good condition in a biodiversity context. In particular, subdued species diversity, the low representation of broad-leaved herbs in the matrix of dry acidic grassland, and a lack of heather in the heath areas would suggest over-grazing. The Irish Semi-Natural Grassland Survey found relatively few areas of acidic grassland in ‘good’ condition, although found no evidence of fertiliser or lime application (Jo Denyer pers. comm).
- 3.9.7 The contemporary condition of the important habitats has meant that the Curragh Plains was not designated as a Special Area of Conservation when it was considered in 2002 – although there was, and may still be, support in the NPWS for this designation (implying significance in an EU context), the site did not meet the required threshold for designation in terms of the extent of high quality habitat in good ecological condition.
- 3.9.8 The diversity and abundance of the groups of low growing fungi that rely on a long history of continuous low-input grazing, and particularly no tillage, have not been as impacted by grazing levels, and the Curragh Plains is of international importance for its fungal assemblage, although this is not an SAC designation qualifier.
- 3.9.9 Appendix B includes a comprehensive analysis of the biodiversity of the Curragh Plains.

3.10 Archaeology

- 3.10.1 The Curragh Plains comprise a unique ancient grassland and an under-researched archaeological landscape around the periphery of which subsequently developed the towns and villages of Kildare, Newbridge, and Kilcullen. While the towns of Kildare and Kilcullen have their origins, like all Irish towns in the early medieval period and later, the Curragh speaks of much older prehistoric activity and use of the landscape.
- 3.10.2 The Curragh Plains have been the focus of archaeological attention in three phases, namely the archaeological survey and excavations by Sean. P. ÓRiordáin in the late 1940's, the extensive archaeological survey by Pádraig Clancy in 2000 and more recently, LiDAR Survey and analysis by Dr Stephen Davis of UCD. These surveys compiled with the results of archaeological mitigations related to developments within and close to the Curragh Plains, notably since the early 1990's, enable us to identify the significance of the known monuments and the potential for discovery of hitherto unknown archaeological features that had no visible surface expression.
- 3.10.3 It is not intended, nor practical, to outline the details of every known archaeological monument, rather the approach of this text is to enable an understanding of the concentrations and function of monuments in discrete areas of the Curragh. The Curragh contains the curtilage of the Curragh Training Camp and the Curragh Racecourse, both of which, whilst not included in this Conservation Plan, have known archaeological monuments that form a significant portion of the story of the Curragh Plains archaeological landscape.

Historical Background

- 3.10.4 The earliest written reference to the Curragh is a 9th century manuscript of a hymn of praise of St. Brigid, which refers to a nun who 'drives over the Curragh' (Costello 2006, 537). The Curragh is mentioned in the 12th century account by Giraldus Cambrensis (12th century Welsh monk who travelled to Ireland with John Plantagenet in 1185).
'there are also here the most delightful plains, which are called the pasturage of St. Brigid, into which no one dares enter a plough and of which it is estimated as a miracle that although the cattle of the whole province may have clipped the grass close to the ground in the evening it will appear the next morning as high as ever, and it has been said of these pastures:
As much as the herds crop during the long day, so much does the cold restore during the short night
- 3.10.5 Confirmation that the Curragh was considered Crown Property can be dated to 1299 when the Statute of Edward I forbidding the feeding of swine on the Curragh was enacted.
- 3.10.6 The agriculturist Arthur Young in 1777 described the sward as 'forming a more beautiful lawn than the hand of art even made, what a turf it must be to bear twenty sheep an acre' (Young 1925, 145). But by the 1830's, John O'Donovan regretted 'the grass of the pasturage of St. Brigid is so much eaten down by the sheep that the boys of Kildare are known by the appellation of the Boys of the Short Grass' (Costello 2004, 536 after O'Donovan 1930, Costello 2006)

The Archaeological Landscape

- 3.10.7 The archaeological landscape of the Curragh is a landscape traversed in the past as much as in the present. The landscape has a time-depth, and the main features of this traversed landscape are the motorway, overhead powerlines, circuits of movement of varying size and shape relating to the equine heritage of the Plains, wayfaring pedestrian routes through the ancient grassland, military vehicle training tracks, early 20th century military training trenches and linear archaeological monuments.
- 3.10.8 Whilst the brief excludes the area of the Curragh Training Camp and the Curragh Racecourse, the land used by both, has a bearing on the archaeological significance of the Curragh Plains.
- 3.10.9 There are 179 known earthworks on the Curragh Plains, 61 of these are classified as barrows, ring-barrows, ring-ditches, and ringforts. The staff of Archaeological Survey Ireland had identified 61 of these and subsequent field survey by Pádraig Clancy in 2000/2001 revealed an additional 55 sites (Clancy 2006, 38). 135 barrows are located

on the Curragh Plains, and they represent the largest concentration of such sites in Ireland (Clancy 2006, 46). The number will increase, with good quality openly accessible aerial photography and more archaeological focus. Indeed, one new funerary site was identified during the site visits in preparation for this text, close to the boundary on the edge of the Curragh Plains opposite Brownstown House. The majority of the known monuments on the Curragh are burial in nature and the use of this landscape may have precluded settlement or agricultural activity in the environs, even into medieval times.

Plate 8 - Previously unrecorded prehistoric funerary monument on the Curragh Plains



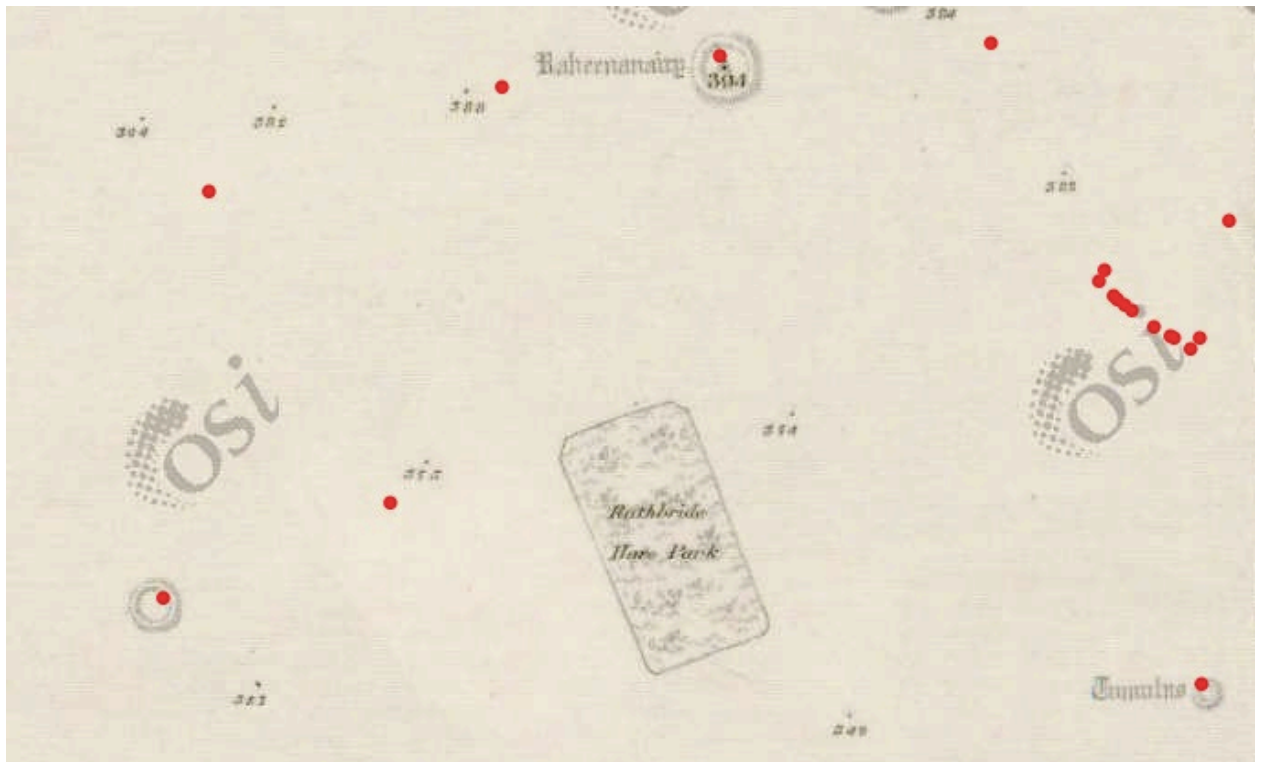
Gort Archaeology

- 3.10.10 One of the characteristic features of the barrows on the Curragh is the variety of types and concentrations within specific areas, acting as cemeteries. The variety of barrows, from ring-ditches to ring-barrow indicates a long period of barrow construction from the Bronze Age and possibly the Neolithic (Clancy 2006, 46-47). Ring-ditches tend to date to the Iron Age, which ring-barrows have returned dates of the Bronze Age. Clancy (2005 & 2006, 38-9) has identified nine distinct clusters of monuments within the Curragh Plains.

Northern portion of the Curragh Plains

- 3.10.11 The northern portion of the Curragh Plains, known as the Little Curragh, is relatively flat with numerous surface undulations of the landscape. It is punctuated by the large stands of trees associated with the enclosed rectangular area of land, known as Rathbride Hare Park, and subsequently shown as a Rathbride Fox Covert on the editions of the Ordnance Survey maps (Plate 9). The interior of the Fox Cover has a series of cultivation ridges, probably dating to post-medieval period or more modern. The landscape is sprinkled with archaeological funerary monuments forming a cluster at the edge of the Plains near Raheenanairy. These monuments are recorded as ring-barrows and are hidden in view by heavy gorse.

Plate 9 - Ordnance Survey map extract of Rathbride Hare Park/ Fox cover

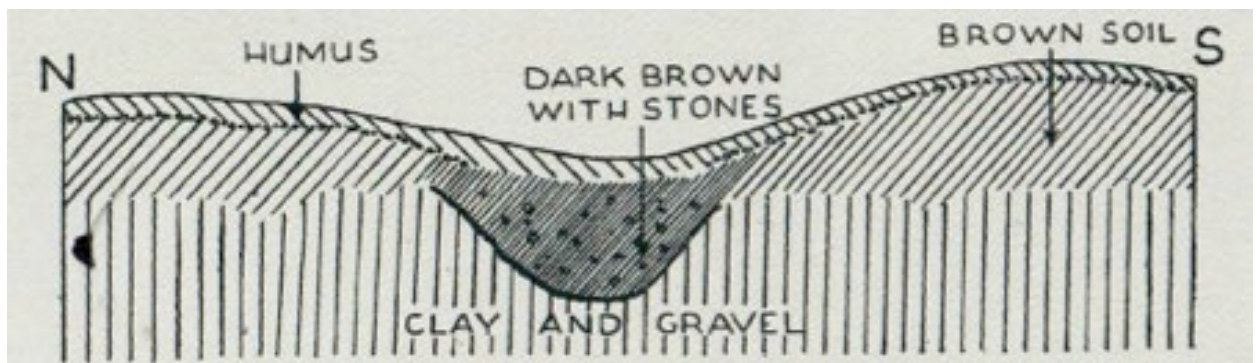


- 3.10.12 To the southeast stretching to the Curragh Racecourse are three similar clusters of barrows (Clancy 2006: B, C & D) that are located intentionally on low rises in the landscape. A series of poles and steel masts associated with the existing 38Kv overhead electrical line traverse the northern portion of the Curragh Plains. In 2010 a programme to retire/remove the existing poles/ masts took place. One of the pole structures was located in the centre of a possible ditch barrow (KD022-088). The second pole was at the base of the bank on the eastern side of a ring-barrow (KD022-042) which was partially excavated by O'Riordain in 1950 (O'Riordain 1950). All ground works were monitored and no features or soils or archaeological significance were encountered (Byrne, M. 2010).

Race of the Black Pig

- 3.10.13 John O'Donovan during his travels to the Curragh as part of the work of the Ordnance Survey considered the Race of the Black Pig 'was evidently the track of an ancient road running across the Curragh in the direction of the Great Rath of Áileann. The Black Pig's Dyke is shown on the Ordnance Survey map traversing the northern portion of the Curragh Plains in a rough northwest/ southwest direction. It consists of a ditch flanked on either side by banks and may have functioned as a territorial or frontier marker. The Black Pig's Dyke is a linear earthwork, which is found in sections across Ireland. The mythology is that it was formed by an angry mythological pig tearing the surface of the landscape. A portion of the Dyke on the Curragh was excavated by O'Riordain and found to consist of a gently sloping sided ditch with rounded base (Plate 10). The Race of the Black Pig may have been part of the Slighe Dála, an ancient road that crossed the Liffey at Athgarvan (O'Riordain 1950; Feehan 2019,40).

Plate 10 - Excavated section of Race of Black Pig (after Ó'Riordáin 1950)



- 3.10.14 Two archaeological assessments consisting of small excavation trenches in 1998 (O'Keeffe 1999) and 1999 (Brady 1999) associated with infrastructural works of laying of a gas pipeline and laying of telecom cable does not reveal any evidence of a pre-modern earthwork. In addition, monitoring of a trench for the Newbridge-Kildare Gas Feeder Pipeline in the townlands of Collaghknock Glebe and Curragh in 1997 revealed possible traces of the 'Race of the Black Pig' in Curragh townland near Ballymany roundabout, but no materials of archaeological significance were identified (O'Riordáin 1997).

M7 motorway

- 3.10.15 The M7 motorway traverses the Curragh housed with a linear scarp through the Curragh Plains. The scarp was located along what is assumed to be a natural break of slope with the land to the south being significantly higher than the land to the north.
- 3.10.16 It is worth noting that whilst we view the Curragh Racecourse as the structure of today, its heritage and location varies, with the early nineteenth century racecourse stretching towards Ledger's Bottoms before turning eastwards close to the former hexagonal Hare Park, now the site of the Curragh Training Camp.
- 3.10.17 Two sites were archaeologically assessed along the proposed M7 Motorway/ Kildare Bypass, in this area of the Curragh. One was a circular embankment and surrounding a hollow (98E0593) which showed no archaeological material and was a natural undulation in the landscape. The second area was the vicinity of a multivallate ringfort, but no features of soils were identified (98E0594). (Reid 1998).
- 3.10.18 Several charcoal scatters were unearthed during the construction of the M7 motorway on the Curragh. Eight circular pits, varying in diameter from 1.4m to 0.4m and in depth from 1m to 0.2m were excavated and found to contain similar fills of fragments of burnt stone, charcoal, and silty clay (Channing 2001).

Wart Stone

- 3.10.19 The First Edition Ordnance Survey map indicates the 'Pedestal of a Cross called the wart stone' at a prominent curving portion of the boundary of the Curragh Plains in Rathbride. The stone has a shallow depression which holds water and is associated with a cure for warts, as indicated on the map. Some have described this as a boundary cross of early medieval date (Feehan, 2019,25; Anon, 1999, B-6). A former small stone cairn of uncertain origin associated with the wart stone was disturbed in the early 1990's. An irregularly shaped piece of limestone located 1km to the southwest of the Wart Stone, is indicated on the 1st edition Ordnance Survey map as a 'Large Stone', its cultural significance, if any, is uncertain.

Archaeological excavations within the Curragh racecourse

- 3.10.20 The redevelopment of the Curragh Racecourse consisted of a phased programme test excavation in advance of the realignment of a section of the R413, north of the existing Curragh racecourse and realignment of a portion of Standhouse Road. No features of archaeological significance were encountered, and investigation of the extant field boundaries did not suggest they were of archaeological significance (Bolger 2006). Subsequent monitoring of

greenfield sites around the current Grandstand and west of Standhouse did not reveal any features archaeological significance (Gilligan 2007).

- 3.10.21 Testing in advance of the construction of a wastewater treatment plant in two greenfield sites as part of the redevelopment of the Curragh racecourse in 2017, led to the discovery and excavation of a series of archaeological features. Notable from the excavation were two linear features, an excavated section of the Loughbrown/Curragh townland boundary and a previously unknown ring-ditch.
- 3.10.22 Two linear features that arched towards one another were excavated and were found to have vertical sides, filled with dark brown clay containing burst sandstone, some possible iron slag, and flecks of burnt bone. A sample of willow was dated to the Iron Age, returning a calibrated radiocarbon date of 160B.C-A. D 30. Several other features contained possible iron slag.
- 3.10.23 The ditch that once served as the boundary between the Curragh and Loughbrown townlands was found to be 3.85m wide, and nearly 1m deep with moderately sloping sides and a concave base. Two probable 19th century glass bottle bases were retrieved in the upper fill of the boundary.
- 3.10.24 A ring-ditch was partially uncovered and subsequently excavated, with the remainder of the site being left in-situ as it would not be impacted upon. The cut has steeply sloping sides that drop gradually to a concave base. Two iron finds were retrieved. Three north-south aligned linear features, spaced c.2m to 2.5m apart, traversed the trench around the ring-ditch. These were very shallow and ephemeral, and it is possible that they did not survive, or were not noticed, elsewhere. They were all c.0.5m wide and 0.02m deep and filled by light greyish/brown silty clay containing occasional flecks of charcoal and burnt stone. These probably represent medieval/post-medieval or early modern cultivation ridges (Muldoon 2017).
- 3.10.25 In 2020, the refurbishment and upgrade of the irrigation system at the Curragh Racecourse Training Grounds was archaeologically monitored. The ring-barrow (RMP KD023-040) was within the site boundary and was to be directly impacted by the new irrigation system at the Curragh, but there were no features identified at this location, nor within the overall project (Hickey & Danaher 2020).

Plate 11 - Ring-barrow with wayfaring routes to rear near St. Ledger's Bottoms



Gort Archaeology

Plate 12 - Mound with pillbox as later addition, wayfaring routes to rear near St. Ledger's Bottoms



Gort Archaeology

Middle portion of the Curragh Plains

- 3.10.26 The middle portion of the Curragh Plains contains a prominent natural ridge that runs roughly East - West. Located along the summit of this ridge is the present-day Curragh Camp. It is worth noting the social effects of the decision in 1855, due to the outbreak of the Crimean War, to accommodate 10,000 men at the Curragh, with reports of a shortage of labourers and craftsmen available to farmers and landowners in Kildare. Con Costello astutely wrote the construction of a permanent camp, would “*alter forever not alone the landscape of the plain, its environment, and its use, but it was also to cause major changes to the lives of the local populations*” (Costello 1996, 25/26). The construction of the Curragh Camp was responsible for the direct removal of a series of archaeological monuments, as shown on the 1st edition Ordnance Survey map.

Possible cursus monument - Curragh Training Camp

- 3.10.27 The monuments (Clancy’s Cluster F) removed were shown as circular enclosures, their exact typology is uncertain. In addition, the Ordnance Survey showed a linear earthwork to the west of the enclosures. The linear earthwork was marked on the Ordnance Survey map as the ‘site of encampment’. The nature of the feature is uncertain, but as Clancy argues the length, form orientation and position within a wider complex of sites, point to the possibility of this being a Late Neolithic/ Early Bronze Age ceremonial monument known as a cursus monument (Clancy 2006, 39). Evidence of Neolithic activity within the wider area of the Curragh include a funerary Linkardstown-type pot from Dún Ailinne, polished stone axehead from Ballysaxhill and recently identified early Neolithic pottery from an excavation in advance of a housing development at Rathbride in 2017, close to the northwestern perimeter of the Curragh Plains (Antoine Giacometti pers. comm.).
- 3.10.28 In 2000 archaeological test trenching in advance of the construction of an Ordnance and Transport school on adjacent sites in Clarke and Ceannt Barracks, along the line of the ‘Site of the Encampment’ did not reveal any features of archaeological significance (Eogan 2000a). Subsequent archaeological monitoring of the construction of Stores between Plunkett and Connolly Barracks and near the Camp supermarket, at the western end of the exterior of the ‘Site of the Encampment’ did not reveal any features of archaeological significance but led to the discovery of a clay pipe stamped with ‘Curragh Camp’ (Eogan 2000b).

St. Ledger's Bottom

- 3.10.29 When one approaches the Curragh Camp from the M7, it has a feeling of open, undulating level land, but the area has a series of natural undulations, which experienced, gives you a sense of exclusion from the Plains. A point in hand is within the area of St. Ledger's Bottoms. The landscape from the M7 southwards drops sharply and then rises towards the Curragh Camp. The surface of the grassland retains a series of linear wayfaring routes, one of which is clearly identifiable on aerial images and Ordnance Survey maps as the early nineteenth century racecourse.
- 3.10.30 To the east of the 'Two-mile post' as shown on the Ordnance Survey is a notable hollow that contains a series of circular shaped hollows and a pronounced linear enclosing bank. This area will require more detailed inspection, but appear as a form of structures, related to even possible transitory living. The story of the Curragh Wren's (community of women who lived outside society some of whom were "fallen women") comes to mind, as a possible explanation, but published accounts of the Curragh Wrens refer to their base being not far from Donnelly's Hollow, some 3km to the southeast. Donnelly's Hollow is a natural amphitheatre on the northern side of the Curragh Plains, where 20,000 spectators watched Dan Donnelly beat the English boxing champion George Cooper. (Feehan 2019, 62). The year of the fight 1815, was also the Battle of Waterloo.
- 3.10.31 Prominent portions of this area of the Plains are marked by a series of ring-barrows, their location intentionally chosen in prehistoric times, in an open area of land. The ring-barrows are clearly visible, but this impedes car owners parking very close to the monuments. The monuments have stood the test of time, and were in some cases, here and elsewhere on the Plains used as locations for 'pill boxes' (guardhouse with slits for weapons firing), again showing the strategic positioning of these prehistoric funerary monuments.
- 3.10.32 The Curragh is a lived landscape and its social history of the mid-nineteenth to early twentieth century brings to mind race days, where soldiers, gentry and farm labourers would come for a day out at the races. With this was a need for law and order, and the need for Constabulary presence on the Curragh, notably the Barracks and Courthouse c. 1/2 km to the northwest of Donnelly's Hollow and a second Barracks at Brownstown to the southwest and on the opposite site of the Plains.

Military Activity

- 3.10.33 Military manoeuvres have taken place on the Curragh Plains since the 16th century. The Earl of Essex in 1599 who camped on the Curragh described the area as 'these champion fields are called by natives 'Curragh's'... *A better place for deploying of an army I never beheld* (Lawless 1902, 49-67).
- 3.10.34 During the 1641 Rebellion, the Duke of Ormond lodged his army in the villages around the Curragh while attacking Fitzgerald's garrison at Castlemartin (Gilbert 1882-91, 249). Two years later, Lord Castlehaven (Confederation's General of Horse) states that he 'encamped on a heath called the Curragh of Kildare' (Swan 1972, 41). In 1647 the Leinster Confederate forces mustered on the Curragh (Mac Lysaght 1950, 314). The Curragh Plains is named on the mid-17th Century Down Survey map of the Barony of Offaly (Ophaly) as 'The Currah of Kildare' (Anon. 2006, Block A Plates).
- 3.10.35 The fallout of the Rebellion of 1798 has left its mark on the landscape of the Curragh. General Dundas having negotiated the surrender of the Rebel Camp at Knockaulin, was to meet with six hundred rebels at Gibbet Rath on the 29th of May 1798. In the interim, English forces under the command of General Sir James Duff, having marched from Limerick two days earlier, finding the town of Kildare in ruins decided to advance on the rebel camp on the Curragh. The encounter is known as the 'Gibbet Rath Massacre' and left an estimated three hundred and fifty rebels dead.
- 3.10.36 Gibbet Rath (KD23:42) is an early medieval ringfort and is named on the 1st edition Ordnance Survey as 'Gibbet Rath'. Three small rectangular features are shown on the Ordnance Survey map, c.80m to the west and indicated as 'Graves' (KD23:60). In addition, a memorial cross is shown on the Ordnance Survey (KD23:111) map.
- 3.10.37 Gibbet Rath is surrounded by a cluster of prehistoric funerary monuments, some of which have been altered and re-used to the present day. A case in hand is where soldiers set up transitory camps up to the monument (Plate 13)

which itself has been heavily interfered with through pillboxes. Such a concentration of monuments gives a strong visual sense of our archaeological heritage, while also leading us to question what else lies hidden below the ancient grassland.

Plate 13 - Gibbet Rath with soldier encampment (Source: Lawrence Collection) [reference only]



Archaeological excavations within middle portion of the Curragh

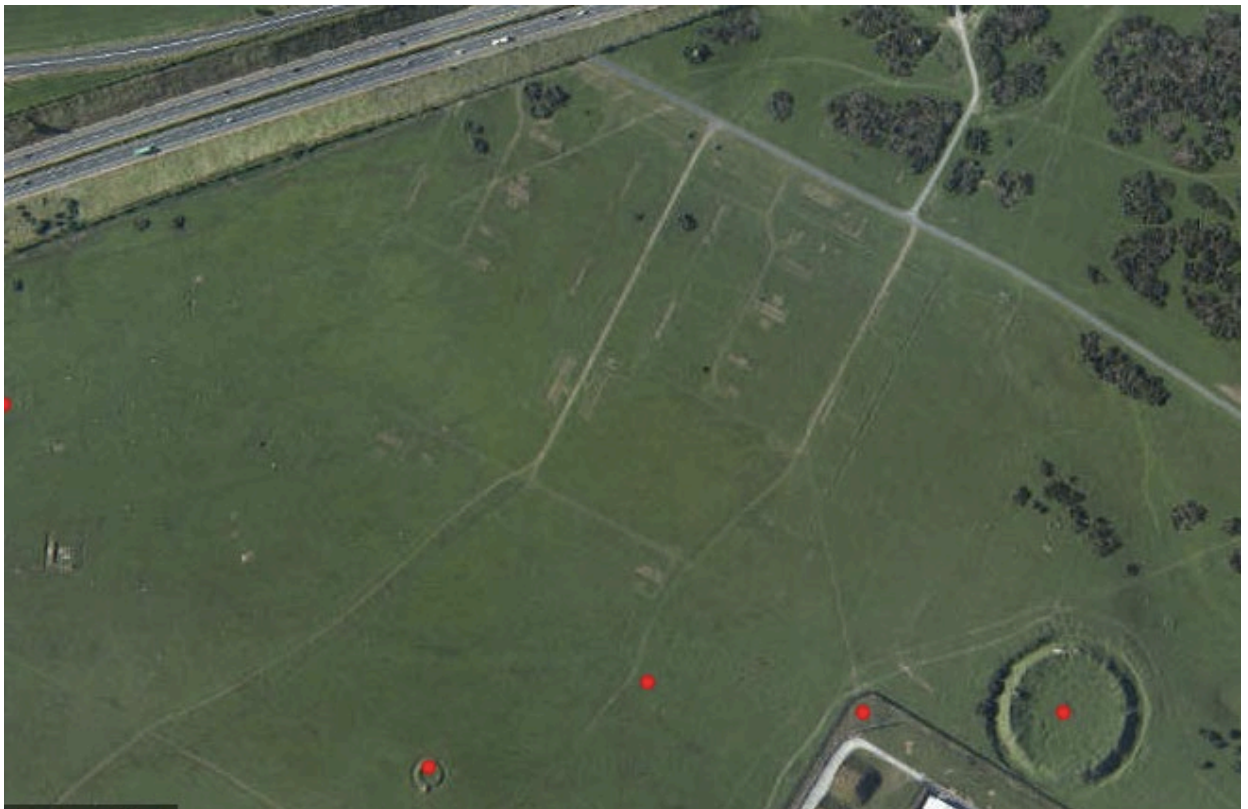
- 3.10.38 Archaeological monitoring and limited excavation were carried out at Maddenstown during the construction of a 7-furlong all-weather gallop, adjacent to the south of the Curragh Camp in August 1996 (Conway 1996). Some portions of the terrain were built up as earthen banks to produce a level gallop. The monitoring of topsoil removal along the gallop route revealed areas of cremated bone and spreads of charcoal-rich soil. Thirty-eight features were recorded, of which 28 were pits / cut features, four were spreads of charcoal-rich soil and 6 were spreads of cremated bone.
- 3.10.39 At least 21 cut features contained burnt or cremated bone of varying quantities (plus an additional three scatters of bone). Most of these features were elongated, corresponding with cultivation furrows orientated south-south-east/north-northwest across the site, though several were oval or circular in nature. The pits varied considerably in dimension. Most of the cremation deposits had been truncated by the post-medieval cultivation, making it difficult to assess if the volume of remains represented 'token burial'; the upper fills of several pits were contaminated by post-medieval debris, including clay pipe stems and scatters of cremated bone. Two pit features, notable for a red staining around the edges and base, may represent interment directly from the pyre. The excavator suggests that the concentration of such features represents at least part of an unenclosed flat cemetery of either Middle/Late Bronze Age or Iron Age date.
- 3.10.40 Subsequently in 2020 the refurbishment and upgrade of the Maddenstown Gallop (part of the Curragh Racecourse Training Grounds) was archaeologically monitored in the event that archaeological material may have been present

below the formation of the existing gallop. It transpired that the original gallop had a formation cut into natural subsoil and no features or soils of archaeological potential were identified. (Hickey & Danaher 2020)

Archaeological excavations within the Defence Force Training Camp

- 3.10.41 In 1997 the archaeological testing and subsequent monitoring of ground works at the site of the proposed Ammunition Depot, within the vicinity of a series of monuments including Gibbet Rath, did not reveal any archaeological features but led to the discovery of a length of chain link, made of copper-alloy, which may be part of a ceremonial lanyard or horse decoration of 19th/early 20th century date (Byrne 1999). In 2007, monitoring of the ground works associated with the new armoured vehicle garage did not reveal any features of archaeological significance. The site was close to an enclosure (KD23:61) which was removed as part of quarrying in the area in the late 19th/ early 20th century (Byrne 2007).
- 3.10.42 Between 1999 and 2002 the development of the new swimming pool (Eogan, 1999), the new carpark at the rear of Hospital Wards 3 & 4 (Byrne 2000), transport technical stores (Byrne 2000 & 2002) and laying of a high-tension cable network along existing roads and through greenfield areas (Mullin 2000) did not reveal any features of archaeological significance. Subsequent infrastructural works including the feeder gas main through the Curragh Camp in 2005 (Laidlaw 2005) and feeder main into and within the Curragh Camp (Moore 2013) did not reveal any features of archaeological significance. The linear trenches within the camp revealed areas consisting of heavily disturbed ground of thick layers of gravel and rubble containing red-brick fragments and crushed limestone mortar.
- 3.10.43 To date, none of the archaeological inputs to any of the developments on the natural ridge, on which the Curragh Camp is located, has shown evidence of prehistoric remains.
- 3.10.44 More recent archaeology from the 20th century is evident in this area from aerial photography. Clearly visible is a ghost impression of the footprints of the 1921 Rath Camp, which tells of the war of independence in Ireland when 12 – 15,000 volunteers were imprisoned there.

Plate 14 - Aerial view of 1921 Rath Camp (Source: www.archaeology.ie)



Soldier memorials

- 3.10.45 Located on the high ground at the western side of the Curragh Plains is the irregularly shaped military cemetery, containing the graves of servicemen and family members that date by inscription from 1869 to 1922.
- 3.10.46 At the eastern end of the Curragh Camp towards the summit of the ridge, expansive views are to be found of the 20th century target ranges to the south, the Curragh golf course to the north and the southern portion of the Curragh Plains to the southeast. One can also see the high hilltop enclosure of Dún Ailinne (Knockaulin) immediately to the perimeter of the Curragh Plains.
- 3.10.47 The area contains several ring-barrows on the crest and upper slopes of the summit (Clancy's Cluster H). One of the large funerary monuments was used as a pavilion with footbridges over the fosse, while a second monument had a pillbox inserted in the exterior. Between the two monuments, is the unassuming marker for a soldier shot by a ricochet bullet. The land towards, and including, the southern portion of the Curragh Plains contains extensive lines of disused training trenches.

Plate 15 – Memorial for soldier who died from stray bullet in 1880



Southern portion of the Curragh Plains - Early 20th century training trenches

- 3.10.48 The changing methods of warfare from the mid-nineteenth century saw an increasing use of trenches, that commenced with sieges and became widespread to protect troops from increasing firepower from small arms and canon. Trench warfare, although used in such conflicts as the Crimean War and American Civil War, have been heavily associated with World War I.
- 3.10.49 The Curragh hosts the finest known example of surviving training trenches in Ireland. The Curragh's World War 1 training trenches have not received archaeological research, but a recent geophysical survey and excavation of similar trenches at Birr Barracks, Crinkill, Offaly (Shine et al. 2019) highlight the condition, and extent of those present on the Curragh Plains.

Plate 16 - View of excavated training trench at Birr Barracks, Crinkill, Offaly



3.10.50 When one walks through the lines of training trenches (Plate 17), one gets a feel of a battleground and the trenches having been located to utilise and defend the natural terrain. A reading of the landscape in a military and strategic manner, is fossilised in the landscape through the visible trenches, which look like sets of teeth marks etched in the aerial photographs.

Plate 17 - View of training trenches on the Curragh



Artillery butts

3.10.51 The southern portion of the Curragh is perhaps the wildest and most undulating, with natural high ground that formed the ideal choice of location for artillery practice by the army into the early 20th century. The large earthen banks are butts, designed to catch ordnance. Tracks of heavy military vehicles are ever present on the landscape as an active military training ground. The summit of the two pronounced hillocks were chosen by our prehistoric relations for

their funerary monuments and contained ring-barrows and mounds. One of the mounds is on the highest point of the Curragh, marked by a flagstaff. As one looks to the west one has a clear view of the Curragh and the central summit, the view being corralled by the lines of trees demarcating the target ranges and roadways giving access to the Curragh Camp.

Cultivation ridge

- 3.10.52 There are several areas of known cultivation ridges on the Curragh. Feehan has mapped some of these ridges (Feehan 2019, 36-37). The ridges show great variations, with some being small, enclosed area of ridges which are probably 19th/20th century in date. It is difficult, at this time to afford a date with any level of certainty, as the indications are that the ridges are predominantly post-medieval in date, as attested by some archaeological results in the general vicinity of the Curragh Plains.

Significant nearest neighbours

- 3.10.53 Knockaulin is the hilltop of Dún Ailinne to the immediate southeast of the Curragh Plains which was archaeologically excavated by Bernard Wailes. Dún Ailinne enclosed a large figure of eight timber structure that was dated to Iron Age. The structure is similar, but of a slightly different date, to that found at the Royal Site of Navan. Dún Ailinne with its imposing wooden structure overlooked the Curragh Plains, which with its phases of construction of funerary monuments and as suggested by Clancy as suggested by the number of artefacts and monuments, that by the Late Iron Age the Curragh was part of an extensive ritual landscape (Clancy 2006, 56-7). Owing to its significance Dún Ailinne was added to UNESCO's World Heritage Tentative List in 2022.
- 3.10.54 Curragh Plains has an extensive range of prehistoric funerary monuments that date from the Bronze Age into the Iron Age. This is the highest concentration of such monuments in the country, with these and others clustered in identifiable areas of the landscape, showing signs of construction through time. Although limited development involving archaeological input has taken place on the Plains, it has revealed further evidence of similar dating funerary practices, that did not have visible surface expression (i.e., flat cemeteries). The Curragh, which was a common from medieval times, has evidence of early medieval activity, as attested to by the presence of ringforts. The cultivation ridges on the Curragh are undated, but some may date to limited areas of cultivation, but the most likely date is post-medieval and later. The nationally significant site of Dún Ailinne has similarities to the Royal Site at Navan, which were important settlements during the Iron Age in Ireland.
- 3.10.55 The Curragh with its good land, access to water and location close to Kildare, was chosen as a permanent camp by the British military. The construction of the camp at the time of the Crimean War, saw the removal of several archaeological monuments on the linear ridge of high ground that was a specific ritual focus and possibly an earlier Neolithic cursus monument. With the advent of new military weaponry, the introduction of training for trench warfare commenced and the Curragh has some of the best preserved and most extensive training trenches in Ireland. The role of the horse was crucial in the selection of the Curragh, as was the need for adequate horse breeding, facilities, and labour. The Curragh was a known area for horse racing before the military camp settled in the Curragh and the ghost impression of the racetrack is visible on the ancient grassland of the Curragh.

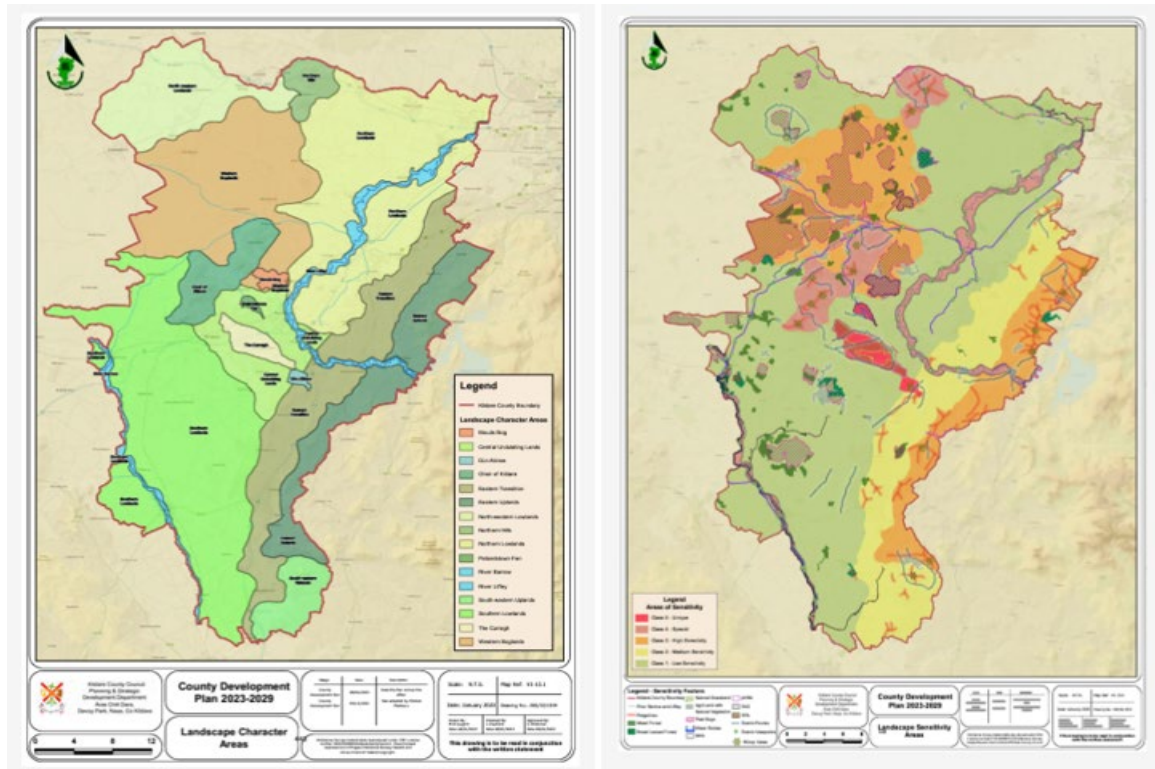
3.11 Landscape Character

- 3.11.1 The Curragh is recognised as playing host to a complex array of uses, with military, horse racing and sheep farming uses prevailing in their influence on landscape character. So too is the historic and archaeological significance noted, albeit its influence on the contemporary character of the Curragh and the uninformed visitor is often limited.
- 3.11.2 A Landscape Character Assessment was undertaken by Kildare County Council in 2004, with maps updated in the Kildare County Development Plan 2025-2029 (see Plate 18 below). It characterised the landscape of the County based on its land cover and landform, but also on its values, such as historical, cultural, religious, and other understandings of the landscape. Although the character areas are indicative, the Curragh is identified very

specifically as derived from the ecological designation of the Curragh as a proposed Natural Heritage Area by the Heritage Service. It is also one of three identified Special Landscape Areas.

- 3.11.3 The assessment was supported by a landscape sensitivity rating which provides a measure on the ability of the landscape to accommodate change or intervention without suffering unacceptable effects to its character and values. The Curragh was identified as having high sensitivity.

Plate 18 - Kildare County Landscape Character Assessment (Kildare County Development Plan 2023-2029 – Chapter 13



- 3.11.4 Critical landscape factors identified of The Curragh Landscape Character Area are cited as:

Smooth Terrain

Smooth terrain and the generally gentle landform that characterise this landscape character unit, allow for vistas over long distances without disruption. Consequently, development can have a disproportionate visual impact in the local context, due to an inherent inability to be visually absorbed by the existing topography.

Low Vegetation

The grasslands and sparse gorse that generally occur at the Curragh fail to break up vistas, thereby allowing for long distance visibility. The low vegetation proves unable to visually absorb new development.

Shelter vegetation

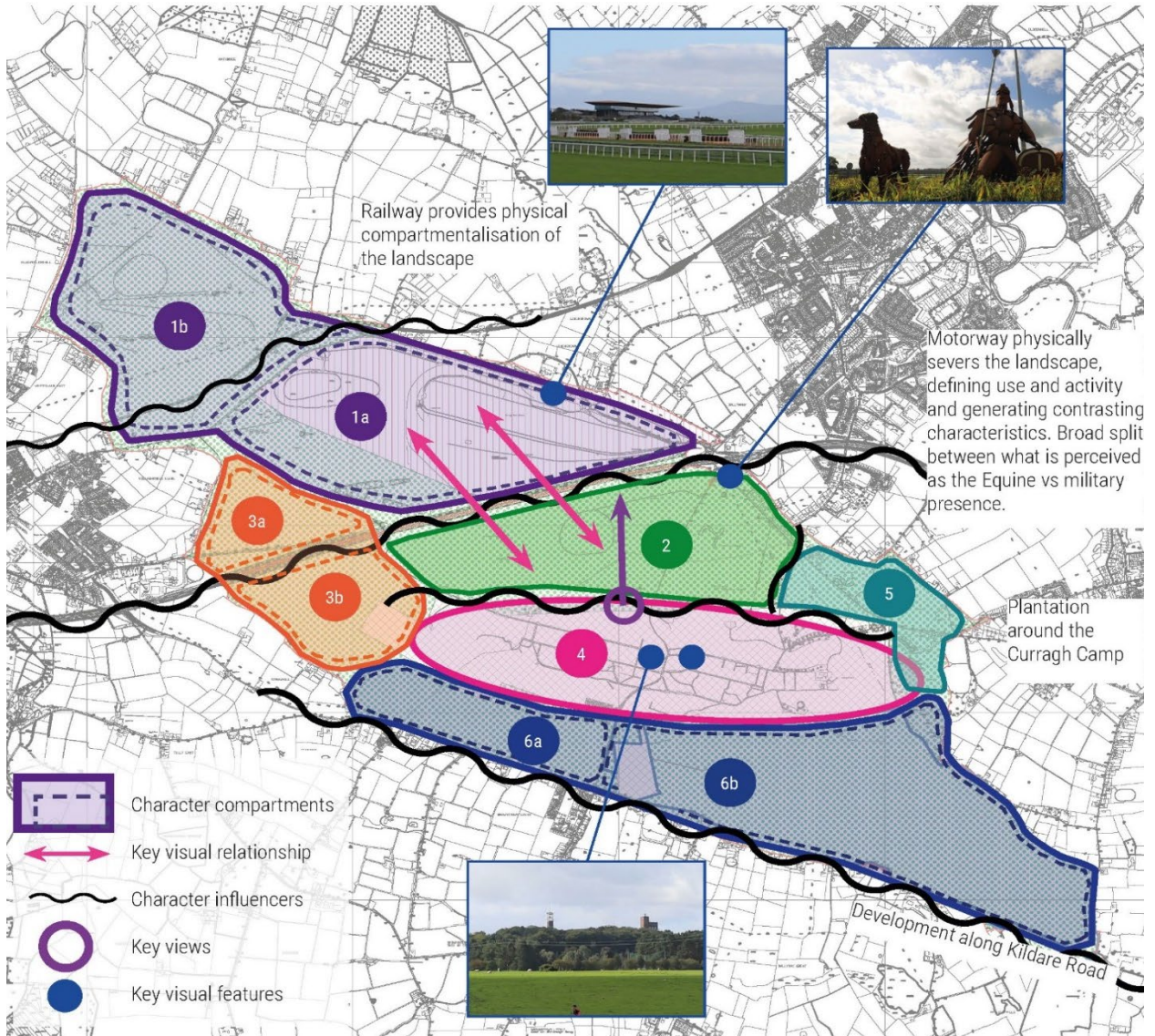
Shelter vegetation is represented at particular areas of this unit by the presence of coniferous plantations and natural vegetation. Shelter or tall vegetation has a shielding and absorbing quality in landscape terms, as it provides a natural visual barrier as well as adding to the complexity of a vista

Informed by site visits and design team workshops, the following plan breaks down The Curragh Landscape Character Area into separate character compartments based on prevailing experiential landscape and visual attributes.

Contemporary Character Compartments

3.11.5 To inform the Conservation Management Plan, this analysis seeks to identify Character Compartments that are informed by the contemporary landscape and visual conditions as they are perceived and experienced today.

Plate 19 - Contemporary Character Compartments



Character compartments

- | | |
|--|--|
| <p>1 The Curragh Racecourse
 1a - The Curragh Racecourse
 1b - The Curragh training grounds</p> <p>2 Curragh Plain</p> <p>3 Curragh Plain Fringe grazing grounds
 3a - Racecourse fringes
 3b - Curragh Camp Fringes</p> | <p>4 Curragh Camp</p> <p>5 Curragh Edge</p> <p>6 Curragh Camp Fringes
 6a - Curragh Camp Fringes
 6b - Undulating training grounds</p> |
|--|--|

The Curragh Racecourse

1a - The Curragh Racecourse

1b - The Curragh training grounds

- 3.11.6 This compartment is strongly influenced by the horse racing industry with the racecourse, gallops, training areas, fencing and regular sightings of horses and trainers contributing to a strong equine character. The compartment is separated into two identifiable areas namely the more formal racecourse (with landmark stand) and the open plain known as Fox Covert / Little Curragh, which is influenced heavily by training activities.



Curragh Plains

- 3.11.7 This compartment relates to the open, expansive plains which are defined by flat expansive topography and large skies. Defined by the plantation to the south and the motorway to the north, it has strong visual relationship with the racecourse.

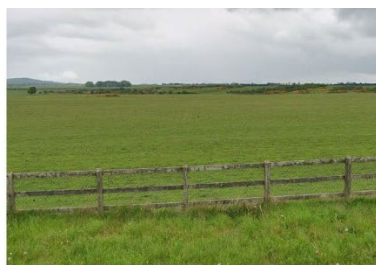


Curragh Plains fringe grazing grounds

3a - Racecourse fringes

3b - Curragh Camp Fringes

- 3.11.8 This compartment relates to an area of shared character that has a fringe character due the comparatively remote qualities. For this reason, the character is influenced more heavily by the extensive sheep grazing and varies in character by the indirect influence of the racecourse and Curragh Camp, respectively.



Curragh Camp

- 3.11.9 This compartment relates to the Curragh Camp, with the exception of the Clock Tower and the Water Tower which are visible landmarks from the wider landscape, it is strongly contained within plantation woodland. The character is defined by military activity and architecture as well as general activity in and around the barracks.



Curragh Edge

- 3.11.10 This compartment relates to a diverse nodal area between the expansive open Plains and the more intimate landscape within the western and southwestern parts of The Curragh. It hosts a number of readily discernible heritage features and is influenced by the manicured parkland fairways of the Royal Curragh Golf Club.



Curragh Camp Fringes

6a - Curragh Camp Fringes

6b - Undulating training grounds

- 3.11.11 This compartment relates to the contained lands to the south of the Curragh Camp and to the north of Kildare Road. This area hosts the main military training and firing area and has a diverse topographical character as defined by natural and fabricated elements in the landscape such as trench systems, rifle shooting butts etc. The western extents are comparatively more open and influenced by built form on the edge of the Curragh Camp, with the eastern extents being more enclosed.



4 Statement of Significance

4.1 Statement of Significance

The Curragh Plains is a dynamic, cultural landscape of international significance. The archaeological complexity of this landscape, and the dense concentration of mostly ritual archaeological deposits, are not immediately obvious, with open views across the Plains presenting a deceptive picture of an apparently uncomplicated place.

The Curragh's openness has allowed it to function as a stage for local battles and to this day, training for international conflicts. The Curragh has been at the heart of the story of Irish independence and Irish involvement in major international conflicts since the Crimean War. Today, the Curragh Plains are home to the Irish Defence Forces and provide ideal conditions for military training activities.

Much of the story of the Plains is tied with the horse. Horses permitted to train on the Curragh Plains can be seen galloping through this open landscape, which is the centre of Ireland's thoroughbred horse industry, and the Curragh Racecourse which hosts all five Irish flat-racing Classics, including the oldest, the Irish Derby.

Synonymous with the Curragh Plains are the sheep that have grazed the landscape for centuries. The persistence of this management, and the commonage system by which it is controlled, has resulted in a significant grassland area largely unimproved for agriculture, permitting the emergence of a fungal assemblage of international importance.

The only thing that has stayed constant with the Curragh has been change. Farming, the horse racing sector and national security are continually changing. Similarly, although the Plains has always been a part of the social life to those in surrounding settlements, the open spaces afforded at the Curragh have become a vital amenity for tens of thousands of people.

4.2 Assessment of Significance

4.2.1 According to Historic England's *Conservation principles, policies and guidance for sustainable management of the historic environment* 'conservation is the process of managing change to a significant place in its setting in ways that will best sustain its heritage values' (2008, p.22). Conservation strategy and management is a process by which a site's significance is maintained whilst permitting continued sustainable use.

4.2.2 The study of the physical remains alone rarely provides sufficient understanding of a site. Its significance needs to be set in the context of the social and cultural circumstances that produced the place. This is particularly true in the case of the Curragh Plains. For all Irish sites, significance should be assessed according to the following criteria set down in *Architectural heritage protection: guidelines for planning authorities* (Department of Arts, Heritage and the Gaeltacht, 2011):

- architectural interest
- historical interest
- archaeological interest
- artistic interest
- cultural interest
- scientific interest
- technical interest
- social interest

- 4.2.3 Natural heritage is an integral component of our heritage (see definition of 'heritage' in the *Heritage Act, 1995*.) As a result, the criterion of natural interest is also considered.
- 4.2.4 Ideally, all the identified heritage values of a place should be conserved. However, on occasion what is necessary to sustain one criterion will be in conflict with another. If this is the case, then understanding the relative contribution of each criterion to the overall significance of the Curragh Plains as a whole and its constituent spaces and places, will be essential to objective decision making.
- 4.2.5 There is no pre-existing plan of comparative scale that has analysed the heritage of the Curragh Plains. Similarly, no Conservation Management Plan has been found that dealt with a place within the site boundary to any significant degree beyond Task Force report of 2000. The only previous assessments uncovered were those for the 12 buildings located within the study area listed in the National Inventory of Architectural Heritage. All are contained within Curragh Camp. All 12 buildings are rated as being of 'regional' importance.
- 4.2.6 The following is an analysis of the relevance of the architectural, historical, archaeological, artistic, cultural, scientific, technical, social, and natural criteria to the significance of the Curragh Plains.

Architectural Interest

- 4.2.7 The collection of 19th and early 20th century buildings associated with the Curragh Camp individually are of regional importance. However, when considered together they are amongst the finest collection of 19th and early 20th century military buildings on the island of Ireland. The second purpose-built post office in Ireland was built at the Curragh Camp.
- 4.2.8 World War II defences on the Curragh, although of simple concrete construction, are likely to be the finest collection of World War II era defences in the State.
- 4.2.9 The new grandstand at Curragh Racecourse is of national significance. Designed by London based firm Grimshaw working with Dublin architects Newenham Mulligan & Associates, the grandstand was designed to reference the Irish vernacular and agricultural heritage of County Kildare (Wilson, 2019). The development was honoured at the Structural Steel Design Awards 2020 and was Highly Commended at the 2020 Irish Landscape Institute Awards. The citation from the Structural Steel Design Awards reads: 'there is a sense of exquisite quality at every scale, a rare combination of grace and grandiose, a place where structural artistry meets architectural vision' (n/a, 2020, p.8).

Historical Interest

- 4.2.10 The Curragh Plains is a place of immense historical importance. Although there are stories of the Iron Age warriors the Fianna training on the Plains, the first permanent camp was built to satisfy the British Army's needs of trained soldiers for the Crimean War. The site acts as a conduit for connecting Ireland with globally important events such as the Crimean War and World War I. It was also at the heart of the story of Irish Independence. It is the location of the Curragh Mutiny when in March 1914, 57 officers chose resignation instead of carrying-out possible orders to force Home Rule on Ulster (Ferriter, 2014). It was from the Curragh Plains that soldiers assembled to fight rebel forces in Dublin during the 1916 Easter Rising. In 1922, the British Army's main base in Ireland was then handed over to the army of the Irish Free State. During World War II, the Curragh was the main internment site for both captured Allied and Axis military personnel. The Curragh Camp is now the main training site of the Irish Defence Forces.
- 4.2.11 Looking back before the establishment of a permanent camp, the Plains have deep associations with St Brigid and the royal site at Dún Ailinne. We know that Henry II camped here, and the Jacobite army trained on the Plains during the Williamite Wars. Battles that are known to have taken place on the Plains include the 1234 Battle of the Curragh and 1798 Gibbet Rath Massacre.

Archaeological Interest

- 4.2.12 The prominent feature of the Plains is a long ridge upon which was located a probable cursus monument. Cursus are the oldest early Neolithic monumental structures in Britain and Ireland built before 3,000 BC. The presence of 135 barrows, which are funerary monuments dating to the Bronze Age / Iron Age, makes it the highest concentration of barrows in Ireland. This area is under-researched and with new techniques may yield more ritual funerary sites.
- 4.2.13 The Race of the Black Pig cuts through the landscape and may be an ancient marked out route through the grassland. The Curragh and its associations with nearby Dún Ailinne show parallels with the royal sites at Navan and Tara.
- 4.2.14 The horse and its association with so much of the Irish Iron Age through developments of horse trappings and warfare is epitomised in the heritage of racing associated with the Plains.
- 4.2.15 The best surviving and most visible lines of World War I trenches in Ireland are located on the Curragh.

Artistic Interest

- 4.2.16 There are at least two paintings of high artistic merit associated with the site. These are: *Colonel Westenra's 'Frenzy' with Jockey and Attendants on The Curragh, Co Kildare* by William Brocas, described as being amongst the finest examples of early 19th century Irish equestrian art (Parsons, 2013). *Gipsy Encampment on the Curragh* by Joseph Malachy Kavanagh is held by the Ulster Museum. The site continues to be an inspiration for contemporary artists.
- 4.2.17 In the middle of the roundabout connecting the M7 with Curragh Camp is a piece of impressive sculpture that provides a sense of arrival to the site. Titled *Fionn MacCumhaill and his Hounds*, it was created by Lynn Kirkham-Greenmantle for Kildare County Council.
- 4.2.18 The new grandstand at the racecourse was designed to reflect and complement the landscape. There are also several equine focused sculptures either on or immediately adjacent to the racecourse.

Cultural Interest

- 4.2.19 Widely regarded as Scotland's national poet, Robert Burns wrote the ballad *The Curragh of Kildare*. It tells the story of a young Scottish woman whose lover is soldiering in the Curragh. Versions of the song have been sung by The Johnstons, Christy Moore, The Fureys and Bert Jansch. It is the unofficial anthem of the county. *The Plains of Kildare* by Andy Irvine is another song associated with the site. This time the focus is on horseracing.
- 4.2.20 In the Academy Award winning movie *Braveheart*, the Battle of Stirling Bridge sequence was filmed on the Curragh. The film was directed by and starred Mel Gibson. Roughly 1,600 members of the Defence Forces were hired to act as extras for the battle. Released in 2020, the comedy-drama *Dating Amber*, starring Sharon Horgan, features the Curragh in several scenes. Another lesser-known film associated with the Curragh is *The Brylcream Boys*, starring Gabriel Byrne. Although not filmed on the Curragh, the film told the story of the World War II internment camp located on the site.
- 4.2.21 In November 2020, a poem by Steven O'Brien titled *Mist on the Curragh* was published in the New Statesman. The site continues to inspire contemporary poets.
- 4.2.22 The Curragh Museum holds one of the finest collections of historic military objects in Ireland. Of particular importance is the Sliabh na mBan armoured Rolls Royce car. The car was part of General Michael Collins' convoy which was ambushed during the Civil War in 1922. It was during the ambush that General Collins was killed.

Scientific Interest

- 4.2.23 The Curragh Racecourse is Ireland's premier racecourse, home to 5 Irish classics. The surrounding Plains are used by stud farms for training. There are also several farms surrounding the Plains that provide innovative products and services for use by the horse racing industry. These include the nutritional feed supplements aimed at performance horses.

Technical Interest

- 4.2.24 The copper clad roof of the new grandstand at Curragh Racecourse is of technical interest. The grandstand was honoured at the 2020 Structural Steel Design Awards. According to the award citation, ‘the dramatic 7,200m² cantilever roof design was key to creating the architectural vision of a “planar building in a planar landscape” (n/a, 2020, p.8). During the construction of the new grandstand, the main contractor John Sisk & Son implemented an innovative construction process of Digital Project Delivery. The process won the Building Information Modelling Excellence category at the 2019 Irish Construction Industry Awards.
- 4.2.25 During construction of the M7 Kildare Town by-pass, engineers used an impermeable liner (i.e., tanking) along a 3.5km section of the motorway. This was done to protect the aquifer feeding nearby Pollardstown Fen (Hogan, 2003). This was the first time tanking had been used for road construction in Ireland.
- 4.2.26 The now disused Racecourse train station is of local importance.

Social Interest

- 4.2.27 Since the mid-19th century, the Curragh Camp has been at the heart of social life on the Plains. It is worth noting that there was once c.4,000 permanent residents at the Camp (Costello, 1998), and up to 12,000 soldiers (Bunbury, n/d). During the 19th century, there are mentions of hawkers selling items such as almanacs, song books, holy pictures, jewellery, and pornography. Locals also sold fruit, vegetables, and meat to the soldiers. The major military exercises carried out on the Plains became important social events for a wide area. This tradition of open demonstrations and parades continues today.
- 4.2.28 The Curragh Wrens were a community of women who lived in extremely harsh conditions on the Plains outside of the camp. Many sought a meagre income through prostitution. Some historians believe that Nellie Clifden (Bunbury, n/d) who drew fame after an affair with Prince Edward, later to become King Edward VII, was one of their ranks. The plight of these women has only recently been highlighted through research and their story is an important part of the Curragh’s social history.
- 4.2.29 Over time, the Camp grew into becoming a large town complete with churches, a hospital, libraries, cinema, recreation centres, schools, a swimming pool, shops, and bakeries. One of its amenities is the Royal Curragh Golf course, believed to be Ireland’s oldest golf course and golf club.
- 4.2.30 The Plains still have strong social importance for locals as an amenity site. It is very popular with walkers and runners. In addition to the Royal Curragh Golf course, other sporting facilities located on the Plains include the Cill Dara Golf Club, McDonagh Pitch and Putt Club, Athgarvan Pitch and Pitt Club, Athgarvan GAA and Curragh Rugby Football Pitch.
- 4.2.31 The site of Donnelly’s Hollow is a natural amphitheatre well known as the location of a fight in 1815 between Irishman Dan Donnelly and Englishman George Cooper.
- 4.2.32 The Curragh Racecourse is Ireland’s premium racecourse and is of international significance. Notable races include the 1,000 Guineas, 2,000 Guineas, Irish Derby, Irish Oaks and Irish St. Leger. Some jockeys associated with the course include Johnny Murtagh, Mick Kinane and Pat Smullen. Notable trainers associated with the racecourse include A.P. O’Brien and J.S. Bolger. In 1983, the champion horse Shergar was the subject of a high profile and infamous kidnapping just off the Curragh, at Ballymany Stud.
- 4.2.33 Finally, the Curragh formed part of the route for the 1903 Gordon Bennett Cup. It was the first international motor race to be held in Ireland and the first to be held over a closed figure of 8 circuit. The Curragh was subsequently home to motor races in the 1950s and 1960s.

Natural Interest

- 4.2.34 Unimproved semi-natural grassland and heath vegetation along with the small, probably temporary, nutrient-poor pools in heathland in the Little Curragh are the habitats of high biodiversity importance in the Curragh. These are the product of a considerably long history of continuous low-input grazing management.
- 4.2.35 It is remarkable that such a large area of lowland habitat has not been enclosed and comprehensively improved for agriculture. Had this been the case, the Curragh habitats would have been practically indistinguishable from the surrounding farmland.
- 4.2.36 The diversity and abundance of the groups of fungi that rely on a long history of continuous low-input grazing and particularly no tillage, have not been as impacted by overgrazing. Accordingly, the Curragh is of international importance for its fungal assemblage.

5 Threats and opportunities

5.1 Current threats

5.1.1 The integrity of the Curragh is under threat from a number of sources:

- Excessive or uncontrolled use by horses
- Impact of sheep grazing on grassland
- Degradation or physical disturbance of soil
- Potential importation of topsoil
- Damage to archaeological sites
- Land drainage
- Building, encroachment, and the subdivision of land
- Lack of full ecological survey or designation

5.2 Current and future pressures on biodiversity

5.2.1 The pressures upon biodiversity in the Curragh have previously been catalogued, particularly in the late 1990s.

5.2.2 In 1998 a joint Environmental Policy Board, including the Department of Defence and the Defence Forces published their report *Environmental Policy for the Curragh Lands* which provided a thorough review of the impacts of different user groups upon the Curragh Plains, covering:

- Military
- Sheep
- Horses
- Recreation
- Other authorised users (civil defence, transport, utilities)
- Unauthorised users (litter, scrambling, camping/caravanning)

5.2.3 In 1999 Con Costello compiled the Irish Wildlife Manual no. 6 also drawing on work by Anne Behan. This explored impacts in detail under 4 headings:

- Equestrian and Bloodstock Industries.
- Agricultural Activities.
- Military Activities.
- Other Users (covering recreational use and new development).

5.2.4 Observed damaging operations were reported in the NHA surveys by the Wildlife Ranger. From the NHA site Synopsis:

- Land use at the Curragh consists of sheep grazing on the open Plain's commonage. Supplementary feeding and driving of vehicles on the open grasslands is associated with this activity.
- Horse exercising and training is carried out on the many gallops within the site as well as on the open grasslands. The presence of gallops results in a continuous concentration of fertiliser to the Plains. During the wet weather the ground is severely cut up or 'poached' by hooves. There is also the associated development of roads and tracks close to the gallops leading to fragmentation and loss of plains.
- There is a military range at the south-east of the site where target practice is regularly carried out. Military manoeuvres are carried out on Rabbit Hill, and this has also resulted in damage.
- There has been planting of coniferous and non-native deciduous species along many of the roads of the Curragh and there are occasional afforested patches on the open Plains. Other activities include walking, running and general family outings.

- 5.2.5 One strand of the Curragh Plains Conservation Management Plan sets out to protect the biodiversity value of the area and so provides another opportunity to inventory the on-going pressures upon the natural environment.
- 5.2.6 Given the core interest of the Curragh is its open habitat (unimproved grassland and grassland heath mosaic) the fungal diversity attributed to them, and their use by large numbers of wintering Golden Plover; then the key threats are those that:
- Result in loss of the grassland/heathland habitats.
 - Cause a long-term decline in the ecological value (biodiversity value) of the grassland/heathland habitats, degradation of the condition of the fungal flora.
 - Result in significant disturbance of overwintering Golden Plover.
- 5.2.7 Indicators and metrics used in relation to biodiversity damage are included at *Appendix D*. The following list of potential threats have been compiled specifically for the Curragh and are presented in no particular order:

5.3 Piecemeal losses to local developments

- 5.3.1 New public facilities such as informal car parks, surfaced footpaths, and lay-bys.
- 5.3.2 These individually small encroachments are regarded with increasing concern by advocates of the conservation of the Curragh's prime habitat.

5.4 Disturbance of Soil

- 5.4.1 Where there has been direct physical disturbance of soils it is usually an obvious impact that can be alarming to any observers that care about the biodiversity of the Curragh.
- 5.4.2 Although unsightly, superficial disturbance will recover habitat condition relatively quickly, and as long as it is not associated with other potentially damaging operations, it may be beneficial in some locations to expose calcium-rich, nutrient-poor subsoils.
- 5.4.3 Soil disturbance was not deemed a high risk by Maria Long, the NPWS Grassland Ecologist.
- 5.4.4 However, deep rutting and persistent soil disturbance may lead to more permanent damage if soil structure and hydrology is profoundly altered and subterranean fungal mycorrhizal networks more completely damaged. It is generally considered damaging unless specifically part of a positive biodiversity management operation.
- 5.4.5 Soil disturbance is also of concern in relation to shallow archaeological deposits across the Curragh, both in known locations and the many undocumented sites.

5.5 Potential Agricultural Improvement

- 5.5.1 When ecologists or nature conservationists refer to 'improved grassland', it is not an accolade.
- 5.5.2 The Heritage Council's habitat classification includes GA Improved grasslands. GA1 Improved Agricultural Grassland is defined as '...intensively managed or highly modified agricultural grassland that has been reseeded and/or regularly fertilised and is now heavily grazed and/or used for silage making. Improved agricultural grassland is typically species-poor. Ryegrasses (*Lolium* spp.) are usually abundant and may entirely dominate the sward, often in association with White Clover (*Trifolium repens*).
- 5.5.3 This is a habitat that is ubiquitous in lowland Irish farmland. Whilst it is more agriculturally productive than semi-natural grasslands such as the GS3 at the Curragh, it is normally considered ecologically bereft, unless perhaps it is being grazed by important numbers of over-wintering wildfowl.

- 5.5.4 Clearly there are many potential threats to the Curragh. No list would be exhaustive, but the most profound of these is that of agricultural intensification, in particular tillage, application of fertilisers, and reseeded with agricultural grasses. This would elicit comprehensive conversion of rare, lowland GS3 semi-natural acid grassland and HH1 and HH2 heath communities, to GA1 Improved grassland and could only be reversed in a timescale measurable in human generations.
- 5.5.5 Much of the discussion around the reading of the Curragh of Kildare Bill, 1961 (www.oireachtas.ie/debate/seanad/1961-08-04) focussed on finding mechanisms to deliver agricultural improvement in the Curragh grazing lands. Some of the speakers conveyed a sense of national embarrassment that the Curragh was not already agriculturally improved (and by extension ruined as an ecological resource).
- 5.5.6 Times have certainly changed, and the endurance of the ecologically valuable habitats at the Curragh is now more likely to be seen as a matter of national pride. However, environmental conditions do not preclude agricultural improvement of the Curragh Plains, and the Curragh Acts do not specifically protect the grasslands from agricultural improvement. Whilst there seems to have been little agricultural improvement outside the Irish Horseracing Regulatory Board leasehold enclosure, the Irish Semi-natural Grassland Survey account records harrowing in the Little Curragh site and agricultural improvement remains a present and major threat throughout the Curragh Plains.

5.6 Current management practices

Horses

- 5.6.1 A small percentage of the thoroughbred racehorses for which County Kildare is renowned are kept by farmers as a minor enterprise, but the majority are kept on large stud farms for which the production and training of racehorses is the dominant enterprise. Most of these are found in the centre of the County and particularly around the Curragh.
- 5.6.2 Access to the Curragh for exercising is enshrined in the Curragh legislation, but increasing numbers of horses has ramped up the pressures upon the Curragh's soils and grassland habitats in recent years.

Year	Number of horses
1866	170
1961	650
1971	1,000
1981	1,100
1998	1,200
2008	c.1,400-1,500
2021	c.900
2024	c.1000

(Sources: Costello, 1999 & interviewee)

- 5.6.3 The Irish Horseracing Regulatory Board enclosure is beyond the remit of current Curragh Plains Conservation Management Plan. Although it is included in the NHA designation, the 3 racetracks in the enclosure are heavily fertilised and frequently mown (Dromey NPWS internal memo) and there seems to be a consensus that the nature conservation value of the enclosed grasslands has already been lost to agricultural improvement although raised heathy ridges remain in good condition.
- 5.6.4 Beyond the enclosure around 250 ha of the Curragh has been officially made available by the Department of Defence for the training of horses. This is in various locations.

- 5.6.5 As horses move, they create a sequence of downward and backward forces on the soil that can result in peak loads that may approach 2.5 times the horse's body weight (Peterson et. al 2012). This results in soil damage by plastic deformation and by dislodgement which scatter and damage the root horizon. This increases as movement speed increases and horse gait changes which is exacerbated if the soil is wet.
- 5.6.6 The all-weather gallops are maintained using gallop litter, but soil damage is caused by strings of racehorses crossing the grasslands to access the gallops.
- 5.6.7 These gallops require maintenance such as watering and maintenance of vehicle access, as it is another cause of soil damage.
- 5.6.8 Storage and disposal of gallop litter was identified as a problem in the Task Force report of 1999. Burning of old woodchip was reported during the NHA survey. More recently there are reports of plastic substrates being utilised.
- 5.6.9 Unapproved creation of surfaced roadways alongside gallops has been undertaken in the past.
- 5.6.10 Direct physical damage of the soil at the grass gallops (also known as natural turf gallops) is inevitable so these are rotated throughout the year to provide fresh ground throughout the season. The level of soil damage is related to the intensity of use and the soil wetness.
- 5.6.11 The use of desire line bridleways to access gallops represents a level of soil damage that is not easy to write off as trivial, and repair could entail the employment of other damaging operations such as fertilisation, import of fertile soil and sowing of fast-growing cultivated varieties of wear-resistant grasses not compatible with the precious GS3 swards.
- 5.6.12 Although the use of the Curragh by other equestrian users is not permitted, the impacts of private horse riders unaware or unheeding of the restriction can be added to the impacts of the exercising of racehorses.
- 5.6.13 The scale of the impact is evident from satellite imagery.

Plate 20 - This is from NPWS map viewer ITM Digital Globe coverage



5.6.14 The railway underpass in the south of the image focussing desire line gallops which then radiate out over the Little Curragh east of the Cill Dara golf course.

Sheep

5.6.15 Sheep are the only grazing livestock allowed on the Curragh. Currently the limit to grazing is expressed in terms of specific numbers of sheep (headage) allocated to the grazing rights holders. There are no limits placed upon the timing of grazing. Thus, any grazier who owns or uses rights can keep their livestock out all year round. Evidence of the sward condition is that this constant year-round grazing pressure represents 'over-grazing' and loss of the semi-natural sward condition, particularly expressed by poor-representation of grassland herbs. In the winter when the grasslands are barely growing, the Plains become essentially a sheep holding pen, and supplementary feeding is required.

Is the Curragh currently over-grazed by Sheep?

5.6.16 For the purposes of clarity, 'overgrazing' does not refer to exceedance of the number of sheep allowable under the Curragh Act but is rather to the perceived impact of grazing upon the grazed habitat.

5.6.17 There was some debate within the NPWS when contemplating SAC status for the Curragh as to whether the Curragh grasslands have a naturally species-poor flora or whether they are overgrazed.

5.6.18 Maurice Massey and Derek Wells presented general recommended grazing levels for lowland pastures (NCC 1986) conveniently framed in terms of sheep (and cows) per hectare that were used to define potentially damaging levels of grazing on SSSIs in England, Scotland and Wales.

5.6.19 They include recommendations on various grassland habitats, including unfertilised acid grassland:

Grazing weeks per year on unfertilized lowland acid grassland	Number of Sheep per ha
2	40
4	20
6	12
8	10
10	8
12	8
14	6
16	6
20	4
24	4
36	2
52	2

5.6.20 A rough estimate of the acid grassland area currently available to sheep in the green and blue lands of the Curragh, (i.e.: minus the Royal Curragh Golf Course, the dense furze areas, Athgarvan Pitch & Putt, the Irish Horseracing Regulatory Board enclosure and M7 motorway etc.) is around 1,330 ha.

5.6.21 With reference to the recommendations the maximum number of sheep year-round should be around 1660, compared to the currently permitted number of nearly 6,000.

- 5.6.22 General recommendations by the agricultural and environmental consultancy ADAS are more stringent, but assume that the acidic grass is more upland in nature:
- 'Grazing regimes should be site specific but would normally be based on low levels of sheep production at a maximum of 3 to 4 ewes per ha for up to 10 months of the year. These pastures would not support winter grazing, and provision of supplements should be avoided as they would lead to nutrient enhancement'.*
- 5.6.23 These figures serve only as a rough guide to the appropriate sheep stocking density at the Curragh, but the profound difference lends weight to the occasionally expressed opinion that the grazing pressure is currently too high.
- 5.6.24 Sheep, from year one until tooth loss commences, are capable of grazing grassland down to ground level. Highly overgrazed systems would include a prevalence of very short grass, loss of leaf litter, and bare soil patches attributable to mechanical pressure as well as to grazing. In GS3 Dry-humid acid grassland this would be expected to elicit a shift towards highly dominant Mat-grass (*Nardus stricta*), one of the mechanisms for a stubborn loss of species-richness.
- 5.6.25 Other indicators of over-grazing, viz a viz the extent of bare soil, the cover of grass litter and the median sward height are available from the Irish Semi-natural Grasslands Survey (ISSG). This data is not current, but grazing has remained relatively unchanged since the surveys.
- 5.6.26 With almost no bare soil (recorded samples, taken away from worn tracks), with leaf litter usually present, and grass heights often > 10 cm, this does not have the appearance of a grassland that is grazed by three times the optimum numbers of sheep.
- 5.6.27 A number of sheep on the Curragh are supported in part by supplementary feeding, particularly in winter.
- 5.6.28 Supplementary feeding (of any livestock) can lead to local increase in nutrient inputs due to focussing the dunging, plus decomposition of any spilt and trampled feedstuff.
- 5.6.29 This combined with the exposure of bare soil caused by trampling around mainly hay and silage racks, may cause local recruitment of nutrient-demanding weed species (possibly from seeds imported with hay), although there is no evidence from the grassland quadrats that have been collected for the desk study that this is actually happening.
- 5.6.30 Sheep feeding in the winter requires vehicle access to the feeding locations. When the ground is soft deep wheel ruts are unsightly and may break up sub-surface fungi mycorrhizal fungal mats
- 5.6.31 In 1999 the Task Force observed that 'There is no provision in any of the Acts for feeding sheep on the Curragh (the rights held are a right to graze only) and the practice presents a threat to existing flora by way of nutrients and alien seeds and should be stopped'.
- 5.6.32 There is nothing specific in the Curragh Acts to prohibit supplementary feeding other than the absence of a clause allowing it. The Department of Defence has been criticised for taking little or no action to curb the activity. In fact, they make it very clear in an information note sent to graziers that 'The exercise of sheep rights is confined to grazing only and supplementary feeding on the Curragh lands is forbidden'.
- 5.6.33 Year-round heavy grazing limits the production of late-summer seeds in the herb component of the GS3 semi-natural acid grassland and HH1 and HH2 heath communities leading to a reduction in overall herb cover and in species-richness.

Military use

- 5.6.34 Direct physical disturbance of soils is the main impact of the military use. The level of the impact depends upon the scale and regularity of the damage.
- 5.6.35 Occasional fires that may be caused by artillery is not a high-level biodiversity impact.

5.7 Visitors/recreation

Scrambling (bikes/quads)

5.7.1 Potential disturbance of soils and of sensitive wildlife, as well as of livestock and of other users of the Curragh.

Parking

5.7.2 At locations popular with visitors, such as around Donnelley's Hollow, opposite Saint Brigid's Hospice, and the partially gravelled area off the Curragh Chase, frequent vehicle overrun damages the sward and results in soil compaction. Use is also likely to result in minor levels of contamination as a result of oil drips, screen wash and de-icer.

Dumping

5.7.3 Generally dumping on a small scale is a minor ecological impact, unless it is:

- Of inappropriate soil.
- Of soil or rubble that causes long-term obliteration of the grassland at the recipient site.
- Includes high levels of nutrient or other harmful leachates that will wash out into the adjacent grassland.
- Includes non-native invasive species (legally prohibited or not) which would become established and persist in the local area.

5.7.4 Regardless of the ecological impact it has a high visual impact and detracts from the idea that the Curragh grassland is a valued habitat that is the subject of a high level of care. It is an issue that was frequently identified as a problem in the public consultation phase.

5.7.5 The *Protect the Curragh Plains Community* Facebook page includes numerous photographs that attest to dumping being a problem on the Curragh Plains.

Disturbance of wintering birds

5.7.6 Overwintering Plover will accommodate sheep, and to some extent, exercising horses and pedestrians (from a distance) but the Curragh is an obvious venue for dog walkers, and dogs off leads cause a high level of disturbance to wintering birds.

5.7.7 The existing shrubs and rare patches of trees provide cover for predators of birds notably foxes. A higher risk of predation would result from increased scrub cover or the planting of new tree cover. This applies equally to ground nesting birds.

Disturbance of ground nesting birds

5.7.8 Ground nesting birds are vulnerable to disturbance to predation of chick, and to inadvertent destruction of nests and eggs in the breeding season.

Unauthorised encampments

5.7.9 The ecological impacts of temporary unauthorised encampments are not a prime consideration. However, impacts increase over the duration of stays. The shading of grassland by caravans and vehicles, the disposal of wastewater e.g. containing detergents can have impacts upon soil fauna and eventually flora.

5.7.10 Whilst the impacts of unauthorised encampments are not a major biodiversity issue, it is none the less a controversial issue that was highlighted in the consultation stage where residual litter, and fire setting was cited as a problem in the public consultation stage.

Golf Courses

- 5.7.11 Sheep are not welcome on manicured putting greens. The erection of an electric fence around the Royal Curragh Golf Course has seen sheep excluded from that area.
- 5.7.12 There is potential for impacts arising from the use of fertilisers, imported soil, inappropriate grass seeds, planting of trees or shrubs.

Traffic

- 5.7.13 The speed and volume of traffic was identified as a significant concern at the public consultation stage. Generally, this is not a biodiversity issue unless new roads are proposed.

5.8 Status of scrub

- 5.8.1 John Cross (Cross, 2006) predicts that without human intervention the climax community in the local area around the Curragh would be Unit 5: Pedunculate oak-ash forests with Hazel (*Corylus avellana*), Enchanter's-nightshade (*Circaea lutetiana*), False Brome (*Brachypodium sylvaticum*) and Wood Speedwell (*Veronica montana*) – probably the case in the less leached parts of the Curragh Plains. The acidic grassland would possibly be succeeded eventually by one of the more acidophilous woodlands, such as Unit 4. Sessile Oak (*Quercus petraea*) with Bluebell (*Hyacinthoides non-scripta*).
- 5.8.2 The matrix GS3 grassland (Common Bent and Mat-grass dominated on level ground) is likely to be a 'plagioclimax' community that would be initially quite resistant to succession, less-so sloping ground where succession particularly to gorse (*Ulex europaeus*) scrub is more likely to be problematical in the short term.
- 5.8.3 Although reversible, the development of dense scrub represents a loss of the core habitats of interest (open grassland and grassland/heath mosaics).
- 5.8.4 Wintering and ground nesting birds favour locations with a long view in all directions. The development of scrub interrupts these long views and provide cover and refuge for potential predators.

5.9 Trees and plantations

- 5.9.1 Outside the Brown Lands the establishment of trees in the Curragh has been limited. There are existing mature plantations at Map 8 tn 10 (Rathbridge Fox Covert) tn 13, Coniferous forestry and tn 21, more conifers.
- 5.9.2 Plantation of trees and especially dense conifers is not compatible with the conservation of the Curragh's special biodiversity character. Whereas planting trees in many sites may be seen as a biodiversity gain, here it is not, so is considered as a threat with potentially very damaging consequences, but there is little to indicate that there is a high risk of further plantation.

5.10 Groundwater quality and abstraction

- 5.10.1 The quality and quantity of water in the Curragh aquifer is of importance more for sites off the Curragh Plains, most notably Pollardstown Fen Special Area of Conservation.
- 5.10.2 The upgrade of sewage treatment at the Curragh Camp following the recommendations of the Inter-Departmental Task Force report of 1999 was a major contribution to protecting the aquifer.
- 5.10.3 Any further septic non-mains septic waste provision, such as septic tanks with drainage fields, the application of fertilisers, the application of pesticides, risks impact upon the aquifer quality.

- 5.10.4 The Kildare bypass controversially was cut into the aquifer, initially with plans to pump water away, thus cause a cone of depression in the aquifer. Following a protracted negotiation between planners the NRA and the NPWS it was agreed to line the road cutting as an alternative.
- 5.10.5 No pending plans that would deplete the water volume have been identified, but it remains a potential pathway to serious ecological degradation at Pollardstown Fen in particular.

5.11 Invasive non-native plant species

- 5.11.1 Not currently identified as damaging on the Curragh, but several plant species if they were to become established and allowed to develop unhindered, could detract seriously from biodiversity value, and even scarce occurrence have a major impact upon the 'naturalness' of the Curragh habitats – this a condition prized by nature conservationists.
- 5.11.2 Species which could be particularly damaging because the environmental conditions at the Curragh would suit them, include Salmonberry (*Rubus spectabilis*); Giant-rhubarb (*Gunnera tinctoria*); Montbretia (*Crocasmia x crocosmiiflora*); Prickly heath (*Gaultheria mucronata*); Himalayan Knotweed (*Koenigia polystachya*); Pirri-pirri-bur (*Acaena novae-zelandiae*)

5.12 Climate change

- 5.12.1 In the EU handbook on the management of species-rich *Nardus* grasslands Galvnek & Jank (2008) propose that as long as the soil nutrient level is kept low, these grassland habitats should be relatively robust in the face of climate change.
- 5.12.2 None of the species that would be represented in good condition Curragh Grassland are indicated in the synecological tables presented by PLANATT as being close to their southern limit in the British Isles.
- 5.12.3 The sensitivity may be to more than an increase in mean temperatures, for example a greater frequency of extreme rain events or changes in the rainfall pattern across the year could have impacts.

Summary of current and future pressures on biodiversity

Identity of high value habitats:

- 5.12.4 The significant habitats at risk on site are the unimproved, semi-natural acid grassland throughout, and the heath vegetation, along with small, probably temporary, nutrient-poor pools in heathland that co-occur in mosaic with the acid grassland, especially in the Little Curragh.
- 5.12.5 Significant habitats off-site are those habitats that rely upon an adequate supply of calcium-rich, nutrient-poor water from the Curragh gravel aquifer. Chief amongst such sites is the stringently protected Pollardstown Fen to the north.

Understanding of pressures/threat:

- 5.12.6 Whilst the pressures on the Curragh Plains are many and varied, they do not all threaten the biodiversity/nature conservation value to the same extent.
- 5.12.7 It will be helpful in compiling a biodiversity management plan to gain an understanding of the hierarchy of threats to biodiversity, key is firstly to identify the most significant threats, and secondly to understand the pressure and actual damage already attributable to these threats.

Extent of high value habitats:

- 5.12.8 The most profound threat has been identified as that of agricultural improvement – the replacement of the unimproved semi-natural grassland and heath vegetation with agricultural grasslands of low ecological interest. This has the potential for immediate habitat loss that would be practically irreversible in a human timescale.
- 5.12.9 There are no environmental constraints to the wholesale conversion to ecologically dull ‘improved’ farmland that could not be overcome, and the survival of the majority of the habitats of the Curragh Plains Green and Blue Zones in near semi-natural condition is as much due to a fortuitous combination of circumstances as it is to planning and regulation.
- 5.12.10 Ad hoc depreciation can be caused by developments that convert area to different land-uses – historically the most significant of which was the establishment of the Curragh Camp, more recently the railways, roads, formal gallops etc.
- 5.12.11 Natural succession, particularly to gorse scrub is a widespread threat, albeit slow and probably reversible.

Condition of high value habitats.

- 5.12.12 Beyond the limited provisions of the Curragh Act there appear to be no controls upon or regulation of the management of the Curragh. The Department of Defence as land-managers are doing much admirable work with limited resources but can only be piecemeal and reactionary in the absence of adequate resourcing and evidenced based practices.
- 5.12.13 The grassland and heath habitat condition is impacted by on-going grazing and soil disturbance caused by vehicles, desire line tracks and by small scale nutrient enrichment e.g. due to livestock congregating at winter feeding sites.
- 5.12.14 The chief threats to wetlands that rely on quantity and quality of water supplied by the Curragh aquifer are additional water abstraction or other losses reducing the rate of supply, and harmful inputs into the aquifer itself reducing water quality.

5.13 Threats to significance

- 5.13.1 The following is an analysis of the threats to the significance of the Curragh Plains. Although to varying degrees many of the issues with the Curragh described by Costello remain (1999), two key threats have emerged that were either not addressed or achieve little attention in the 1999 report, i.e. climate change and considerably increased recreational use.

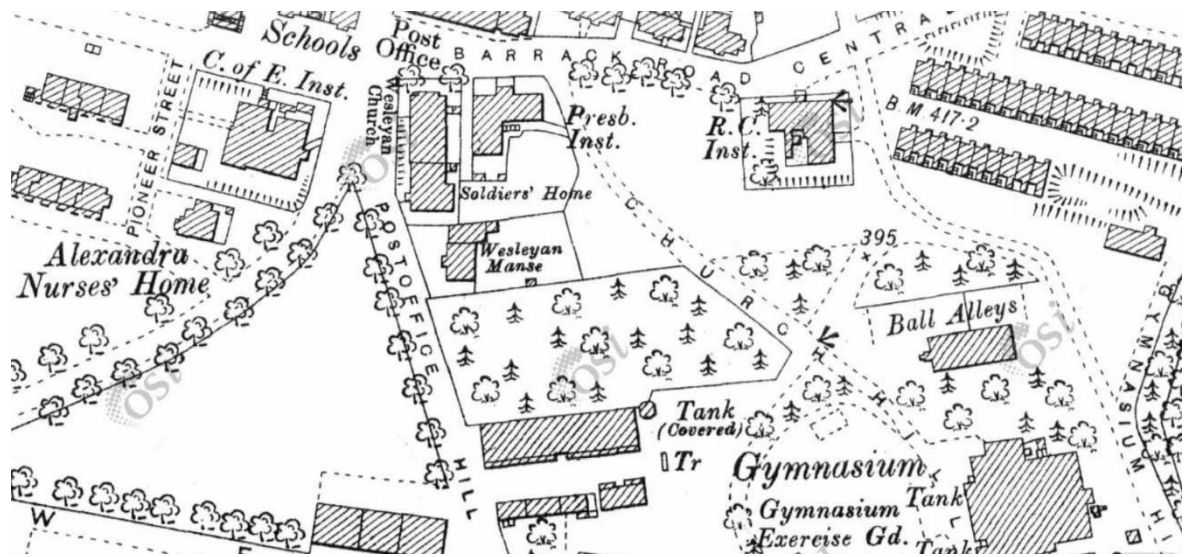
Inadequate data

- 5.13.2 Throughout the creation of this report the inadequate nature of data has frustrated attempts to create an insightful set of policies and actions which will protect the Plains while permitting the core needs of the main stakeholders to be satisfied. For instance, it is known that the landscape is denuded and low in biodiversity. However, there is uncertainty why this is so. The number of sheep on the Plains has almost halved since the 1960s but the breeds today are heavier than earlier stock. Although an 1870 Act of Parliament authorised almost 8,000 sheep to be on the Plains, the ecological appropriateness of this is simply not known. Essentially, the landscape’s long-term carrying capacity of the Curragh Plains for grazing is unknown. The situation is complicated by the presence of c.900 horses and the hundreds of thousands of visits each year by recreational users. Much of the existing key ecological surveys of the Curragh are at least 20 years old and require updating.
- 5.13.3 What impact of the training of c.900 horses has had on the Plains is not comprehensively understood. The erection of fencing, planting of non-native grass seed, drainage works, and the construction of all-weather gallops and hardcore tracks associated with horse training have caused obvious impacts onto the landscape. However, no study has been undertaken to understand the overall impact of the horse racing sector on the Curragh. Horse racing is a core aspect of the Curragh’s heritage value. Both horses and horse racing are synonymous with the Plains. The

Curragh would simply be a much-reduced place without the sight of horses being trained and raced on the site. Nonetheless, the manner of how a vibrant horse racing sector can be maintained and encouraged that works with other aspects of the site's heritage is unknown. Further research is required to permit a comprehensive strategy that would permit recommendations beyond relatively simple actions on removing unnecessary fencing, reducing the use of jeeps, and having only natural materials being used in gallops, etc.

- 5.13.4 There has been a significant increase in recreational users - especially walkers and runners - but to what level is unknown. A conservative estimate would be that there are hundreds of thousands of visits each year. Changes in the numbers of cars, jeeps and scramblers that drive across and park on the Plains is similarly unquantified. The impact from jeeps is not only associated with recreational users but also the farmers and horse trainers that work on the Plains. Indications of the impact from foot and vehicular traffic on the Plains can be ascertained by comparing aerial photography from different decades and looking at the scar marks on the landscape. Of course, using scar marks to ascertain impact from vehicles or foot traffic is complicated by the presence of sheep and horses.
- 5.13.5 The Plains contain 199 recorded archaeological monuments. Fourteen of these are 'redundant records'. There are relatively few published excavations on the Curragh (Davis, 2021). A number of sites were excavated by Sean P. O'Riordain in the 1940s. Of the 17 excavations that have taken place within the study area in recent decades, all were for the purposes of enabling development. Just three turned up material of archaeological significance. The result is that not enough is known about the Curragh's archaeological landscape as its significance would merit. There has never been a comprehensive archaeology research programme for the Plains. It is only with the 2021 LiDAR survey of the Plains that a wider landscape level approach to learning about the site's archaeology has begun to be taken (Davis, 2021). It is worth noting that the survey included Dun Ailinne and Old Kilcullen. LiDAR is a remote sensing method that uses light to measure details in the landscape.
- 5.13.6 Led by Dr Steven Davis of UCD's School of Archaeology, the LiDAR survey has uncovered 355 potential new sites. Looking at the various images, the sheer density of human activity over thousands of years becomes obvious. For the survey to be truly useful, it must be seen as not the end but as the beginning. The imagery can serve to inspire a set of research questions that once answered will greatly aid in the understanding of the Plains and beyond. Already, the discovery of extensive areas of 4m wide plough furrows - likely for cereal production - has challenged the view that the Curragh has never been extensively cultivated (ibid).
- 5.13.7 Basic inventories of the more recent 19th and 20th century military heritage of the Curragh are absent. The Curragh contains one of the finest collections of WWI practice trenches in Ireland. These and other WWI era features (e.g. firing ranges) have not been comprehensively mapped and recorded. Similarly, although the Curragh contains one of the most impressive sets of WWII defences in the country (i.e. pillboxes, walls, extensive modifications to Gibbet Rath), there is no inventory. During the 2021 LiDAR survey, 60 previously unknown possible military structures were discovered (ibid). Possible new sites included nine trenches, six tent encampments and four firing ranges.
- 5.13.8 No inventory exists of the peculiar traditions and customs (i.e. intangible heritage) connected with the Curragh. Militaries often have unique traditions. There may also be customs and practices engaged in by the horse training and farming sectors that are distinctive to the Curragh.
- 5.13.9 Although the Ordnance Survey contains the names of many places that make up the Curragh (especially the Camp), less formal names for various places on the Plains have not been recorded (e.g. areas of pasture, gallops, firing ranges). This folk memory of the Plains could be easily lost unless mapped. The Primary Schools Folklore Collection contains stories about the Plains from the 1930s. Now a new Schools Folklore Collection - or similar - is required to record the stories that have happened in the nine decades since then.

Plate 21 - Historic 25' (1888-1913) OS map showing multiple place names in Curragh Camp (Source: geohive.ie)



5.13.10 More hard data is required to better craft individual actions, monitor impacts on heritage and as a baseline to measure progress. Ultimately, it is very difficult to manage the Curragh both equitably and effectively without adequate data.

Inappropriate behaviour

5.13.11 'Culture is what you do when no one is looking' - Herb Kelleher

5.13.12 Although the majority of people who use the Curragh do so in good faith, it is hard not to conclude that the Plains are to some extent, being taken for granted. Cars are parked where people please, fences have been erected throughout the Plains, litter is casually dropped and sacks of rubbish fly tipped. Although the Curragh is owned by the State, it is effectively treated as everybody's property and thus nobody's property (Smith, 2009). Essentially, the challenge of the Curragh's conservation is a behavioural challenge. Consequently, it requires behaviourally informed solutions (Park et al, 2019).

5.13.13 Educating users of the Curragh as to the site's importance and how to act appropriately has a key part to play in influencing behaviour. Even so, merely giving information is simply not enough (ibid). Research has shown that a far greater influence on behaviour is a person's perceptions of what is commonly believed to be normal or acceptable (Jachimowicz et al, 2018). For the Curragh, this means focusing on the culture. When we talk about culture we mean a set of accepted behaviours, and the beliefs and values that support them (Anderson, 2012). The creation of a positive culture that encourages respect for the Curragh and the development of a custodian ethos is likely to not only significantly improve the character of the Plains but also the user experience. This, coupled with carefully designed interventions that limit undesirable behaviours are likely to have a significant impact on behaviours (Park et al, 2019).

5.13.14 Until such time as a management agency is established, the leadership provided by Kildare County Council and the Department of Defence, needs to be more visible. Actions may include the Department of Defence supporting conservation work to the pillboxes on the Plains and listing more structures in the Camp. In the case of Kildare County Council, it may involve promoting green transport infrastructure at the expense of the car and assisting the Department of Defence in maintaining the Plains. It also means both organisations to some extent sharing responsibility over the Plains with other stakeholders. While this may present some short-term challenges, in the longer term, it will encourage other stakeholders to fully embrace a strong, pervasive culture of respect and custodianship.

- 5.13.15 To create a more positive culture, a social movement is required. A movement usually begins small and comes from emotion (Walker & Soule, 2017). In the case of the Curragh, the emotions coming from the project sponsors have been love for the Plains and frustration that the site is not in better condition. Thankfully, this has also been mirrored during public consultation for this project. To create a lasting commitment people must feel a deep desire and responsibility to change (ibid). There are several factors in sparking and maintaining a movement. The first is for key stakeholders to accomplish early wins. Secondly, it is important that there is a sustained effort to build a coalition and bring together diverse groups that share a common purpose (ibid). In the case of the Curragh, the common purpose could be the sustainable management of the Plains. A benefit of developing a coalition is that it increases the likelihood of the movement's success, as people are more likely to support something they have a stake in (ibid). Thirdly, within the coalition, systems should be put in place to make sure everyone's voice is heard, and their views valued. A symbol/branding associated with the movement is useful in coalescing efforts. Finally, the design of the various actions must be carefully considered. For a new culture to emerge, new behaviours must be easy, rewarding, and normal (Anderson, 2012).
- 5.13.16 The effort involved in instigating and nurturing a movement that will bring about a new culture of caring for the Curragh is a challenge for the sponsors of this report (Walker & Soule, 2017). It means working in cooperation with others and giving up some control. This can be frightening. In the short term it can be substantially easier to exercise authority rather than reach consensus. However, a moderate amount of friction in any cooperative management system is common and indeed can be positive, as it drives robust decision making and innovation. Most importantly, such debate increases the chances that actions are the right 'fit' for the Curragh.
- 5.13.17 Fifteen strategies for applying behaviour science to conservation were proposed in the well-received document *Behavioural change for nature: a behavioural science toolkit for practitioners* (Park et al, 2019). These are:
- 5.13.18 Motivate the change
- Leverage positive emotions.
 - Frame messaging to personal values, identities, or interests.
 - Personalise and humanise messages.
 - Harness cognitive biases.
 - Design behaviourally informed incentives.
- 5.13.19 Socialise the change
- Promote the desirable norm.
 - Harness reciprocity.
 - Increase behavioural observability and accountability.
 - Encourage public and peer-to-peer commitments.
 - Choose the right messenger.
- 5.13.20 Ease the change
- Make it easy by removing frictions and promoting substitutes.
 - Provide support with planning and implementation of intentions.
 - Simplify messages and decisions.
 - Alter the choice setting.
 - Use timely moments, prompts, and reminders.

Challenges to liveability and viability of key economic activities

- 5.13.21 The military - and associated families living on the Plains - sheep farming and horse training/racing are integral parts of the Curragh's heritage. In many ways, the dominant image of the Curragh is of a wide-open grassland dotted with sheep while horses are put through their paces, all of which are watched over by the Curragh Camp on the ridge.

- 5.13.22 The 1999 report '*Changes away from traditional uses of the Curragh of Kildare since 1922*' noted the impact the numbers of horses and sheep were having on the landscape (Costello, 1999). Despite this, their importance to the Curragh's character was also acknowledged in that document. Known and likely impacts associated with both sheep farming and horse training have already been mentioned. Yet to be mentioned however, is the decline of both the numbers of horses being trained and sheep being grazed on the Curragh. These issues arose during the course of several interviews and were later confirmed by examining the sheep and horse figures for the Curragh.
- 5.13.23 In 1866, the Curragh Commission recorded 170 horses in training (ibid). In 1961, that figure was 650. The number of horses peaked during the Celtic Tiger at between 1,400 and 1,500 horses. There are now roughly 900 horses being trained on the Plains (Table 1). Nationally, the total number of horse trainer licences fell from 805 in 2007 to 578 in 2017 (Byrne, 2018). The key reason given for the decline has been the decline in the economic viability of training horses (ibid). Investment in horse racing is becoming increasingly concentrated in a smaller number of yards. In 2021, there were 55 horse trainers around the Curragh (Power, 2021).

Table 1 -- Horses on the Curragh

Year	Number of horses
1866	170
1961	650
1971	1,000
1981	1,100
1998	1,200
2008	c.1,400-1,500
2021	c.900
2024	c.1000

(Sources: Costello, 1999 & interviewee & Kildare County Council)

- 5.13.24 The combined direct and indirect economic activity associated with activities of the Curragh Racecourse (and National Stud) have been calculated as being €99.6m (Power, 2021). Of this, €51.3m is associated with horse training. In 2021, there were 406 stable staff, racecourse staff and other staff employed in and around the Curragh (ibid).
- 5.13.25 The number of sheep on the Curragh has also declined markedly (Table 2). Overall, numbers on the Plains have almost halved since 1961. Nationally, although Ireland is still the largest net exporter of sheep meat in the EU, the size of the country's flock has fallen dramatically. In 2015, there were 2.5m sheep (Keady & Hanrahan, 2016). In 1992, that figure was 4.8m. The number of farms with a sheep enterprise had reduced by 15,000 between 1993 and 2015. The vast majority of the remaining sheep farms have small herds (less than 100 ewes) and do not have an off-farm source of income.

Table 2 -- Sheep on the Curragh

Year	Number of sheep
1961	7,957
1971	6,204
1981	6,098
1998	6,011

2019	c.4,300
2021	3869
2022	3542
2023	3780

(Sources: Costello, 1999 & Forde, 2019 & Department of Defence)

- 5.13.26 Despite the unique story connected with Curragh sheep, the prohibition of external feeds to sheep diets once on the Plains and proximity to the lucrative Dublin consumer market - which also creates a very low carbon mileage benefit - no evidence was found of value being added through branding. Similarly, no Curragh farmer engaged in certified organic lamb production. However, as there is currently an oversupply of organic lamb on the market, the economic benefit from pursuing certified organic status is not compelling unless demand significantly increases (*Review of organic food sector and strategy for its development 2019-2025*, n/d). At present, all Curragh lamb is priced as a commodity.
- 5.13.27 Although after a long period of gradual decline, the short-term market outlook is good for sheep meat, the long term is still uncertain (www.bordbia.ie/farmers-growers/prices-markets/agri-market-insights/sheep-sectoroutlook/, accessed:18/11/ 2021). Nonetheless, there are opportunities to provide a stronger basis for sheep farming on the Curragh. Aside from branding and the promotion of a premium product with a compelling back story, there is the possibility of creating a scheme that would encourage farming for nature. A programme such as the successful Burrenbeo initiative would provide a financial incentive to farm in a fashion that would relieve some pressure off the grassland while enhancing the economic sustainability of sheep farming on the Curragh.
- 5.13.28 Although there are over 36,000 people that live in the towns and villages that surround the Plains, there are also several hundred that live directly on the Curragh. A small and declining number live in the Camp. This is in stark contrast with the 19th century, when the permanent population living in the Curragh Camp was c.4,000 (Costello, 1998). There is a stable community of 100 houses on the adjacent Orchard Estate. This is where most Curragh residents live. The houses were built for families of those serving in the Camp. A considerable problem the estate has is with the sheer quantity of sheep manure outside their homes (Donnelly, 2017). During an interview with a community representative, a request was made for an enclosed playground which would allow children to play without the risk of coming into contact with manure.
- 5.13.29 While reduced numbers of both horses and sheep could provide ecological benefits to the Curragh (although yet to be seen), the maintaining of economic activities that are at the core of the Curragh's significance (i.e. sheep farming, horse training and racing) is a challenge that will be ongoing. Likewise, the continuation of a vibrant community living on the Curragh is another matter that will need regular addressing. These issues of liveability and economic viability will require skilled adaptation and negotiation between the various relevant stakeholders to create a path that allows key activities to continue while incorporating the protection of the site's heritage at the core of considerations.

Insufficient listing/protections

- 5.13.30 There are large gaps in the legal protection afforded to much of the various constituent sites that make up the Curragh. The Plains contain possibly the most complete system of World War I era practice trenches in Ireland. The site also contains possibly the country's finest collection of World War II era defences. None of these sites are legally protected. They are not listed as protected structures under the *Planning and Development Act 2000* (as amended) or as archaeological sites under the *National Monuments Act 1930-2004*. The sites uncovered in the 2021 LiDAR survey of the Curragh are afforded some protection by being situated within a Zone of Archaeological Protection. However, they remain vulnerable without being individually investigated and if deemed warranted, listed as archaeological sites.

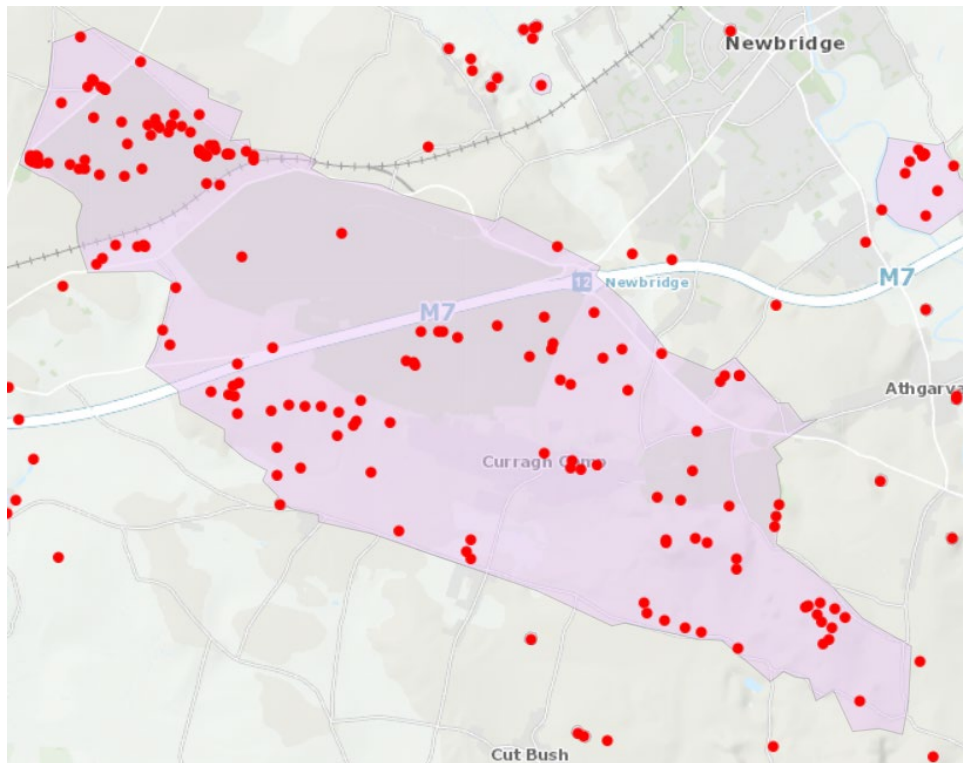
Plate 23 - WW1 practice trenches (Source: Research and Dig, 2021)



Plate 24 - Pillbox to immediate north of the Curragh Camp (Source: Research and Dig, 2021)



Plate 25 - Curragh Plains zone of archaeological potential (in purple). Sites already included under the National Monuments Act 1930-2004 are marked by red dots (Source: <https://maps.archaeology.ie/historicenvironment/>, accessed: 10/11/2012)



- 5.13.31 Given the quality and quantity of fine 19th and early 20th century military structures in the Curragh Camp, a surprisingly low number (seven) are listed as protected structures. Of course, should a Conservation Management Plan be created for the Camp, additional listing may not be warranted if adequate adaptive reuse policies are put in place.
- 5.13.32 There is no national legislation providing legal protection for intangible heritage. It is not mentioned in the *Heritage Act 1995*. Likewise, there is no mention of intangible heritage in the *County Kildare Heritage Plan 2019 - 2025*. Intangible heritage on the Curragh includes local traditions, folklore, and placenames.

Increased recreational use

- 5.13.33 As mentioned earlier, there is a lack of accurate measurements concerning the numbers of recreational users of the Plains. Several individuals interviewed for this report have mentioned how the amount of people walking, running and mountain biking on the Plains, has increased steadily for a number of years. With the arrival of Covid-19, the rate of increase intensified.
- 5.13.34 At present, as well as functioning as a one field farm, the Plains operate as an important park for the residents of the Curragh, Kildare Town, Newbridge, Kilcullen and Athgarvan. It also attracts recreational users from elsewhere in County Kildare and beyond. Although it can be difficult to compare aerial photography from different times, it appears that the number and severity of soil scar marks from recreational users is increasing. Other reasons for increasing scarring are likely to be cars driving on the Plains, sheep, and horse training. It is worth noting that horse training and sheep farming are traditional uses for the Plains. Several of the pre-independence firing range banks are showing severe erosion. A key cause of this is people climbing the same routes. Mountain biking is also likely to have an impact.
- 5.13.35 The erosion issues connected with the Curragh's increased use as a place for exercise are exacerbated by the concentrating of activity in certain areas. Greater distribution of recreational users across the Plains would relieve pressure in high use areas.

- 5.13.36 Although the vast majority of recreational users are mindful to take home any rubbish, levels in general litter on the Plains is an issue associated with its increased use.
- 5.13.37 Recreational metal detecting has been reported to happen on the Curragh (O'Donoghue, 2018). To what level it occurs is unknown. Nonetheless, given the proliferation of known archaeological sites and that the whole site is a zone of archaeological potential, any metal detecting conducted without licence from the Minister with responsibility for heritage is illegal.

Climate change

- 5.13.38 Climate change is both an immediate and growing threat to Ireland's built and natural environments (Fealy et al, 2009). It also threatens the way of life associated with these environments.
- 5.13.39 Due to climate change, Ireland is projected to experience more frequent storms. Rain patterns will also become longer in duration and higher in intensity. This will lead to more flooding during winter and water scarcity during late summer and autumn (ibid). Finally, after already rising by 0.8°C since 1900, the country's average annual temperature is expected to rise 1-1.6°C above the 1981-2000 reference period sometime between 2041-2060 (Daly, 2019). Another consequence of climate change is an expected longer growing season of 35-40 days by 2041-2060 (ibid).
- 5.13.40 The consequences for natural heritage on the Curragh are that some plants and animals will become stressed and deteriorate locally. The growing season will change. Existing food webs that support birdlife may also become affected. Over time, droughts will gradually change the character of the grassland that defines the Plains (Fealy et al, 2009). Hotter drier summers are likely to increase the demand to use the Curragh even more as a place for recreation. The increase in both temperatures and recreational use will increase the chance of ground/gorse fires occurring. There have been several ground/gorse fires on the Curragh Plains in the recent past.
- 5.13.41 Concerning built heritage, historic structures on the Curragh will be affected by more frequent storms and damage from localised flooding (ibid). Intense rainfall may also overwhelm rainwater goods installed on buildings constructed during the 19th and early 20th centuries. Within historic buildings, damage from mould and pests is likely to increase due to higher temperatures (Daly, 2019). Finally, localised flooding and droughts will negatively impact on the Curragh's archaeology. Even slight changes to the burial environment can damage subsurface remains (ibid).
- 5.13.42 A full appraisal of the vulnerability of the various aspects of the Curragh's built and natural heritage is required to provide detailed responses.

Cars, jeeps, and motorbikes

- 5.13.43 Visiting the Plains it is not hard to gain the impression that people can drive on to the grass and park where they wish. The practice of cars being driven and parked on the Plains damages the grassland, harms the character of the site, and undermines the amenity value for recreational users. It is also a threat to the sheep that graze on the Curragh.
- 5.13.44 The Curragh functions as a key amenity for residents on the Curragh and those living in adjacent towns and villages. In 2022, the combined population of the nearby settlements of Newbridge, Kildare Town, Kilcullen and Athgarvan was 39,676 (CSO, 2022). For almost all of this population, getting to the Curragh is likely to mean taking the car. Cycling infrastructure within the Plains is effectively non-existent. There are no cycle lanes or bike parking stands. There are also no cycle lanes between the four nearby settlements and the Plains. There is only one footpath for residents in both Kildare Town and Athgarvan that provides access onto the Plains. For Newbridge residents, there are two. There is no footpath linking Kilcullen with the Plains.
- 5.13.45 From observation and interviews, it appears that the vast majority of recreational users to the Plains arrive there by car. Interestingly, of the 3,620 respondents to the online consultation survey undertaken as part of this report, 36.5% of respondents either lived on or immediately adjacent to the Plains. A further 36.2% lived within 10mins drive. Although the respondents were self-selecting rather than scientifically recruited to give a random sample, it can be reasonably concluded that the majority of recreational users are driving short distances to exercise, instead of using other more sustainable sources of transport.

- 5.13.46 The provision for parking on the Plains is poor. However, given the significance of the Plains as an open, natural grassland, the construction of new car parks on the Plains would be inappropriate (possible very limited dispensation for elderly and disabled). Firstly, it would consume the limited natural grassland that remains. Secondly, it would undermine the character of the Plains. And finally, it would go against the shift towards more sustainable forms of transportation being called for the government's 2024 *Climate Action Plan*.
- 5.13.47 The formal carparking that is available is concentrated at the Curragh Camp. This is almost wholly for Camp workers, people visiting the Camp on military business, religious service or visiting shops. Given the sensitive nature of activities at the Camp the additional provision of public parking is not feasible. There are other car parks at the two golf courses and pitch and putt courses. However, these are reserved for patrons. There is one large car park to the last line Curragh/Newbridge Junction.
- 5.13.48 That particular parking area was created during the construction of the motorway. It now has its own entry on Google maps. Another area on the Plains popular for people to park is close to Donnelly's Hollow. Aside from those two informal but well-known locations, people park throughout the Plains.
- 5.13.49 One interesting aspect of car use on the Plains are the learner drivers being taught the fundamentals of driving.
- 5.13.50 The Plains are a place of work for the sheep farmers and those associated with horse training. Access to the Plains by car/jeep as required by these users is fair. However, during an interview with a farmer it emerged that driving onto the Plains was an option likely taken too quickly on many occasions by farmers. This is also possibly the case with those associated with horse training. The convenience of the car/jeep must be balanced with the significance of the Curragh.
- 5.13.51 Considerable damage is being done by a small number of people engaged in riding scrambler bikes. In addition to physically damaging the Plains and various banks, their presence is a risk to the safety of other users.
- 5.13.52 Another feature of car use on the Curragh are those cars brought onto the Plains to be dumped and even set alight.
- 5.13.53 Aside from the direct damage that cars, jeeps, and scramblers inflict on the Plains, their use on the Curragh and journey to and from the site is also a source of carbon emissions. This is worsening another threat to the Curragh, that of climate change.

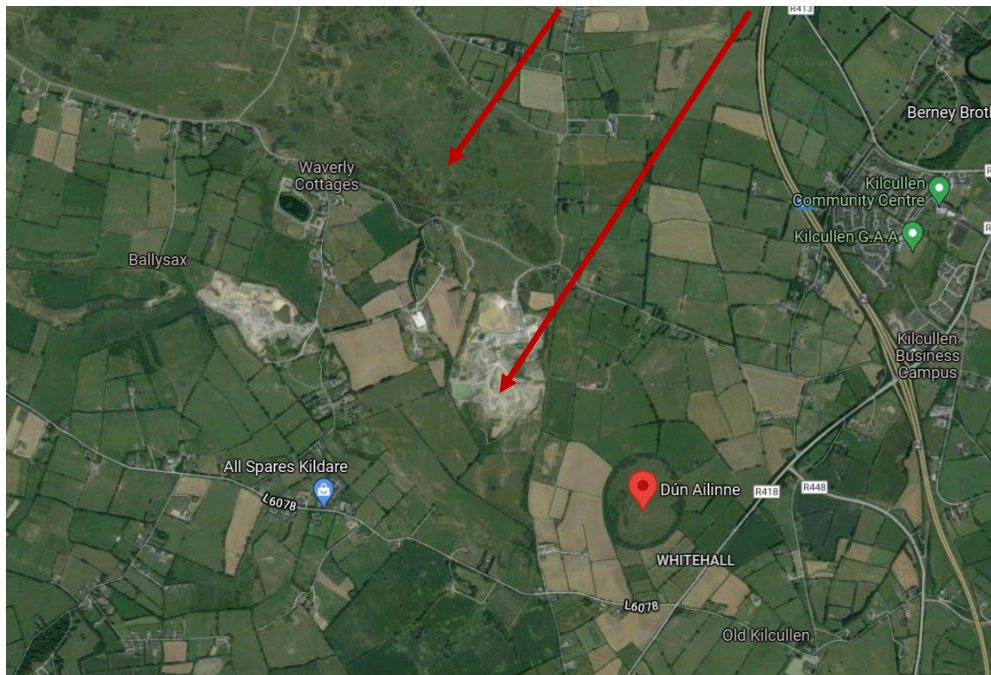
Enclosing and dividing the natural grassland

- 5.13.54 The single greatest defining factor that has made the Curragh Plains so different is that it is a mostly unenclosed landscape of natural, unimproved grassland. It is the lack of field systems and fencing that provides it with its character and has been the main instigator for much of the other elements that make the Plains significant (e.g. horseracing, military heritage).
- 5.13.55 Unfortunately, for an area that is supposed to have very few fences, it has grown to have several kilometres of fencing. There is also evidence of large areas of non-indigenous grass seed being used. Additionally, drains have been cut. Several thousand trees have also been planted. The vast majority of the Curragh's trees are associated with the military camp and golfing facilities. The excessive fencing, tree planting and use of non-indigenous grass seed are significant threats to the heritage significance and uniqueness of the Plains. Some of the trees may now have a heritage value through association with the military camp and as additions to the site's biodiversity. Accordingly, any recommendations concerning tree management must be carefully considered.
- 5.13.56 Concerning the level of fencing on the Curragh, the question that needs to be answered is how much is actually needed to maintain the core activities of various stakeholders versus the convenience fences provide by not having to deal with sheep, sheep manure and recreational users? A similar question could also be asked of those on the Curragh that have used non-indigenous grass. Is non-indigenous grass essential to their operations, and if so, where? Aside from non-indigenous grass being used, there is also the presence of plastics in at least one of the Curragh's gallops.
- 5.13.57 Several roads - including a motorway - bisect the Plains. A 19th century train line also crosses the site. These physically and visually divide the Curragh, harming both its character and integrity. Despite this, it must be

acknowledged that the rail line and motorway are key parts of Ireland's transport infrastructure. Other more minor roads provide local connectivity. Nonetheless, there does appear to be an overabundance of ways a person may cross the Curragh, both east-west and north-south. Consequently, subject to a traffic appraisal, there may be opportunities to grass over or convert to sustainable travel options some of the roads in the Curragh. Aside from the official road network, there are several kilometres of hardcore tracks and even hard top surfaces throughout the Plains. There are also multiple minor driveways and access points that have been taken away from the area given over to grassland. However, any traffic appraisal conducted will need to consider the access requirements for ground staff.

- 5.13.58 An ongoing threat both within and just outside the site boundaries is inappropriate development that would undermine the setting and significance of the Curragh. An example of this is the high voltage power line that is located towards the east end of the Plains. These adversely impact the setting of the World War I training trenches it passes over. Two steel pylons are located on the Curragh, one of which is just a few meters from a trench.
- 5.13.59 Another example of inappropriate development, this time from outside the current site boundary would be an extension of the quarry that lies between the Curragh and the Royal Site of Dún Ailinne. Given their close proximity, it is likely that the Curragh Plains would have extended at least out to Dún Ailinne in the Iron Age. Along with the Hill of Uisneach, Cashel, Rathcroghan Complex, Tara Complex, and Navan Fort, Dún Ailinne is part of the Royal Sites of Ireland serial site (gov.ie, accessed: 24/11/2021). This serial site is included on Ireland's Tentative List for nomination to UNESCO's World Heritage List.

Plate 26 – Extent of quarries in close proximity to the Curragh Plains and Dún Ailinne (Source: Google Maps, accessed: 24/11/2021)



Inappropriate over tourism

- 5.13.60 The Curragh Plains has potential to attract greater levels of tourism, although existing levels of usage and resulting pressures on the landscape, mean that the realisation of such an objective may be challenging. High levels of tourism, inadequately managed, would likely to degrade the quality of the Plains. Nonetheless, current intensity of usage of the Plains is not uniform. For instance, the level of foot traffic at Gibbet Rath and the World War I practice trenches is low. Furthermore, there are assets within the study area which are already accessible to tourists either by car or bus (i.e. Curragh Military Museum and the Curragh Racecourse). Consequently, there is leeway to carefully develop a tourism offering that would support the County's tourism sector and Ireland's Ancient East in general,

while safeguarding the environmental and archaeological sensitivities of the Curragh, in addition to its military functions.

- 5.13.61 In 2023, 92,027 people attended 23 meetings at the Curragh Racecourse. Around 20% of these were from abroad. The racecourse runs a shuttle bus service to Kildare Train Station during the season at weekends and permits pick-up and drop-off for buses outside the main entrance.
- 5.13.62 In November 2021, Fáilte Ireland launched the *Thoroughbred Country Destination Experience Development Plan*. The purpose of the plan is to drive the tourism sectors of counties Kildare and Tipperary by developing new and enhanced visitor experiences focusing on Ireland's thoroughbred industry. The initiative was carried out in conjunction with the local authorities of both Kildare and Tipperary. Within the plan, the Curragh Racecourse and Curragh Plains feature prominently.
- 5.13.63 Despite the possible threats concerning inappropriate or badly managed tourism levels, there are possible benefits beyond the obvious economic ones. For instance, a place's uniqueness, attractiveness, and coherence can be consolidated and strengthened when it needs to be articulated to a wider audience. Secondly, eco-tourism has been shown to improve wider conservation behaviours (Park et al, 2019).

5.14 Constraints arising from Significance

- 5.14.1 The role of the conservation policies is to provide specific guidelines for the conservation and development of the Curragh Plains so that its heritage significance is appropriately maintained.
- 5.14.2 Development of a set of conservation policies involves the consideration of the following issues:
- Requirements of the Curragh's inhabitants, the Dept. of Defence/Defence Forces, Kildare County Council, sheep farmers, horse racing sector and other key stakeholders.
 - Requirements under the County Development Plan 2023-2029.
 - Requirements of recreational users and the ability to hold specific events relevant to the Curragh Plains, such as religious and other activities honouring St. Brigid.
 - Constraints and opportunities presented for the use and development of the site arising from the statement of significance.
 - The principles of the relevant charters and declarations (e.g. *Burra & Québec*).
 - Relevant legislation, guidelines, and development plans.

Constraints arising from significance.

Assessed Heritage Values

- 5.14.3 The Curragh Plains has been deemed to be of international importance. Despite initial appearances gained from looking across the open grassland, the Curragh is a tapestry of places of local, regional, national, and international importance that have created a landscape of dense meaning. Its future management should take account of the constraints arising from its identified heritage values.
- 5.14.4 Aspects of identified significance include:
- Unenclosed semi-natural grassland and fungal assemblage
 - Neolithic Curcus monument (the Race of the Black Pig)
 - Very high concentration of Bronze Age/Iron Age barrows
 - Association with the horse and horse racing
 - The Curragh Plains natural heritage aside from fungal assemblage
 - World War I trench system
 - World War II defences and internment sites
 - Historical importance in the story of the creation of an independent Ireland (Curragh Mutiny, Easter Rising)

and Ireland's role in major international geopolitical events (Crimean War, WW1, WW2, UN peacekeeping)

- The collection of 19th and early 20th century buildings associated with Curragh Camp
- Curragh Museum military collection
- New Curragh Racecourse grandstand
- Rath Gibbet 1798 massacre and 1234 Battle of the Curragh
- Association with St. Brigid
- Association with Fionn Mac Cumhall and NaFianna
- Association with royal site of Dún Ailinne
- The Curragh as inspiration for art, music, film, and poetry
- The Curragh as a core around which a hub for innovation in the equine sector has developed
- The social history stories connected with the military at Curragh Camp
- Dan Donnelly's Hollow
- The Curragh as an amenity site
- Ireland's first golf course (Royal Curragh Golf Course)
- Route of 1903 Gordon Bennett Cup and subsequent motor races
- Innovative M7 motorway tanking to protect aquifer feeding Pollardstown Fen
- Curragh Racecourse train station
- Opportunities to retain, and where appropriate reinstate these heritage values should be investigated and implemented.

Guiding Heritage Principles

- 5.14.5 There is no general conservation charter that specifically deals with the management of large historic regions. The most applicable is the *Burra Charter* (2013). Another document of relevance is the *Québec Declaration on the preservation of the spirit of place* (2008). The principles contained within both the charter and declaration provides specific guidance concerning the development of the Curragh Plains. Accordingly, the conservation and development of the Curragh Plains is to be carried out in accordance with the relevant principles of the charter and declaration. These include:

Burra Charter Article 1.2

Cultural significance means aesthetic, historic, scientific, social, or spiritual value for past, present, or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places, and related objects. Places may have a range of values for different individuals or groups.

Burra Charter Article 2.4

Places of cultural significance should be safeguarded and not put at risk or left in a vulnerable state.

Burra Charter Article 12

Conservation, interpretation, and management of a place should provide for the participation of people for whom the place has significant associations and meanings, or who have social, spiritual, or other cultural responsibilities for the place.

Burra Charter Article 13

Co-existence of cultural values should always be recognised, respected, and encouraged. This is especially important in cases where they conflict.

Burra Charter Article 22.1

New work such as additions or other changes to the place may be acceptable where it respects and does not distort or obscure the cultural significance of the place or detract from its interpretation and appreciation.

Burra Charter Article 24.2

Significant meanings, including spiritual values, of a place should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.

Burra Charter Article 25

The cultural significance of many places is not readily apparent and should be explained by interpretation. Interpretation should enhance understanding and engagement and be culturally appropriate.

Burra Charter Article 27.1

The impact of proposed changes, including incremental changes, on the cultural significance of a place should be assessed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes to better retain cultural significance.

Burra Charter Article 27.2

Existing fabric, use, associations, and meanings should be adequately recorded before and after any changes are made to the place.

Québec Declaration 1

Recognising that the spirit of a place is made up of tangible (sites, buildings, landscapes, routes, objects), as well as intangible elements (memories, narratives, written, documents, festivals, commemorations, rituals, traditional knowledge, values, textures, colours, odours, etc.), which all significantly contribute to making place and giving it spirit, we declare that intangible cultural heritage gives a richer and more complete meaning to heritage as a whole and it must be taken into account in all legislation concerning cultural heritage, and in all conservation and restoration projects for monuments, sites, landscapes, routes and collections of objects.

Québec Declaration 3

Since the spirit of place is a continuously reconstructed process, which responds to the needs for change and continuity of communities, we uphold that it can vary in time and from one culture to another according to their practices of memory, and that a place can have several spirits and be shared by different groups.

Following on from the relevant principles outlined above, adverse impacts on aspects of the Curragh's significance should only be permitted where:

- There is sufficient information to understand the impact of the proposal onto the significance of the Curragh.
- A full assessment of alternative options has been undertaken to minimise adverse impacts.
- It makes possible the recovery of aspects of greater significance (only applicable for items of little significance or that are intrusive).
- It helps ensure the continued occupation and use of individual sites of significance and the place as a whole.
- There is no feasible alternative to meet safety and/or legal requirements.
- The area or element has been adequately recorded.

Heritage Planning Context

- 5.14.6 Elements of the Curragh's landscape is protected under international treaties and conventions, national legislation, and both statutory and non-statutory guidance. These include the *Curragh of Kildare Acts, Planning and Development Act 2000* (as amended), the *National Monuments Acts 1930-2004*, the *European Birds (1979) and Habitats (1992) directives*, *Birds and Natural Habitats Regulations 2011*, the *Wildlife Acts 1976*, and the *Wildlife (Amendment) Act 2000-2010*, and *Kildare County Development Plan 2023-2029*. Other local government initiatives such the *Kildare Local Economic and Community Plan 2024-2029*, the *County Kildare Heritage Plan 2019-2025* and the *County Kildare Biodiversity Action Plan 2009-2014* have a bearing on any proposed policies and actions.

- 5.14.7 Certain State initiatives such as the White Paper on Defence - Update 2024, National Planning Framework, National Development Plan 2021-2030, Climate Action Plan 2024, and Thoroughbred Country Destination Experience Development Plan also have a bearing on any proposed policies and actions. The relevance of these documents to the future management of the Curragh are discussed below. It is recommended that this Plan is cognisant of all such policies, treaties, conventions and legislation in place at any given time.
- 5.14.8 The current *National Landscape Strategy 2015-2025* does not have a bearing on this plan. The strategy essentially focuses on research, awareness building and training. Its objective is to provide the data that will allow for better decision making concerning how we manage our landscape.

Curragh of Kildare Act

- 5.14.9 During the establishment of a permanent military base at the Curragh, acts of parliament were created in 1868 and 1870 to provide a framework for its management within a landscape traditionally grazed by sheep. A subsequent 1961 act repealed all of the 1868 act and part of the 1870 act. Summaries of the 1870 and 1961 acts are below (Table 3):

Table 3 - 1870 and 1961 Curragh of Kildare Acts summaries

CURRAGH OF KILDARE ACT, 1870 – SUMMARY		
1	Binding status of the Act	
2	Role of map as deposited	
3	Depasturing of sheep only, no other animals.	
7	Short title – Curragh of Kildare Act, 1870	
Also see Schedule – manages transition from previous act, including claims.		
CURRAGH OF KILDARE ACT, 1961 – SUMMARY		
1	Definitions	Includes reference to Blue (Military) and Green (Non-Military) Land
2	Vesting of Curragh in Minister	Confirms responsibility of the Minister for Defence
3	Use of Camp by Minister	Exclusive use of Camp for Defence forces, while maintaining a public through road.
4	Use of Blue Lands by Minister	Uses within Section 34 of the Defence Act 1954, but no erection of permanent buildings.
5	Use of Green Lands by Minister	Right to use lands for military purposes (except areas under licence) but Defence Act does not apply.
6	The deposited map	Legal role of map
7	Laying of sewers, drains, cables and pipes	Allowance for construction and maintenance 'from time to time'.
8	Taking of sand, gravel and other materials from the Curragh	Within Minister's rights.
9	Exclusion of Certain Roads from the Act	Act does not to apply to roads coloured red on map.

10	Grazing of sheep on Curragh	Right of those specified by 1870 Act to 'stock and depasture' with sheep blue and green land but excluding the Camp and licensed areas.
11	Inclosure of part of Curragh	Right of minister to permanently enclose an area and how grazing rights are managed accordingly.
12	Notice of enclosure of part of Curragh	21 days public notice
13	Temporary exclusion of sheep from parts of Curragh	Right to temporarily exclude sheep to facilitate public use
14	Preservation of continuing contracts	Manages transition from previous act
15	Continuance of pending legal proceedings	Manages transition from previous act
16	By-laws in relation to Curragh	Provision for Minster to make by-laws including animal trespass, removal of materials, off road passage of vehicles, damage, sheep marking and nuisance.
17	Repeals	Repeal of 1868 Act and Sections 4,5 and 6 of 1870 Act. (Sheep marking and role of the Ranger).
18	Expenses of the Minister	In agreement with Minister for Finance
19	Short title	Cited as the Curragh of Kildare Act, 1961.

White Paper on Defence – The Strategic Framework Update 2024

5.14.10 The 2015 White Paper on Defence, updated in 2024, sets out the government's strategic and policy framework for defence up to 2025.

5.14.11 White Paper Projects where the Curragh is explicitly mentioned include:

Project 8. Develop the new Institute for Peace Support and Leadership Training at the Curragh by (1) Evaluating the new concept; (2) Advancing its objectives; to showcase the initial concept during 2016 (Merge with DIP Ref 20.2 National Defence Academy)

Project 32. Fulfil requirement to carry out major building refurbishment in areas including Haulbowline, Casement Aerodrome, McKee Barracks and the Curragh Camp [Closed (May 2020) Tranch 1 (merged with Project 33)]

Project Ireland 2040: National Planning Framework

5.14.12 Published in February 2018, the framework aims to guide the country's national, regional, and local spatial development until 2040. Some policies relevant to the management of the Curragh include:

National Policy Objective 14

Protect and promote the sense of place and culture and the quality, character and distinctiveness of the Irish rural landscape that make Ireland's rural areas authentic and attractive as places to live, work and visit.

National Policy Objective 15

Support the sustainable development of rural areas by encouraging growth and arresting decline in areas that have experienced low population growth or decline in recent decades and by managing the growth of areas that are under strong urban influence to avoid over-development, while sustaining vibrant rural communities.

National Policy Objective 17

Enhance, integrate, and protect the special physical, social, economic, and cultural value of built heritage assets through appropriate and sensitive use now and for future generations.

National Policy Objective 21

Enhance the competitiveness of rural areas by supporting innovation in rural economic development and enterprise through the diversification of the rural economy into new sectors and services, including ICT based industries and those addressing climate change and sustainability.

National Policy Objective 22

Facilitate tourism development and in particular a National Greenways, Blueway's and Peatways Strategy, which prioritises projects on the basis of achieving maximum impact and connectivity at national and regional level.

National Policy Objective 23

Facilitate the development of the rural economy through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture, energy, and extractive industries, the bio-economy and diversification into alternative on-farm and off-farm activities, while at the same time noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism.

National Policy Objective 35

Increase residential density in settlements, through a range of measures including reductions in vacancy, reuse of existing buildings, infill development schemes, area or site-based regeneration and increased building heights.

National Policy Objective 59

Enhance the conservation status and improve the management of protected areas and protected species by:

Implementing relevant EU Directives to protect Ireland's environment and wildlife;

Integrating policies and objectives for the protection and restoration of biodiversity in statutory development plans;

Developing and utilising licensing and consent systems to facilitate sustainable activities within Natura 2000 sites;

Continued research, survey programmes and monitoring of habitats and species.

National Policy Objective 60

Conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance.

National Development Plan 2021-2030

- 5.14.13 The companion document to the *National Planning Framework* is the *National Development Plan 2021-2030*. The plan sets out the ten-year capital investment program to support economic, social, environmental, and cultural development across the country. The plan's €165bn investment program has a stronger emphasis on addressing the challenge of climate change than its predecessor. A key part of this is a focus on sustainable transport. No major infrastructure projects (i.e. road or rail) are planned for the Curragh during the investment program.
- 5.14.14 Relevant investment priorities concerning heritage in the plan include:
- Building resilience in our historic environment through the implementation of the Climate Adaptation Plan for Built and Archaeological Heritage.
 - Natural Heritage and Biodiversity – implementation of the National Biodiversity Action Plan 2023-2030, including Peatlands Restoration and Conservation.

5.14.15 Relevant investment priorities concerning defence in the plan include:

- Ongoing Defence Forces Built Infrastructure Plan, including appropriate climate change actions under NDP frameworks.

Climate Action Plan 2024: securing our future

5.14.16 The 2024 Climate Action Plan lays out the government's pathway to achieving a 51% reduction in greenhouse gas emissions by 2030 and reaching net-zero by 2050. The plan follows on from commitments made in the Programme for Government and the Climate Act 2021. The plan's implementation will transform every aspect of economic and social life in Ireland. This includes areas of particular relevance to the Curragh: agriculture, transport, tourism and building reuse (especially important for the historic building stock at the Camp). As part of its objective to have the public sector lead by example, each Government Department will be provided an annual carbon budget. This is especially important given the central role the Department of Defence play in the Curragh.

5.14.17 Relevant actions in the Climate Action Plan include:

- Action no. 54 - Develop a strategy to achieve at least a 51% reduction in GHG emissions and a 50% improvement in public sector energy efficiency by 2030
- Action no. 56 - Introduce a Climate Action Mandate for every public body
- Action no. 58 - Support the retrofit of public sector buildings
- Action no. 59 - Mandate the inclusion of green criteria in all procurements using public funds, introducing requirements on a phased basis, and providing appropriate support to procurers
- Action no. 87 - Minimise negative environmental impact of tourism
- Action no. 95 - Invest in developing our outdoor tourism offering, including outdoor activities, that enhances Ireland's international reputation of being a green, clean, and sustainable destination
- Action no. 96 - Increase nature connectedness and promote pro-environmental behaviours by developing outdoor recreation
- Action no. 190 - Develop a framework methodology and certification scheme for products, as an essential step towards implementing a performance-based approach on a phased basis for measuring and limiting the embodied carbon emissions of building projects and construction products
- Action no. 192 - Develop an embodied carbon Building Rating calculation methodology
- Action no. 201 - Integrate climate change adaptation into all heritage-management plans and policies as these are updated
- Action no. 228 - Encourage an increased level of modal shift towards Active Travel (walking and cycling) and away from private car use
- Action no. 310 - Increase the current area under organic production from 74,000 ha to 350,000 ha by 2030
- Action no. 324 - Upskill farmers and advisors to ensure they have the knowledge and tools to implement climate mitigation, biodiversity enhancement and adaptation practices
- Action no. 329 - Promote ecosystem restoration and conservation through Payment for Ecosystem Services and investment in actions that increase carbon sinks while promoting biodiversity e.g. woodlands, bogs, soil management, hedgerows
- Action no. 341 - Increase the level of afforestation to meet targets
- Action no. 360 - 80,000 hectares in 2030 of reduced management intensity of grasslands on drained organic soils
- Action no. 390 - Engage stakeholders in all sectors to protect biodiversity in order to increase resilience to climate change
- Action no. 410 - Strengthen the regulatory and enforcement frameworks for the waste collection and management system, to maximise circular economy principles
- Action no. 412 - Reconfigure the current National Waste Prevention Programme as a Circular Economy Programme for Ireland to drive the transition for business, citizens and the public sector

The Thoroughbred Country Destination Experience Development Plan

5.14.18 Launched in November 2021, the purpose of the plan is to drive the tourism sectors of counties Kildare and Tipperary by developing new and enhanced visitor experiences. The initiative was led by Fáilte Ireland and conducted in conjunction with the local authorities of both Kildare and Tipperary. Within the plan, the Curragh Racecourse and Curragh Plains feature prominently. In the report's SWOT analysis, the development of the Curragh Plains as a major destination resource was presented as an opportunity. The report named several indicative strategic pillar experiences that are within the Curragh:

- The Curragh Experience
- The Inside Track – Expert Eyes (trainers and the gallops)
- The Military Museum
- Curragh Derby Days and Festival

5.14.19 These experiences would be part of a wider set of experiences clustered around the Curragh and South Tipperary.

5.14.20 As part of the Thoroughbred Country Experience four catalyst projects are identified. One of these is a Curragh Experience.

5.14.21 The Curragh Racecourse in the Curragh Plains represents a globally iconic venue, which could attract very significant levels of visitor experience innovation. From activity associated with major event days, regular behind the scenes opportunities, to immersive experiences such as meeting the trainers on the gallops, the scale and heritage of the venue offers a capacity to develop premium value experiences. As part of the proposed Curragh Experience catalyst project, the Curragh Plains must become an integral element in how it interprets the story of the place and the creation of ways for visitors to engage with the natural setting that has inspired a global industry.

5.14.22 Catalyst Project Priorities

- Creation of a range of saleable experiences that are readily accessible and bookable including premium prestige experiences.
- Development of pre festival event experiences that deliver accessible privilege experiences e.g. Derby Week breakfast experiences.
- Examine a regular provision of trainers on the gallops type experiences that support an annual calendar of accessible privilege experiences for the destination.
- Support the Thoroughbred Country Destination & Experience Development Plan with the delivery of supporting thoroughbred heritage experiences.
- Examine the opportunity to create a walking trail from Kildare town to the Curragh, differentiated through the thoroughbred theme, formalising existing paths, no new paths are proposed
- Another of the four catalyst projects is of direct relevance to the Curragh, i.e. Festivals and Events project. The purpose of Festivals and Events project is to provide an immediate platform for destination engagement. The priorities for the Festivals and Events Catalyst Project are:
 - Development of a Five-Year collaborative festival plan prioritising the [Curragh] Derby Festival, Punchestown Festival.
 - Examine the development of a niche destination festival / event to link with the Champions Weekend highlighting niche thoroughbred experiences across the destination and possible cross sector collaboration i.e. fashion, food, culture.
 - Re-examine the opportunity to re-introduce the Fair of the Furze festival (horse fair) as a niche destination festival supporting the thoroughbred story in the Curragh Plains.
 - Development of linkages with Privileged access/premium experiences to maximise the event day experience for the destination.

5.14.23 As part of the process of compiling the Thoroughbred Country Destination & Experience report a Strategic Environment Assessment and Appropriate Assessment were undertaken. Because of this, some actions that might have impacted negatively on the Curragh Plains were excluded. An Environmental Monitoring Programme was also devised. Importantly, one of the plan's four key performance indicators is environment. This involves a central focus on the effective management of the environment, including natural, cultural and heritage assets.

5.14.24 Proposed actions with a possible impact on the Curragh Plains include:

Project 1 – International Thoroughbred Trail

- Action 1.1 Develop a Foal to Finishing Line experience from the National Stud to Newbridge Trophy experience linked through the creation of collaborative experiences.
- Action 1.3 The Curragh Plains Experience - Master Planning – Support destination development through the master planning process examining how the thoroughbred narrative and supporting experiences can be developed in the Curragh Plains.
- Action 1.6 Develop a number of key International Thoroughbred Trail hubs as orientation points around the destination. These will be a blend of key towns and visitor attractions that link core thoroughbred and non-thoroughbred experiences.
- Action 1.7 Examine the development of audio visual / virtual reality and placemaking thoroughbred history interpretation opportunities, communicating the destination story at key points of interest to build the scale of the thoroughbred destination.
- Action 1.8 Assess the opportunity to create an international Thoroughbred Legends Walk of Fame concept creating a 'thoroughbred boulevard' linking Kildare town points of interest to the Curragh marked with the names of Derby winners and legends. The development of the concept should consider the destination profiling opportunities such as public voting for the Walk of Fame inductees and incorporating Derby festival event activity around the concept.
- Action 1.9 Examine the creation of a walking trail / greenway linking Kildare town with the Curragh Plains differentiated through an equine theme to create an experiential thoroughbred greenway trail.

Project 3 – The Curragh Experience

- Action 3.1 Undertake an experience development innovation programme to provide bookable visitor experiences, event week experiences and premium experiences. The saleable experiences will incorporate a range of behind-the-scenes opportunities building on the heritage of the place e.g. Queens Room through to developing VIP experiences interacting with trainers and jockeys.
- Action 3.2 Examine the feasibility of creating Curragh Sunrise Gallop Experiences at the Curragh with leading trainers and industry professionals on a scheduled basis

Project 11 – Attractions Competitiveness

- Action 11.3 Examine the operational requirements required to improve visitor access and the visitor experience at the Curragh Military Museum linked to the thoroughbred and destination equine story.

Project 14 – Evening Economy

- Action 14.1 Develop a series of new evening economy experiences designed to retain visitors in the area for longer while also of linking activity to new early morning activities e.g. early morning gallops experiences.

Project 21 - Destination Access

- Action 21.1 Review the opportunities to provide increased levels of public transport access across the destination examining existing resources such as the Local Link and interacting with current public transport services and facilities.

Project 23 – Destination Festivals

Action 23.1 Create the destination structures and supports required to develop two major festivals around the Irish Derby and Punchestown Festival.

Project 25 – Niche Event Development

Action 25.1 Develop a Champions Weekend Champions Experience as a destination niche event to attract and retain visitors through the destination eco-system from early morning gallops, exclusive tours, attractions, and hospitality experiences.

5.15 Summary of Opportunities

5.15.1 The Curragh is a very special and unique place and is a much-valued part of Ireland. The threats to its significance should be considered alongside the many opportunities that it has to:

- Function as a protected natural asset of international importance.
- Establish high quality climate resilience principles.
- Continue to function as a first-class horse training facility.
- Continue to support the ongoing use as a military training facility.
- Promote sustainable, quality agricultural practice, notably sheep farming.
- Reinforce community bonds.
- Celebrate heritage and Ireland's history.
- Facilitate an education and awareness of the Curragh's unique significance.
- Promote sustainable tourism.
- Support commercial and economic opportunities.

5.16 Summary of Constraints

5.16.1 Despite the rich heritage of the Curragh Lands, and the environmental pressure on it, it must be recognised that the Lands are still a working environment for the military, for the horse industry and for sheep owners (Task Force report 1999).

5.16.2 A working set of constraints has been applied to the plan. These are not necessarily sacrosanct, but if a plan can be achieved without resort to modifying these guiding principles it is more likely to be acceptable to, and supported by, a wide range of the Curragh users and other interested parties.

- Viability/profitability of businesses operating on the Curragh – including farms and golf clubs, and the racecourse not to be significantly reduced.
- Military training to continue as required to support the effectiveness of the Defence Forces.
- Management must be achieved without resort to new enclosures.
- Signage to be minimised and discrete.
- Livestock grazing restricted to sheep.
- Increasing tourism in the locality to be accommodated and not precluded.
- Management objectives and the protection of the existing grasslands to be cognisant of local and national over-arching policies.

6 A Vision for The Curragh Plains

6.1 Establishing a vision

6.1.1 It has been 20 years since the Task Force report was published, which concluded that:

"The Curragh Lands are under serious, sustained and increasing pressure from an environmental point of view.

Abuse of the environment of the Lands is taking place by the three main users and the public in general, all of whom appear to be largely unaware of or unconcerned with, the damage being caused.

The laws and bye-laws governing the control of the Curragh are out of date and inadequate.

The present management structure is inadequate to manage the environment of the Curragh.

The present staff, equipment and budget are insufficient to deal with present demands."

6.1.2 It also concluded that:

"The problems facing the Curragh are evident without further study. Urgent action and not further study is required to deal with them."

6.1.3 The current study finds that the recommendations of that report were not implemented and that broadly the same conclusions still apply.

6.2 What we are trying to achieve

6.2.1 As a landscape that has been continually changing over thousands of years, it is important to acknowledge that change is inevitable. The role of this Conservation Management Plan is to identify what is significant about the Curragh amidst the ongoing processes of change, in order to identify a framework of actions around which to manage that change and ensure the significance of the Curragh Plains is promoted, protected, and sustained.

6.2.2 Effective management demands a strong vision which provides clear direction towards sustainable conservation and development. However, identifying and realising a 'vision' is problematic given the changing nature of the influences and pressures that shape the landscape. As such, the vision for the Curragh Plains should be both balanced and flexible to its long-term needs, its residents, those who use it as a place of work, and the people for which the Curragh Plains are an important place of recreation.

6.2.3 The vision for the Curragh Plains is as follows:

To achieve a dynamic balance that protects and enhances the heritage of the Curragh while still permitting the evolving activities of key stakeholders to continue.

6.2.4 Within the intent of this vision, the policies and actions seek to curtail damage and reverse the decline that is evident across the Curragh Plains, maintain and enhance those aspects of the Curragh Plains that are significant, and establish the protected uniqueness in a way that is legible and understood to all engaging in this special landscape.

6.2.5 Key target conditions are a tool by which to guide the policies and actions of the plan and measure the success of the plan. They are subject to further research and evidence-based stakeholder consultation.

6.3 Target Condition - Biodiversity

Extent of habitats

- No further loss of GS3 Dry-humid acid grassland.
- No further loss of HH1 Dry siliceous heath.
- No further loss of HH3 Wet Heath.

6.3.1 The baseline should be set by detailed measurements from good satellite imagery backed up with rapid reconnaissance surveys to map the extent of grassland habitats within the Curragh. There is reason to believe, either from local knowledge of satellite imagery, that areas have already been denatured beyond these classifications.

6.3.2 Increase of GS3 habitat where this can be achieved through on-going furze (gorse) clearance from areas where it has become consolidated.

Target Condition of habitats

6.3.3 Indicator of success - Not over-grazed:

Sward heights (grass tillers) throughout to be within the range of 3-25 cm, and a wide range of sward heights present in a locality at any one time. Without the use of fencing this may be highly dependent upon skilful sheep management and persistent hefting.

In GS3 communities GS3 herbs to be present. At least two in a typical 2 x 2 m quadrat contributing a combined cover of > 15%.

- Tormentil (*Potentilla erecta*)
- Yarrow (*Achillea millefolium*)
- Heath Bedstraw (*Galium saxatile*)
- Selfheal (*Prunella vulgaris*)
- Devil's-bit Scabious (*Succisa pratensis*)
- Common Dog-violet (*Viola riviniana*)
- Meadow Buttercup (*Ranunculus acris*)
- Autumn Hawkbit (*Scorzoneroides autumnalis*)
- Ribwort Plantain (*Plantago lanceolata*)
- Common Sorrel (*Rumex acetosa* subsp *acetosa*)
- Common Bird's-foot-trefoil (*Lotus corniculatus*)
- Heath Speedwell (*Veronica officinalis*)
- Wood Anemone (*Anemone nemorosa*)
- Lousewort (*Pedicularis sylvatica*)
- Marsh Lousewort (*Pedicularis palustris*)
- Common Milkwort (*Polygala vulgaris*)
- Heath Milkwort (*Polygala serpyllifolia*)
- Sheep's Sorrel (*Rumex acetosella*)

6.3.4 Indicator of success - Not over-fertilised or nutrient enriched:

- Dominated by any combination of Common Bent (*Agrostis capillaris*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Sheep's-fescue (*Festuca ovina*) and Field Wood-rush (*Luzula campestris*), Spring-sedge (*Carex caryophyllea*).
- Sedges (*Carex* – any species) to be present in any typical 2 x 2 vegetation sample.
- Daisy (*Bellis perennis*), Common Mouse-ear (*Cerastium fontanum*), Rosebay Willowherb (*Chamerion angustifolium*), Creeping Thistle (*Cirsium arvense*), Spear thistle (*Cirsium vulgare*), Common Ragwort (*Senecio*

jacobaea), Greater Plantain (*Plantago major*), Creeping Thistle (*Cirsium arvense*), to be generally absent unless solely associated with scrub edges.

- These species should not identify former locations of supplementary feeding.
- Marsh Thistle (*Cirsium palustre*) is deliberately not on this list
- Perennial Rye-grass (*Lolium perenne*) and Timothy (*Phleum pratense*), to remain largely absent from areas where they are confirmed as largely absent by the semi-natural grassland survey data or by baseline condition surveys.
- In areas where these species are present, declining combined cover to < 10% can be set as target condition.
- Yorkshire-fog (*Holcus lanatus*) cover to be < 10%

Soils to be infertile:

- Soil Phosphorus [P] no more than 15 mg/l
- Soil Potassium [K] no more than 120 mg/l
- Mean Ellenberg N value from a typical 2m x 2m vegetation sample <5.

* In 1974, the German botanist Heinz Ellenberg's first published list of plant indicator values appeared in 'Zeigerwerte von pflanzen in Mitteleuropa' in German in *Scripta Geobotanica*, the first of 5 editions. The fourth edition (Ellenberg 1986) was translated into English, and the system began to gain currency in the British Isles. The values were subsequently adjusted to reflect genotypes of the British Isles (ITE 1999).

One of the environmental variables for which index values have been compiled is EbN, soil nitrogen, and in effect a general indicator of soil fertility.

In the absence of chemical soil testing the nutrient status of a soil can be assessed using the mean EbN score, ideally adjusted to reflect comparative abundance.

6.3.5 Indicator of success - Not under grazed:

Combined False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*) cover to be < 10%

Total cover of grass leaf litter not to exceed 25% cover.

6.3.6 Indicator of success - Damp areas retained:

Damp areas remain undrained with wetland vegetation uncompromised

6.3.7 Indicator of success - Bare soil:

Not a feature of known high diversity fungal sites

No new vehicle tracks

Where gallops and desire line tracks are present within GS3, HH1 or HH3 habitats, % bare Soil not to exceed 10 % in any 25 x 25 m sample.

Soil unavoidably exposed during habitat management works or other necessary management works to be allowed recovery time.

6.3.8 Indicator of success - Heathy areas:

Heather mainly in building phase 14-40 cm tall.

Bracken (*Pteridium aquilinum*) at most scattered and not forming dense stands.

Bryophyte (moss) cover > 10% in a typical heathy 2 x 2 vegetation sample

In mosaic with GS3 the same GS3 target condition applies.

6.3.9 Indicator of success - Scrub:

Cleared furze patches not allowed to regenerate into consolidated patches > 10 m x 10 m

6.3.10 The proposed target condition has been compiled with reference to the Common Standards for Monitoring (JNCC 2004) guidance for lowland dry acid grasslands, but it is not proposed that a widely established monitoring baseline should be regarded as a prerequisite.

Indicator of success - Overwintering Birds

- Protected from disturbance

Indicator of success - Ground nesting Birds

- Remain present on site with a regular brood success evident.
- Expand into new areas.

Indicator of success - Trees

- No new planting of either coniferous or broadleaved trees
- Removal of certain existing plantations.

Agri-environmental type schemes

6.3.11 One good practice example, the Lake District National Park Partnership's Management Plan, covers a much larger area that includes multiple commonages. A central strand of the plan is 'identifying and co-creating farming led local nature recovery and landscape scale recovery schemes.

6.3.12 This they set out to achieve largely through 'Increasing number of commons in successful agri-environment schemes to lead to Environmental Land Management schemes'.

6.3.13 The recommendations of the proposed habitat management plan have been based upon those provided for various agri-environmental schemes, especially the Northern Ireland Rural Development Programme 2014-2020 Measure 10 – Environmental Farming Scheme (EFS).

6.3.14 These schemes generally seek to establish a farm management plan based upon established principals of good biodiversity management. Some, such as the EFS include a Group scheme option whereby multiple rights holders can make a collective application. Then the basic approach is to compile a farm plan using such guidance as if the commonage area were one big farm.

6.3.15 A significant difference between farm plans compiled under these schemes, and the elements of the proposed biodiversity management plan for the Curragh that relate to farming, is that they are compiled according to guidelines in order to secure additional farm payments for the landowner.

6.3.16 Support for the graziers is central to the management of the Curragh and in line with the Lake District National Park Partnership's approach, this will be done by encouraging graziers to sign up to Agri-environment schemes and by supporting their application. Teagasc is the national body providing integrated research, advisory and training services to the agriculture, food industry and rural communities. It will be a significant support resource for graziers on the Curragh.

6.3.17 Since 1994, it has been compulsory for each EU member state to have agri-environment schemes. These are the primary mechanisms through which farmers are financially rewarded for farming in an environmentally friendly manner above that required for the Basic Premium Scheme, maintaining, and protecting biodiversity within the farmed landscape

6.3.18 There have been several agri-environment schemes since REPS started in 1994. It is recommended that this Plan is cognisant of Schemes in place at any given time.

The National Parks and Wildlife Service Farm Plan Scheme

<https://www.npws.ie/farmers-and-landowners/schemes/npws-farm-plan-scheme>

- 6.3.19 This is completely separate to the CAP Agri-environmental schemes and sets out to help landowners to deliver a greater benefit for high value protected habitats and species than might otherwise be delivered, through grant aiding investment costs for equipment and capital works.
- 6.3.20 For farms already in receipt of other farm payments this would require the NPWS to agree that there is no question of double funding for the same outcome.

EIP Agrifunding

<https://ec.europa.eu/eip/agriculture/en/find-connect/funding-opportunities>

- 6.3.21 Best suited if there is an element of research and innovation. A possible source of funding to test the impacts of implementing the proposed biodiversity management plan.

A new and separate Curragh Sheep Grazers scheme

- 6.3.22 To be modelled on The Burren Programme that provides financial support for farmers to help them to continue to produce quality livestock whilst at the same time undertaking measures to conserve in the Curragh's landscape and biodiversity. In the Burren this applied to proactive work, in the Curragh this could apply to scrub clearance and hefting/shepherding, or necessary bye works to facilitate a change in the timing of grazing in the Curragh.

How it could work

- 6.3.23 All parties to agree to support the Curragh graziers in applying to schemes in whatever way they can. Provision of advice, facilities, funding of elements of the applications, training etc.

Administration

- 6.3.24 Where grazing rights are leased out, consideration should be given to the payment accruing to be due to the grazier and not the rights holder.
- 6.3.25 The Curragh graziers already have a nominal area allocation that is used in the calculation of farm payment under the Department of Agriculture, Food and the Marine Basic Payment Scheme. This allocation can provide the basis of entitlement under any additional schemes.
- 6.3.26 The basic scheme doesn't include the dense furze stands in the farmed hectareage upon which payment is based, so as it is progressively controlled, there may be a basis for small adjustments. Upwards of 35 ha of dense furze is estimated to remain.

New designations

Potential for Special Protect Areas (SPA) designation

- 6.3.27 The SPA designated process didn't rely solely on population estimates to identify sites for designation and species for inclusion – it employed a framework in which the population estimates were used. When the SPA network of sites was being identified and selected, the approach was largely wetland based, i.e. it selected important inland and coastal wetlands that served to provide protection to birds that feed and/or roost within the wetlands. Of course, some species may only roost at the wetland and may largely feed outside it, e.g. some waders and geese. A number of criteria were then applied to (i) identify sites to select as SPAs and (ii) identify additional species that should be listed under the SPA. The most suitable sites for some species were chosen, and the number of sites designated for the species was often proportional to the proportion of the biogeographic population that Ireland supports. For wintering Golden Plover, data from the period 1995/96 to 1999/2000, the top 16 sites for Golden Plover were identified and selected as SPAs; two of these supported populations of international significance (>9300 at the time).

An additional 16 already-selected sites had Golden Plover included as an Additional Special Conservation Interest; these 16 sites supported nationally important populations (> 1600 individuals at the time).

Potential for Special Areas of Conservation (SAC) designation

- 6.3.28 There was enormous collective will within the NPWS to include the Curragh within the suite of stringently protected Special Areas of Conservation (SACs) but site investigations in the early 2000's were unable to make the necessary scientific case that the extent and condition of the specific Habitats for which Ireland has a legal obligation to conserve merited the Designation.
- 6.3.29 SAC status for grasslands was considered (over 10 years ago) and rejected at that time largely on the basis of grassland condition (not conforming to the Habitats Directive Annex habitat 'species-rich Nardus grassland')
- 6.3.30 Designation would involve the publication of conservation objectives (target site conditions) and monitoring of the site in relation to the conservation objectives which would be of great consequence to the protection of the Curragh biodiversity at least in respect of the qualifying feature 'species-rich Nardus grassland'.
- 6.3.31 However, new non-marine SAC designations are not currently being contemplated (NPWS Neill Lockhart pers. comm) and this makes it very clear that 'the interpretation manual of EU habitats defines the habitat types as species-rich grassland, so that habitats with a decreased number of species due to overgrazing should not be included'.
- 6.3.32 If the biodiversity management plan is enacted and proves to be beneficial in pushing the main GS3 Dry-humid acid grassland community towards the manual definition:

Closed, dry or mesophile, perennial Nardus grasslands occupying siliceous soils in Atlantic or sub-Atlantic or boreal lowland, hill and montane regions. Vegetation highly varied, but the variation is characterised by continuity. Nardetalia: 35.1-Violo-Nardion (Nardo-Galion saxatilis, Violion caninae); 36.31- Nardion.

Species-rich sites should be interpreted as sites which are remarkable for a high number of species. In general, the habitats which have become irreversibly degraded through overgrazing should be excluded

Legal ratification of the NHA status

- 6.3.33 Currently the NPWS's focus is very much dominated by Natura 2000 sites (the Special Areas of Conservation and Special Areas of Conservation) and their legal obligations towards them. An element of the biodiversity management should be lobbying for the full NHA status for the Curragh adopting the same boundaries as the proposed NHA site.

National Park designation

- 6.3.34 There has been calls for the Curragh Plains to be given National Park status.

- 6.3.35 NPWS website advised that:

'In 1969, the International Union for the Conservation of Nature (IUCN) recommended that all governments agree to reserve the term 'National Park' to areas sharing the following characteristics:

- *Where one or several ecosystems are not materially altered by human exploitation and occupation; where plant and animal species, geomorphological sites and habitats are of special scientific, educational and recreational interest or which contain a natural landscape of great beauty.*
- *Where the highest competent authority of the country has taken steps to prevent or eliminate as soon as possible exploitation or occupation in the whole area and to enforce effectively the respect of ecological, geomorphological, or aesthetic features which have led to its establishment.*
- *Where visitors are allowed to enter, under special conditions, for inspirational, educational, cultural, and recreational purposes.*

It is the policy of the Department of Culture, Heritage and the Gaeltacht, endorsed by successive governments, to abide by the criteria and standards for National Parks as set by the IUCN'.

- 6.3.36 'Ecosystems not materially altered by human exploitation' is a big ask in Ireland, strictly speaking there are practically none, noting that nature conservationists conventionally define our wild areas as 'semi-natural'. However, on the basis that the Wicklow Mountains can qualify, it is considered that at least parts of the Curragh are viable.
- 6.3.37 Biodiversity Strategy includes an intent to 'manage National Parks and Nature Reserves to a high standard/ to this end the Department of Housing, Local Government and Heritage has directly funded nature conservation, operational management and upgrading within National Parks and Nature Reserves.

Legislative review

- 6.3.38 Subject to the agreement of Government, a review of the Curragh Acts can be considered.
- 6.3.39 Improving the legal powers of the Department of Defence's ground staff to address the various infringements which could occur.

Research priorities

- 6.3.40 In 2000 it was reported that the grazing pressure within the turf club enclosure was less than that of the surrounding Green Lands and that as a result the dry heath vegetation was in better condition. More than 20 years later it is time to undertake further empirical investigations to check the link between grazing pressure and species-richness/sward condition. Compare grassland condition in areas of different sheep grazing intensity. For example, within the fenced off golf and pitch and putt courses; in lands fenced around the Curragh Camp.
- 6.3.41 Extend the collection of vegetation quadrat data into the firing ranges to supplement the coverage of the Semi-natural Grassland Survey. Likewise add to description of the heathier parts of the site.
- 6.3.42 Soil testing especially in areas where new botanical data collection is proposed – but also generally.
- 6.3.43 Monitor the changes in vegetation in response to changes brought about by implementing the management plan. Establish a monitoring base line.
- 6.3.44 Collect and archive data to gain insight into the effects of soil fertility and grazing pressure and timing upon the structure and composition of GS3 vegetation on the Curragh.

6.4 Comparison sites

- 6.4.1 As part of the process of crafting this report's policies and actions, we looked at the management structure and management plans of two internationally significant sites. To ensure the selection of comparable places the following criteria were used:
- In a rural location
 - Large historic landscape
 - Significant population either on or near the site
 - Military usage of wider landscape
- 6.4.2 Ultimately, the Lake District and Stonehenge/Avebury were chosen. Both are in the UK, and both are UNESCO World Heritage Sites (WHS).

The Lake District National Park, UK

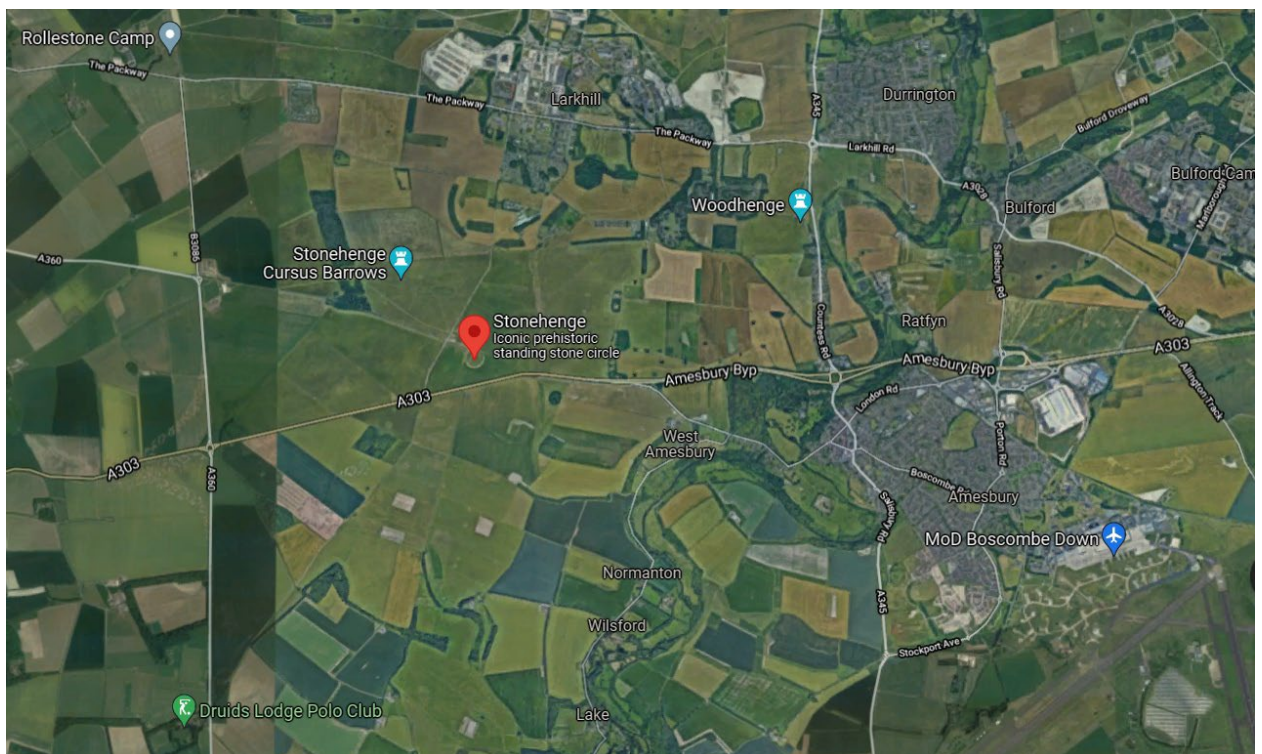
- 6.4.3 In addition to being a newly listed UNESCO World Heritage Site, the Lake District is also a National Park (236,234 hectares) (www.lakedistrict.gov.uk/learning/factsandfigures). Over 40,000 people live within the boundaries of the National Park (ibid). Much of the Peak District functions as a common with sheep the dominant livestock (May 2020). Interestingly, this large site is managed on a partnership basis. Established in 2006, as of 2021 the Lake District

National Park Partnership comprises 25 organisations from the public, private and community sectors. The current management plan for the Lake District was jointly adopted by these 25 organisations in October 2021. It is this plan that we will use to help ensure our recommendations for the Curragh fit within accepted best practice norms for conservation management within a working landscape.

Stonehenge/Avebury, Salisbury Plain, UK

- 6.4.4 Neolithic Stonehenge with nearby Avebury and other associated sites covers almost 5,000 hectares (<https://whc.unesco.org/en/list/373/>, accessed: 14/11/2021). In 1986, Stonehenge/Avebury was inscribed onto the list of UNESCO World Heritage Sites. Stonehenge itself sits at the centre of a large archaeological landscape which is bordered on two sides by large settlements and military installations. The main road from London to Cornwall (A303) passes within view of the stone circle. Another road, the A344, which passed just a few meters from Stonehenge was partially grassed over in 2013 to enhance its setting.

Plate 27 - Stonehenge's setting (Source: Google maps, accessed: 23/11/2021)



- 6.4.5 The Stonehenge/Avebury UNESCO site is managed by a Partnership Panel which coordinates both parts of the WHS and oversees the work of the Coordination Unit. It is led by an independent chair. The group is made up of English Heritage, the National Trust, Wiltshire Council, the chairs of the two local steering committees (i.e. Stonehenge and Avebury) and a representative from the Avebury and Stonehenge Archaeological and Historical Research Group (<http://www.stonehengeandaveburywhs.org/management-of-whs/partnership-panel/>, accessed: 23/11/2021). The Stonehenge WHS Committee comprises representatives from the WHS partners, including landowners and local community representatives. Detailed information on how the two groups operate can be found in the appendices of the 2015-2021 management plan.
- 6.4.6 The current management plan for Stonehenge, Avebury and Associated Sites covers the years 2015-2021 WHS (Simmonds & Thomas, 2015). It is this plan that we will use to help ensure our recommendations for the Curragh fit within accepted best practice norms for conservation management within a working landscape.

7 Conservation Policies and actions

7.1 Background

7.1.1 In addition to being in keeping with the vision, the conservation policies and actions outlined take into account the relevant constraints, opportunities, legislative requirements, stakeholder requirements and following principles:

- Retention of heritage significance of the individual places that make up the Curragh Plains.
- The use of professional advice and competent contractors where required.

7.1.2 In arriving at policies and actions, a wealth of information has been processed including previous and ongoing academic research, workshops with relevant stakeholders and experts, and feedback from the public consultation. The process has also been informed by management structures associated with other similarly diverse and sensitive landscapes.

7.1.3 Policies and actions are driven by the threats to the Curragh's significance and grounded in the many different features, users, sensitivities, relationships, and ambitions associated with the Curragh. They are inherently interrelated and interdependent and are in keeping with the vision.

7.1.4 Whilst building on and supporting each other, the policies and actions have been arranged into separate but fundamentally inter-related themes. In combination they should:

- Provide the basis for all future decisions concerning the management of the Curragh Plains' heritage.
- Be considered by any appointed Agency and other relevant State agencies when making decisions regarding the Curragh Plains.

7.1.5 The policies and actions outlined in this Conservation Management Plan are not exhaustive, nor do the authors of this report have a monopoly on ideas. The policies presented are a framework for decision making and resulting actions (Bungay, 2019). Accordingly, any actions that are in keeping with the vision, principals, policies, and targets of the plan are to be welcomed.

7.2 Policy 1 – Protective Framework

Ensure the Curragh's built, natural, and intangible heritage has sufficient legal protections.

Action	Details
P1.1	Modernise the Curragh of Kildare Act
P1.2	Improve legal powers allocated to ground staff
P1.3	Commission a Conservation Management Plan for the Curragh Camp
P1.4	Appraise the listing of individual sites
P1.5	Campaign for the ratification of the pNHA.

7.2.1 P1.1 - Modernise Curragh of Kildare Act

The Curragh of Kildare Act was last updated in 1969, over 50 years before the production of this Conservation Management Plan. While much of the Act has stood the test of time, the condition of the Curragh and the demands placed upon it have moved on considerably. It is now necessary to undertake a comprehensive review and update of this legislation to adequately respond to the issues and opportunities outlined in this plan.

7.2.2 P1.2 – Improve legal powers allocated to ground staff

Those tasked with enforcing the Curragh of Kildare Act, including any recommendations set out in this plan, require adequate powers to do so. Consideration should therefore be given to the empowerment of ground staff members (or rangers as proposed in P2.2) with legal powers. This will allow for the swift rectification of issues as identified, while acting as a deterrent and improving cooperation with other agencies, such as An Garda Síochána.

7.2.3 P1.3 - Commission a Conservation Management Plan for the Curragh Camp

The Curragh Camp is a vital military asset, but also a rich historic landscape with many buildings of national heritage importance. A Conservation Management Plan should therefore be commissioned specifically for the Curragh Camp to enable a detailed assessment of its architectural and cultural heritage significance. This will assist the Department and Military to better progress necessary modernisation and development plans in a manner that safeguards the historical value of the site and the legacy of the many thousands who have served there.

7.2.4 P1.4 - Appraise the listing of individual sites

The Curragh Plains are home to a plethora of archaeologically important sites, with new information suggesting a significant number of undocumented areas of interest. A detailed and systematic assessment of each site is therefore required to ensure that adequate and appropriate protection is afforded to each.

7.2.5 P1.5 - Campaign for the ratification of the pNHA

Natural Heritage Areas (NHAs) are a vital tool in the protection of wildlife habitats in Ireland. However, the Curragh Plains currently lacks adequate protection due its status remaining proposed since 1995. Ratification of the NHA offers the most practical means by which to afford this nationally important wildlife habitat the protection it requires. Efforts are therefore urgently required to accelerate ratification of this NHA.

7.3 Policy 2 – Stewardship

Create an adequately resourced public facing body with appointed personnel to positively engage with stakeholders and the public and manage administrative, liaison and day to day management duties.

Action	Details
P2.1	Consider the establishment of a public facing Curragh Agency
P2.2	Implement a Curragh Ranger Programme

7.3.1 P2.1 - Consider the establishment of a public facing Curragh Agency

The Curragh of Kildare is a nationally important asset, but also a uniquely complex landscape that is required to balance a series of very different uses and users. To manage the Curragh most effectively it is proposed that consideration should be given to the establishment of a single entity, an Agency, with the support of legislative changes and the provision of financial and human resources, providing a centralised system of Governance. The Department of Defence would retain overall responsibility for all military aspects of the Curragh's use. This Agency would assume responsibility for other uses of the Curragh, including farming, general recreation and the management of heritage sites and wildlife habitats.

The agency and its team would perform a 'one stop shop' role for all aspects relating to the Curragh of Kildare, namely:

- Delivering on the Policies outlined in this Conservation Management Plan with input from key stakeholders.
- Engagement with stakeholders and the general public on all matters relating to the Curragh Plains, including dispute resolution if necessary.
- Enforcement of the Curragh of Kildare Act associated bye-laws and other regulations as legally permissible and in conjunction with An Garda Síochána and other agencies.
- Day to Day Management of the Curragh Plains through a devoted maintenance team.
- Communication between the military and other Curragh users to help ensure public safety and uninterrupted use of the Curragh for military purposes.
- Delivery of the Conservation Management Plan recommendations, including those in relation to research and evidence gathering and sharing.
- Development of the Curragh Plains infrastructure, including delivery of the Branding, Interpretation and Wayfinding Plan, the second part of the framework for the sustainable future management of the Curragh Plains.
- Delivery of educational, cultural, arts and sports programmes with input from experts, universities, colleges, schools, and other interested parties.
- Provision of tourist information, guidance, and promotion, coordinated with Kildare County Council, Fáilte Ireland and organisations responsible for destinations in and around the Curragh.
- Coordination of local volunteer and training programmes focussed specifically on the Curragh.

The structure, constitution and statutory role of the proposed agency will require development and consultation within government and with key stakeholders prior to finalisation.

The agency will require adequate and sustained funding to undertake its duties to the best possible standard.

The agency should be based on the Curragh in a publicly accessible location (see P7.1).

The agency and its team, including proposed rangers, should be specially trained to engage with the public and to maintain a positive and proactive outlook consistent with the landscape's brand identity and ethos.

7.3.2 P2.2 - Implement a Curragh Ranger Programme

The Curragh is a large tract of land that plays host to many users each day, be they horse trainers, sheep farmers, soldiers, or members of the public.

It is proposed to establish a Curragh Ranger Programme, less modelled on the past role of the Curragh Ranger, but more on OPW Rangers. These rangers would be tasked with patrolling the Curragh Plains and positively engaging with its users to provide assistance and information, as well as observing use and enforcing regulations as required. The Rangers would also be tasked with delivering outreach programmes, such as guided tours, talks and activities.

The rangers should be trained, presented, and operate in a manner appropriate to the brand and ethos of the landscape and the proposed agency. This should include excellent interpersonal skills and abilities in relationship building; expertise and interest in heritage matters; a suitably designed uniform; and the use of sustainable modes of transport. This may include the use of bicycles and given its special link to the Curragh, the use of horseback is to be greatly encouraged.

7.4 Policy 3– Evidence Base

Establish a qualitative and quantitative baseline dataset (based on input from expert advisory, professional and academic services), updated at regular intervals that will allow decision makers to manage effectively and measure progress.

Action	Details
P3.1	Curragh Research and Policy
P3.2	Advice on ecology, archaeology, cultural heritage, and climate change
P3.3	Support the publishing of research focused on the Curragh

7.4.1 P3.1 -Curragh Research and Policy

While the Curragh of Kildare is a heritage asset of national and international importance, there remains many unanswered questions pertaining to its historic and ecological significance. The Agency would provide a central point of reference whereby existing research is collated, disseminated, and made accessible, while new research is scoped and commissioned. The focus should be the establishment of baseline data (both qualitative and quantitative) against which environmental changes and improvements can be regularly measured. The Agency must necessarily develop and maintain strong working relationships with decision makers within central and local government departments, as well as universities and colleges, but retain an independence to protect the objectivity of its research and recommendations.

7.4.2 P3.2 Advice on ecology, archaeology, cultural heritage, and climate change.

Decisions about the Curragh Plains must be informed by the best available expert advice. Such advice should be sought under the direction of the Agency and will include experts in the fields of ecology, archaeology, cultural heritage, and climate change from Ireland and further afield as appropriate. This expert advice will be made available to inform decisions as required, as well as supporting the work of the Agency in evaluating research and disseminating best practice. They may also be tasked with special projects, as necessary.

7.4.3 P3.3 Support the publishing of research focused on the Curragh Plains

The Agency should ensure that all research relating to the Curragh Plains is made readily accessible to the public and academic community. This will involve the collation and dissemination of existing data and the commissioning of new research. In addition, the Agency should also engage with the academic community, stakeholders, and general public.

7.5 Policy 4 – Prohibition and enforcement

Establish measures, regulations, infrastructure, and information necessary to preclude unauthorised activities on the Plains.

Action	Details
P4.1	Preclude off-road access for non-military authorised vehicles through a vehicle permit system
P4.2	Introduce dog walking regulations
P4.3	Prohibit abstraction of water from within the Conservation Management Plan area
P4.4	Prohibit unauthorised pesticide use
P4.5	Prohibit dumping and waste

7.5.1 P4.1 - Preclude off-road access for non-military authorised vehicles through a vehicle permit system

One of the most significant threats to the Curragh grasslands, and particularly its archaeology, is overrun by vehicles. A visit to the Curragh will quickly reveal scars on the landscape caused by motorists traversing the plains. The impact of vehicles and associated concerns over public safety were also frequently raised by the public during consultation.

It is therefore proposed to ban the off-road use of motorised vehicles on the Curragh Plains with the exception of the military, emergency services and other users, that through a permit system, require vehicular access.

Vehicular damage is worsened during wet weather and additional restriction may be necessary during this time.

Enforcement would be primarily conducted by the proposed Curragh Rangers (see P2.2) working alongside An Garda Síochána and the military. The public would be widely informed of this requirement for a permit through information campaigns and signage. Physical deterrents to off-road driving, such as the use of roadside mounds or stones may be necessary in key locations, but only subject to the legalities of enclosure under the Curragh Act and subject to strict design guidance (see P7.6). It is acknowledged that there is a requirement for the provision of additional public car parking areas as this would reduce the instances of off-road driving across the Plains.

7.5.2 P4.2 - Introduce dog walking regulations

Dog walking is a popular past time on the Curragh Plains, availing of the abundant open space in proximity to residential populations. However increased usage and the presence of livestock and young children mean that dog walking must be carefully managed to ensure it is safe and sustainable for all parties.

A set of dog-walking regulations should be introduced through consultation for the Curragh Plains. These are likely to include the use of leads and a responsibility of owners for the removal of faeces.

7.5.3 P4.3 - Prohibit abstraction of water from within the Conservation Management Plan area.

A critical component of the Curragh, its wider landscape (including the Pollardstown Fen) and indeed, the hydrology of the region is the Curragh Aquifer. The unique ecology of the Curragh Plains is intimately linked to the functioning of this subterranean waterbody and therefore, is highly susceptible to any changes to it.

To better protect the Curragh, it is therefore proposed to prohibit any further abstraction of water from within the area of the Conservation Management Plan.

7.5.4 P4.4 - Prohibit unauthorised pesticide use.

Another factor that threatens the ecological significance and prosperity of the Curragh Plains is the use of pesticides. Such toxins leach into the soils and water systems of the landscape, while greatly damaging native populations of insect and the wider food chains they support.

The use of pesticides on the Curragh Plains must therefore be strictly controlled and never undertaken without an environmental risk assessment. Appropriate use for the treatment of furze stumps should be permitted. The laying of poison baits, however, should not be permitted at any time.

7.5.5 P4.5 - Prohibit dumping and waste.

Litter and the dumping of waste is a scourge of landscapes across Ireland and a key issue that affects the Curragh Plains. Fly tipping and litter not only detracts from its inherent beauty, but also poses a contamination risk and health hazard to its ecosystems, wildlife, and water courses. While every effort is made to remove such waste when found, it is resource intensive to police, and it is difficult to identify culprits.

No dumping of waste material or rubbish on Curragh lands is allowable. Waste generated on Curragh lands to be disposed of off-site and with due regard to potential environmental impacts at the recipient site – if within the Curragh gravel aquifer with the requisite completion of a Natura Impact Statement to test for potential significant impacts upon Pollardstown Fen.

Illegally dumped waste to be quickly identified. The proposed code of conduct to include a contact e-mail or telephone number to report incidences. In the event of illegal tipping An Garda Síochána to be notified as a matter of routine. Each case to be investigated and an attempt made to identify the offender, with a view to prosecution by default and recovery of removal costs. Dumped waste and rubbish to be removed within a target time of 1 week.

7.6 Policy 5 – Promote positive behaviours

Informed by an appropriate evidence base, create a positive culture of respect and custodianship amongst all users of the Curragh Plains.

Action	Details
P5.1	Develop a voluntary Curragh Charter and Code of Conduct
P5.2	Establish a Curragh events and community use panel
P5.3	Promote and support Active Travel and public Transport usage

7.6.1 P5.1 - Develop a voluntary Curragh charter and code of conduct

Caring for the Curragh Plains will require the collective effort of all users, many of whom care passionately for this special landscape. A voluntary Curragh Charter and Code of Conduct would seek to garner wide recognition of the importance of the Curragh Plains and agreement on the positive behaviours required by all users.

The charter should focus not just on rights of use but also on obligations. Its objective is to create a culture of respect and custodianship amongst all organisations and community groups. The first signatories should be the appointed Agency.

7.6.2 P5.2 - Establish a Curragh events and community use panel

As a large publicly accessible landscape on the doorstep of urban populations, great demand exists to use the Curragh Plains for a range of events and community uses. Yet given the sensitivities of its heritage, as well as uses such as military training, it is not always possible to fulfil the wishes of all parties.

It is proposed to establish a Curragh Events and Community Use Panel to assist in the management and decision making around local events and activities on the Curragh. Care is required to ensure that the panel is representative of the many interests across the Curragh.

7.6.3 P5.3 - Promote and support active travel and public transport usage

A key objective for the future of the Curragh Plains will be moving people to, from and around it in a more sustainable and less environmentally damaging way. This will be especially the case if an increase in visitor numbers is sought. A large part of the solution will be the provision of appropriate and improved infrastructure. (see P7.6). Yet in tandem with this, continued efforts are needed to stimulate a change of behaviour and the adoption of more sustainable means of transport.

A programme of public information and initiatives should be undertaken to promote Active Travel and Public Transport on the Curragh. A wide range of creative activities and events should be developed in a coordinated and positive campaign for the Curragh. School projects, cycling proficiency courses, sponsored walks and local bicycle races are to name a few. Current public transport services should also be promoted, ensuring that everyone has easy access to timetabling information and the location of bus stops. Such a collaborative, inclusive and positive campaign could have a significant impact on the Curragh, helping everyone to link their own transport choices with the wider need to care for the Curragh.

7.7 Policy 6 – Biodiversity management

Pursue the coordinated and integrated management and improvement of the Curragh's flora and fauna and to prevent further loss of high value grassland and heath habitats.

Action	Details
P6.1	Upgrade the protection of the Curragh to fully secure the grassland from agricultural improvement.
P6.2	Establish a Curragh-wide sheep grazing management plan aimed at improving the biodiversity value of the grasslands.
P6.3	Establish a support mechanism to allow the Curragh graziers to implement positive biodiversity management in a sustainable way without personal disadvantage.
P6.4	Strive to ensure that there is a source of the agreed seed mix appropriate to the Curragh grasslands.
P6.5	Continue the reduction in the extent of dense furze.
P6.6	Disallow tree planting and investigate the possibility of removing certain existing plantations.
P6.7	Reduce the negative impacts of racehorse exercising and military training upon the Curragh grassland.
P6.8	Support the golf courses that lease Curragh lands in accreditation to a sustainable management scheme.
P6.9	Protect the underlying gravel aquifer and thus Pollardstown Fen.

7.7.1 P6.1 - Upgrade the protection of the Curragh to fully secure the grassland from agricultural improvement.

The grassland ecosystem of the Curragh Plains is of national importance and must therefore be adequately protected from any form of agricultural improvement. Furthermore, the National Biodiversity Action Plan 2023-2030 requires habitats to be conserved and restored.

On the Curragh no agricultural operations to plough, harrow or rotovate GS3, HH1 or HH3 habitats should be permitted, nor the application of synthetic chemical fertilisers, manure, slurry, AD digestate, blood and bone, lime, or any type of soil conditioner.

The fertilisation of converted grassland surfaces within the golf leaseholds is to be preceded by soil testing, and to be strictly calculated to be at maintenance only level.

7.7.2 P6.2 - Establish a Curragh-wide sheep grazing management plan aimed at improving the biodiversity value of the grasslands.

A process is to be undertaken to develop a sheep grazing management plan that sustains agricultural production while improving biodiversity. This may require a change from the traditional allocation of Curragh grazing rights by number, to specifying grazing in terms of livestock units (LU) per hectare (ha) per year with limits imposed on the timing of grazing.

7.7.3 P6.3 - Establish a support mechanism to allow the Curragh graziers to implement positive biodiversity management in a sustainable way without personal disadvantage.

Changing to grazing regimes to allow for biodiversity should be undertaken in collaboration with the Curragh farming community. Should any proposed changes in practice risk disadvantage to farmers and their operations, a suitable support mechanism should be developed and distributed accordingly.

7.7.4 P6.4 - Strive to ensure that there is a source of the agreed grass seed mix appropriate to the Curragh grasslands.

Due to the unique characteristics of the Curragh grassland, only approved seed mixes should be allowed at any point, including areas used for sporting purposes. The agreed seed mix should be developed and tested for a range of uses, while ensuring it is ecologically appropriate.

The enhancement of horse training gallops with wood chip gallop litter on all-weather gallops to be phased out in the short term with its replacement on all established gallops with a high-performance substrate based on sand and fibre and selected for durability/low maintenance and watering requirements.

7.7.5 P6.5 - Continue the reduction in the extent of dense furze.

Furze, also known as gorse or whin, is a long established but invasive species on the Curragh Plains. The current practice of furze removal should be continued, but under the guidance of an archaeologist so to minimise any impact of remains that may be present there.

All clearance of furze scrub or other structural vegetation to be undertaken outside the bird-breeding season (1st March to 31st August). Felling or lopping of individual trees if required within the bird breeding season to be preceded by a check for nests or nesting behaviour (30 minutes of observation).

7.7.6 P.6.6 - Disallow tree planting and investigate the possibility of removing certain existing plantations.

There are a number of woodlands and trees around the Curragh, all of which have planted over the years and none of which represent the native habitat. While the planting of trees is to be encouraged in many other landscapes, it is proposed to disallow any further tree planting within the Curragh Plains. Furthermore, consideration should be given to the planned and phased removal of certain plantations thereby restoring natural habitats, biodiversity, and the general landscape character of the Plains.

In each case, the felling plan should include a due-diligence check for possible Red Squirrel dreys, and identification of trees with a high Bat Roost Potential (BRP see below) plus any appropriate measures, and a plan for restoration back to grassland.

7.7.7 P6.7 - Reduce the negative impacts of racehorse exercising and military training upon the Curragh grassland

By their nature, the activities of horse racing and training, as well as military training (the rights of which are enshrined in the Act) have an impact on the Curragh grasslands. Efforts are therefore required by associated organisations to reduce such negative impacts where possible.

In addition to measures outlined above, consideration should be given to managing the number of horses using gallops each day. Horse galloping may also be confined to the established gallops, access to the gallops by walking/trotting/cantering in dry weather, but with a moratorium on trotting/cantering in particularly wet weather.

For military use, it is important that operational requirements and use of the Curragh Plains is maintained. However, within the context of planned operational and training requirements, it is suggested that advance notice of works requiring earth movement outside of the Brown Lands to be provided along with proposals for re-instatement or off-setting. Such works to include any digging of defensive positions and to be subject to Agreement with the Department of Defence. Repair of disturbed paths and vehicle tracks alongside to be the responsibility of the Department of Defence, and to be undertaken without import of topsoil.

7.7.8 P6.8 - Support the golf courses that lease Curragh lands in accreditation to a sustainable management scheme.

The sport of golf has a long association with Curragh which is currently home to three established clubs. Care is required however, that the management needs of greens and fairways are balanced with the ecological sensitivities of this special landscape.

The courses within the study area are therefore encouraged to develop course management plans with target condition identified (through liaison with NPWS staff or externally funded ecologists) and defined to integrate with the nature conservation objectives of the wider Curragh Plains area into the management requisites for the course.

7.7.9 P6.9 - Protect the underlying gravel aquifer and thus Pollardstown Fen.

The underlying gravel aquifer of the Curragh must be protected due to the fundamental role it plays in sustaining the ecosystems of the Curragh, Pollardstown Fen, and wider regional landscape. As noted in Policy 4.3 this should preclude the extraction of water from the aquifer for all reasons. Furthermore, the restriction of pesticides (P4.4) and other contaminants likely to leach into the aquifer is essential.

7.8 Policy 7 – Spatial framework and infrastructure

Develop proposals for necessary facilities and infrastructure and facilitate informed planning and decision making grounded in a spatial, evidence-based understanding of the Curragh.

Action	Details
P7.1	Establish a Curragh Visitor, Management and Archive Centre
P7.2	Initiate a Curragh data and mapping project
P7.3	Produce a key sites strategy
P7.4	Remove intrusive infrastructure
P7.5	Develop proposals for Curragh threshold infrastructure
P7.6	Develop and implement a sustainable transport, traffic calming and parking strategy and design guide
P7.7	Undertake Curragh shuttle bus and bike hire feasibility studies
P7.8	Facilitate informed decision making through training and sharing of resources on the Curragh's sensitivities with decision makers.

7.8.1 P7.1 - Establish a Curragh Visitor, Management and Archive Centre

The Curragh of Kildare currently lacks a single place to find out more about this important landscape. To do so one is required to visit several locations and organisations such as the library or heritage centre, and some only upon appointment. This lack of accessible information greatly reduces the appeal of the Curragh as a visitor destination despite its depth of historic, cultural, and natural interest. It also presents a barrier to positive and inclusive management, sometimes creating a misperception that those managing the landscape are somehow distant or detached from it.

It is therefore proposed to develop a Curragh Visitor, Management and Archive Centre. This facility sited immediately adjacent to the Curragh, or potentially in the vicinity of the Curragh Camp (subject to operational feasibility within the context of a military base), would be the home of those managing the Curragh Plains, such as the proposed Agency (see P2.1) and Rangers (see P2.2). It would be a place of welcome to the public, where those using the Plains can find out information and speak to someone for assistance. It would also be the 'go to' starting point for anyone visiting the Curragh Plains, where they can be orientated and informed before setting out to explore its reaches and those attractions contained in and around it. The centre would also provide public facilities including toilets.

The building should either make good use of an existing heritage building, be a contemporary new build or be part of both. It must be of the highest architectural quality, but with minimal impact upon the Plains themselves. Those visiting the centre should be encouraged to do so by foot, cycle, or public transport in keeping with the ethos of the Plains.

7.8.2 P7.2 - Initiate a Curragh data and mapping Project

As noted previously, managing the Curragh Plains is hampered by a lack of up-to-date and available data on its ecology, archaeology, history, and cultural significance. This is further complicated by the interaction between these various factors and the many users who frequent the Curragh for different purposes. Without a convenient and accessible point of reference, it is difficult to monitor threats to the Curragh or the effectiveness of any interventions.

It is therefore proposed to establish an official central set of data and map of the Curragh, bringing together all information into one place. This will involve the amassing and processing of existing data and is likely to also require the commissioning of new surveys that will feed into the data set.

The exercise should be undertaken by the proposed Agency (See P2.1) and efforts are encouraged to make the resultant data as publicly accessible and as user friendly as possible. In doing so, stakeholders and the public will be helped to understand issues affecting the Curragh and the rationale behind any necessary changes or new interventions.

7.8.3 P7.3 - Produce a key sites strategy

Something that makes the Curragh Plains so special are the many hundreds of key sites with heritage significance. These include archaeological features (both visible and concealed), monuments and buildings. It almost certainly also includes sites that have not yet been identified and documented.

A systematic process is therefore required to identify key sites and to assess their significance and condition. Given the sheer number of sites, this process will require a sustained effort over a period of time, undertaken in phases as funding becomes available.

A key output of this process will be an action plan that identifies and prioritises sites and key issues that require remediation. This 'live' tool will become an invaluable reference with which to inform decision making and the direction of funding.

7.8.4 P7.4 - Remove intrusive infrastructure

Continual efforts are required to ensure the Curragh Plains looks as good as possible, true to their underlying character and quality. This should involve the identification and removal or replacement of any infrastructure that negatively impacts upon the unique landscape character of the Curragh Plains, plus the prohibition of new infrastructure that may detrimentally affect it.

One of the most visible impacts are overhead electricity lines that traverse sections of the Curragh or follow its boundaries. These should be 'undergrounded' along routes carefully selected to avoid any negative impact on archaeology.

7.8.5 P7.5 - Develop proposals for Curragh threshold infrastructure

It is difficult to overstate the ecological, cultural and heritage significance of the Curragh Plains. However, the experience of arriving at this landscape is often low key, with little or no demarcation, signage, or other cues to its importance. For the visitor it can be difficult to know when one has arrived on the Curragh. For the local it can be easy to overlook its significance.

It is therefore proposed to enhance each of the arrival points or thresholds into the Curragh Plains. Each entrance is unique and has its own characteristics. However, all entrances should announce arrival to this special landscape, clearly defining its boundaries and making the experience memorable.

Design interventions are likely to include high quality signage and/or features, road surfacing, traffic calming and the management of any adjacent features such as boundaries and planting. Cattle grids should also be installed where necessary to address the problem of sheep straying along surrounding roads.

7.8.6 P7.6 - Develop and implement a sustainable transport, traffic calming and parking strategy and design guide

As a large area located between settlements, the Curragh Plains are often frequented by traffic. However, site analysis and engagement with stakeholders for this plan has revealed concerns regarding the volume and speed of traffic passing through the landscape, endangering people, and livestock, and affecting its general ambience. Car parking at the Curragh is also haphazard, with a number of informal parking areas that detract from the overall character of the Plains, while presenting practical problems of poor surfacing and drainage. Finally, the onset of the climate crisis means that more sustainable forms of transport must be found, so reducing pollution and the emission of greenhouse gases.

It is proposed that a sustainable transport strategy is developed for the Curragh Plains. This would enable a comprehensive assessment of movement in and around the landscape to be undertaken, including the measurement

of traffic volumes, speeds, and car parking demands. Informed by this data a series of transport interventions should be introduced to increase safety and reduce the negative impact of vehicles on the landscape.

Measures for consideration through this process should include:

- the introduction of speed limits and traffic calming to slow down vehicles when on the Plains and in proximity to pedestrians, cyclists, and livestock.
- the reallocation of road space to pedestrians, cyclists, and grassland where feasible
- the cessation of any new road or track building on the Curragh Plains
- the redirection of regional through-traffic around the Curragh where feasible
- a parking strategy that accommodates the needs of visitors without increasing vehicle numbers. Where possible car parking should be provided off-site on lands adjacent to the Curragh Plains. Should parking be necessary on the Plains, then their design must be an exceptional standard with for example, the use of grass paving. Electric vehicle charging points should also be provided.
- the promotion of walking and cycling with for example, the construction of greenways that connect the Curragh Plains with adjacent settlements and a Curragh bike hire scheme.
- the promotion of public transport, including consideration given to a shuttle bus service bringing visitors to the Curragh from neighbouring towns, railway stations and other hubs
- an investigation into the former Curragh Rail Station and the feasibility of its reopening, either on a day-to-day basis or for special events such as race meets.

Transport measures will complement the Wayfinding strategy for the Curragh Plan. (see P9.4)

7.8.7 P7.7 - Undertake Curragh shuttle bus and bike hire feasibility studies

An idea generated through consultation with the public has been the provision of a Curragh bus service and bicycle hire facilities. Local bus services in the area are perceived by some to be too infrequent and unreliable, yet moreover, current public transport is not geared towards facilitating visits to the Curragh Plains for recreational purposes. A shuttle bus system would operate between surrounding town and locations on the Curragh Plains, targeted primarily at visitors and recreational users. The service, which may be seasonal, should be branded and promoted in line with the ethos of the Curragh Plains, and make use of modern sustainable technologies, such as electric or hydrogen powered fleet.

Bicycle hire initiatives have become increasingly popular in Ireland. They are often found in urban centres but can also be used to good effect for exploring landscapes – especially those that are relatively flat and accessible like the Curragh. A bike hire system for the Curragh should consist of well-located hire stations in and around the Curragh, as well as neighbouring towns. The project should be complemented by improved cycling infrastructure to help ensure the safety of its users.

7.8.8 P7.8 - Facilitate informed decision making through training and sharing of resources on the Curragh's sensitivities with decision makers.

As a special yet complex landscape, collaborative efforts are required to ensure the right decisions are made regarding the management of the Curragh Plains. This will involve the collation of data (see P3.1) and improved access to necessary expertise with which to inform decision making (see P3.2). Another important feature of management of the Curragh Plains will be the upskilling of its workforce. This will involve targeted training programmes in for example, the care of wildlife habitats, archaeological monuments, and historic buildings.

7.9 Policy 8 – Promotion and branding of the Curragh

Promote the significance of the Curragh under an identifiable and distinctive brand proposition and identify opportunities for certified Curragh produce that embeds conservation principles.

Action	Details
P8.1	Develop a "Certified Curragh" produce brand
P8.2	Initiate community heritage and archaeology projects
P8.3	Create a central website for the Curragh

7.9.1 P8.1 - Develop a 'Certified Curragh' produce brand

The Curragh Plains have been farmed for centuries and the grazing of sheep is integral to its character and culture. Working with the farming community it is proposed to develop the quality of agricultural produce on the Curragh and to establish a 'Certified Curragh' produce brand. This quality mark would only be used for meat and wool produced on the Curragh Plains, benefitting from its unique conditions and heritage. A future application to the European Union should be considered for Protected Geographic Indication status on produce from the Curragh.

Engagement should also take place with butchers, chefs, restaurateurs, fashion designers, clothing producers and artists to promote the Curragh Brand and support creativity, innovation, and business development.

7.9.2 P8.2 - Initiate community heritage and archaeology projects

Stakeholder and public engagement for this plan revealed a high level of knowledge and enthusiasm for the Curragh Plains and a local appetite to become more involved. The sheer extent of natural, built, and cultural heritage on the Curragh opens up countless opportunities for the public to become involved in the research and management of the plains.

One area is the proposed initiation of community heritage and archaeology projects. Under professional direction, this would give residents, school children and college pupils the opportunity for hands on experience, excavating archaeology sites or managing wildlife habitats.

7.9.3 P8.3 - Create a central website for the Curragh Plains

An important aspect of the Curragh's potential appeal to visitors is its online presence. There are currently a number of websites about aspects of the Curragh, such as its military history or the racecourse. But, as yet, there is no central website covering all aspects of this special landscape.

It is therefore proposed to develop a central website for the Curragh Plains. This will be used to promote the destination as a visitor attraction while also providing information to users regarding special events, regulations, and points of contact. The website should also work to support and promote organisations in and around the Curragh area, encouraging the visitor to explore the region and visit its attractions.

7.10 Policy 9 – Education, Interpretation and Wayfinding

Inform an understanding and awareness of the Curragh's significance pre-arrival and in location and improve the experience of it.

Action	Details
P9.1	Publish an annual report on the state of the Curragh Plains
P9.2	Hold a recurring Curragh conference to celebrate, learn and raise awareness
P9.3	Develop and implement a Curragh interpretation strategy
P9.4	Develop and implement a Curragh signage and wayfinding strategy
P9.5	Promote the Curragh Military Museum
P9.6	Promote a Defence Forces Curragh military heritage outreach program
P9.7	Create a Curragh racecourse discovery point

7.10.1 P9.1 - Publish an annual report on the state of the Curragh Plains

As a nationally important landscape and a great source of local pride, decision makers, the academic community and general public should be kept informed about the Curragh Plains and their condition. In conjunction with a central database and research and policy (P3.1) it is proposed that a report is published annually on the state of the Curragh Plains. This would enable findings of survey and research work to be shared, to report on key threats to significance and update the public on projects in and around the Curragh.

7.10.2 P9.2 - Hold a recurring Curragh conference to celebrate, learn and raise awareness

To further disseminate and discuss learning about the Curragh it is proposed to hold a regular conference in the locality. This would provide the opportunity to convene decision makers, experts and interested parties to share the findings of research and results of projects pertaining to the Curragh and its heritage.

Such events would also present the opportunity to learn about best practice from elsewhere in the country and further afield. The conference would support relationship building between local stakeholders, as well as academic ties on the international stage.

7.10.3 P9.3 - Develop and implement a Curragh interpretation strategy

There is presently very little opportunity to learn about the Curragh Plains or the wide-ranging significance of its natural, cultural, and built heritage. Interested parties are required to conduct their own research, tracking down sources of information with the assistance of libraries, museums, or the heritage centre.

It is therefore proposed to develop and implement an interpretation strategy for the Curragh Plains. This will be based on extensive research into the strands of landscape significance and the various stories associated with them. The interpretative strategy would develop a series of themes for interpretation and then identify the most effective means by which these can be communicated on-site, off-site, and online.

The strategy will culminate in an Action Plan of projects for delivery which can then be prioritised and delivered in line with available funding.

7.10.4 P9.4 - Develop and implement a Curragh signage and wayfinding strategy

A lack of publicly available maps and signage make visiting and understanding the Curragh Plains difficult without local knowledge or prior research. It is very probable that potential visitors are dissuaded by a lack of awareness and information, while also affecting the average duration of visits.

A Signage and Wayfinding Strategy will play a key role in rectifying this situation. Based on an analysis of the Curragh, its destinations and points of interest, a visitor map should be produced, accompanied by a suite of signs. The material must be easy to read and understood by a wide range of users, whether presented online or in situ.

However, great care must be taken to not detract from the fundamental qualities and characteristics of the Curragh landscape. Where possible interpretation should take place 'around' the Curragh and on-line rather than in the Plains themselves, so reducing the need for signs that may clutter the otherwise open landscape. A lack of formal paths is another unique feature of the Curragh. Therefore, the wayfinding strategy must focus on destinations and helping the visitor to find their way to them without formal routes often associated with parks and other landscapes. The design quality of signs and interpretive artworks must also be high, using locally relevant materials and workmanship.

7.10.5 P9.5 - Promote the Curragh Military Museum

The Curragh Military Museum located within the Defence Course Training Camp (DFTC) is a unique attraction that tells the fascinating story of the centuries old and continued military presence here. The museum is home to many priceless documents, artefacts, and vehicles which together form a nationally important collection.

It will be important that the management, continued growth and development of the Military Museum is supported. While retaining its independence and military focus, the museum should be encouraged to maintain strong links with the proposed Curragh Visitor, Management and Archive Centre (see P7.1).

7.10.6 P9.6 - Promote a Defence Forces Curragh military heritage outreach programme

In addition to the Curragh Military Museum, the Defence Forces and Department are encouraged to proactively engage with the public regarding the military heritage of the Curragh. This would build upon existing relationships to conduct tours of the Curragh Plains, visits to schools and other organisations and even as appropriate, hands-on experiences involving military vehicles and equipment. Such an outreach programme could effectively form a cadre of 'heritage cadets', helping strengthen relationships across the region and enhance mutual understanding between the forces and the local population.

7.10.7 P9.7 - Create a Curragh Racecourse Discovery Point

The Curragh is synonymous with horse racing, breeding, and training, and the development of a Curragh Racecourse Museum is to be greatly encouraged. In doing so, the relationship between the museum and Curragh Plains should be supported wherever possible, including opportunities for the visitor to meet the horses and ride the Plains.

In conjunction with the museum and tied in with the Interpretative Plan, it is proposed that an outdoor 'Discovery Point' is created at the racecourse. This would enable visitors to the Curragh Plains to learn about the racecourse and encourage them to visit the museum and use its wider facilities.

8 Conclusion and Recommendations

- 8.1.1 The policies and actions summarised in this document are inter-related and seek to complement each other.
- 8.1.2 Compiling a Conservation Management Plan is only the first step. Making it happen on the ground is challenging, but an essential next step if wise use and conservation is to be achieved. The Conservation Management Plan should not be regarded as a static document, rather a working strategy that is guided by a process of research, collaboration and action, and its success is substantially dependant on effective and collaborative partnership and buy in from key stakeholders.
- 8.1.3 Funding is another key aspect and will need to be secured. There are also statutory and legal processes that will need to be adhered to. The policies and actions contained in this plan include many objectives that can be progressed concurrently such as to progressively address issues on the ground.
- 8.1.4 A fundamental principal of any plan is a need to set targets and measure progress. Target conditions provided in the Conservation Management Plan provide a baseline for this, albeit aspects of a target condition are subject to further research and refinement. Indeed, it is important to recognise that the policies and actions advocate the need for additional preparatory studies, design work, consultation.
- 8.1.5 A key recommendation in the plan is gathering and monitoring an appropriate evidence base upon which to inform actions, manage effectively and measure progress.
- 8.1.6 The Conservation Management Plan will constantly be monitored and subject to interim reviews and updates over the term of the plan. In order to ensure that it adapts to the progress that has been made, and captures adequately new policies and actions, the Conservation Management Plan will be reviewed and updated every 10 years.
- 8.1.7 Two key fundamental issues arise:

i. Legislative Change

Legislative change is fundamental to progressing and implementing actions identified in this Conservation Management Plan. The Curragh of Kildare Act was last updated in 1969, over 50 years before the production of this Conservation Management Plan. While much of the Act has stood the test of time, the condition of the Curragh and the demands placed upon it have moved on considerably.

ii. Management of The Curragh

The Curragh of Kildare is a nationally important asset, but also a uniquely complex landscape that is required to balance a series of very different uses and users. For the effective long-term management of the Curragh, the potential for establishing a responsible Agency should be considered.

For the above to happen it requires buy in by several Government Departments to progress the change in legislation and a commitment to significant funding and resources to deliver.

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Appendix A: Stakeholder Consultation Findings 2021

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Introduction

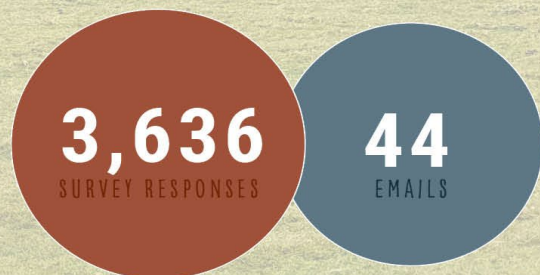
A preliminary public consultation exercise was undertaken to help establish an understanding of what aspects of the Curragh Plains are important and why.

The consultation comprised of a short questionnaire that was hosted on a dedicated project website and publicised through various media platforms.

The survey was open for four weeks between Monday 15th March and Monday 12th April.

It was clear from the responses that the Curragh holds a very important place in people's hearts.

The strength of feeling, both for this project and this important place, was reflected in the number of responses submitted.



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Questions & Analysis

The short questionnaire comprised a series of objective and qualitative questions.

Objective Questions

To understand more about those that responded to the questionnaire, the following questions were asked:

- How often do you visit the Curragh?
- What best describes your reason for going to the Curragh?
- What is of interest to you when visiting the Curragh?
- What is your age range?
- How far away to you live from the Curragh?
- When you visit, on average how long do you stay?

Qualitative Questions

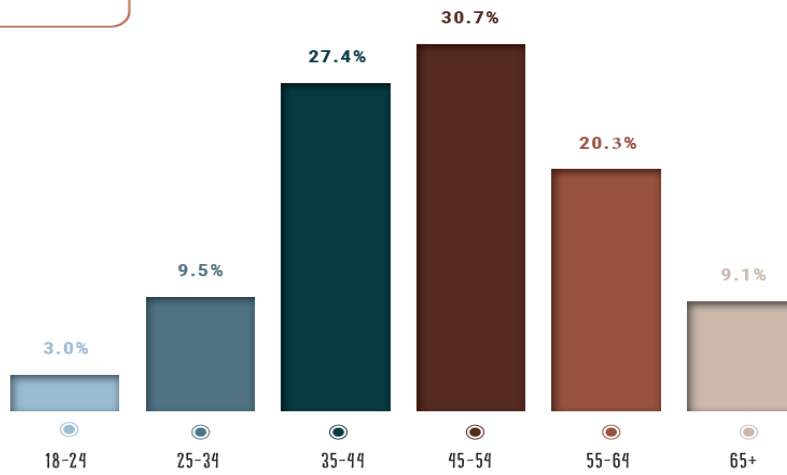
To allow participants to share their thoughts, memories and feelings openly, the following were asked:

- What aspects of the Curragh do you not like, or which you feel need improved?
- What in your opinion makes the Curragh Special or Important?
- Have you any ideas for the Curragh that would help make it a better place for all?
- What special stories or memories do you have about the Curragh?

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What is your age range?

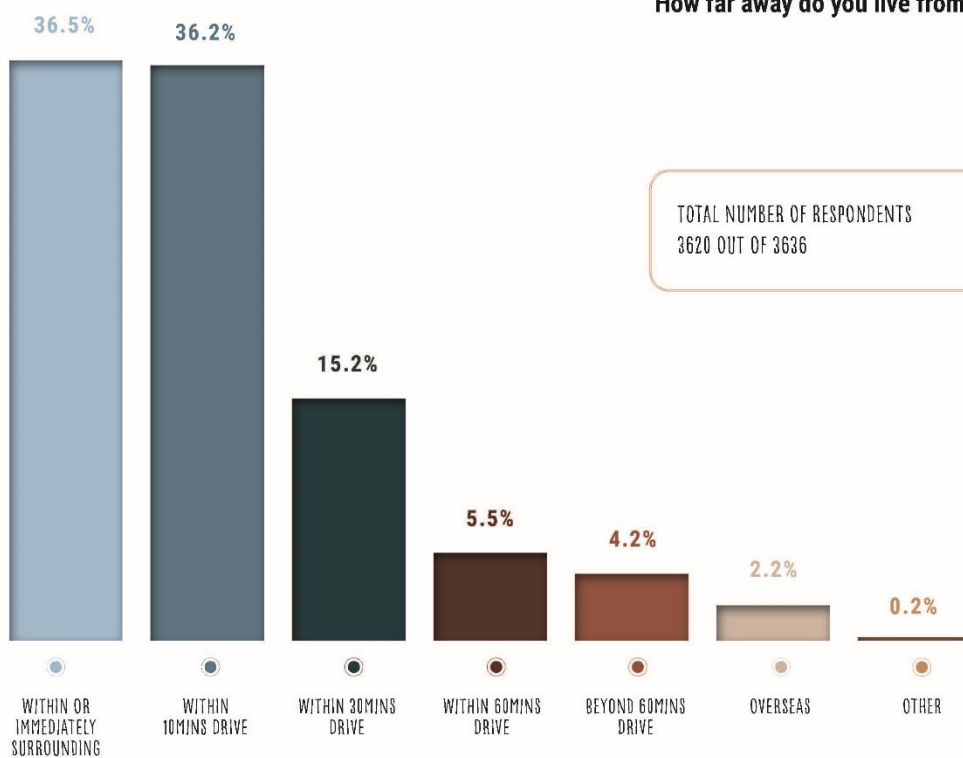
TOTAL NUMBER OF RESPONDENTS
3627 OUT OF 3636



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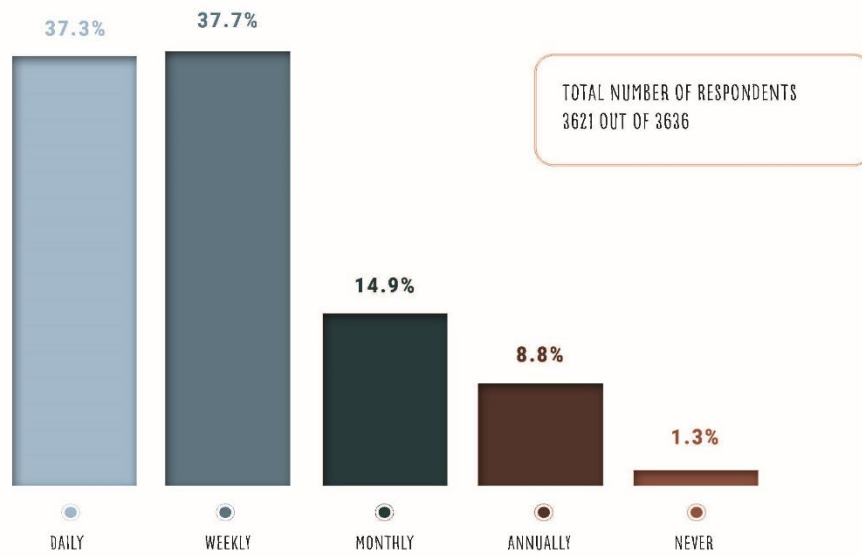
How far away do you live from the Curragh?

TOTAL NUMBER OF RESPONDENTS
3620 OUT OF 3636



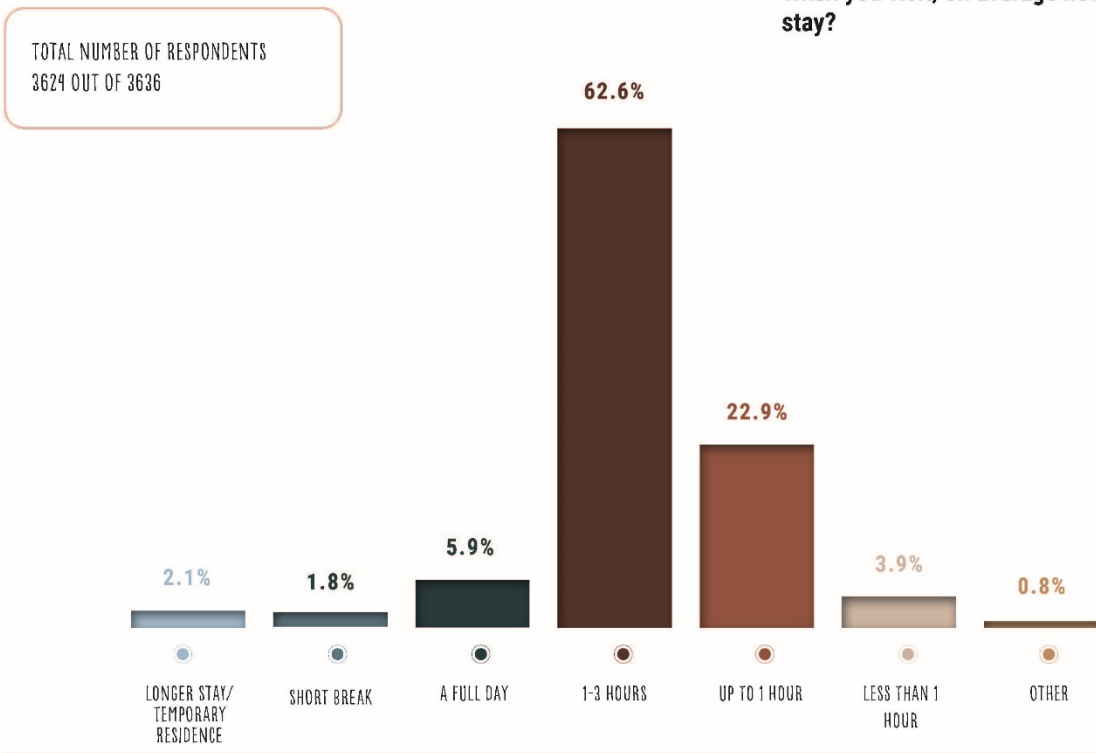
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How often do you visit the Curragh?



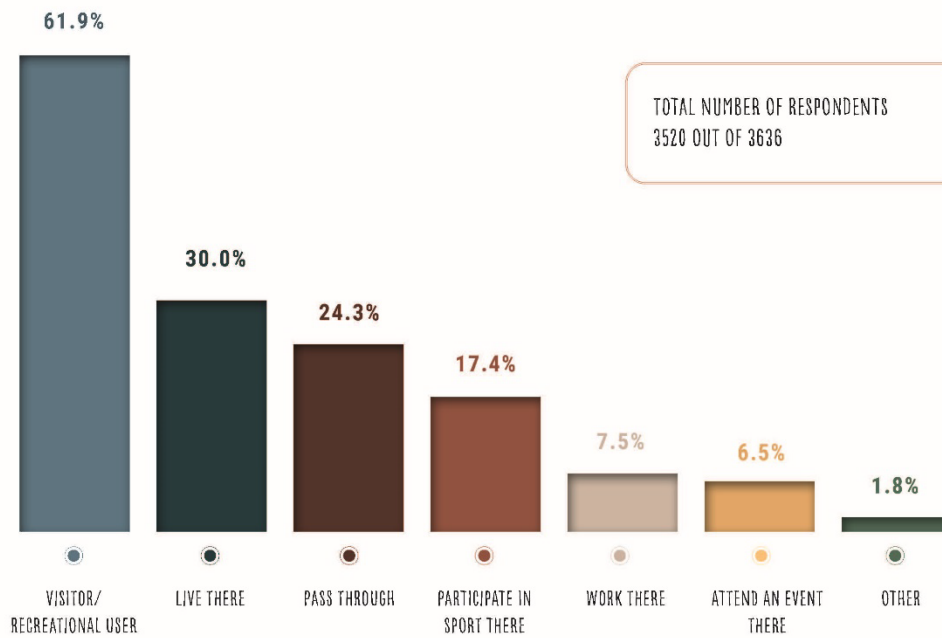
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When you visit, on average how long do you stay?



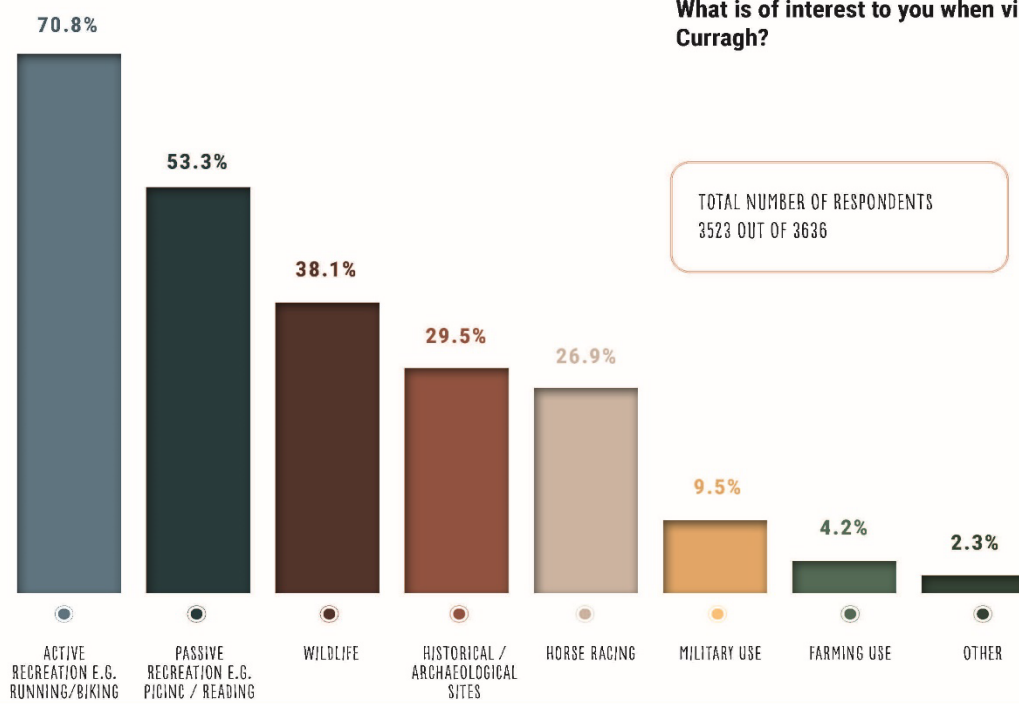
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What best describes your reason for going to the Curragh?



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What is of interest to you when visiting the Curragh?



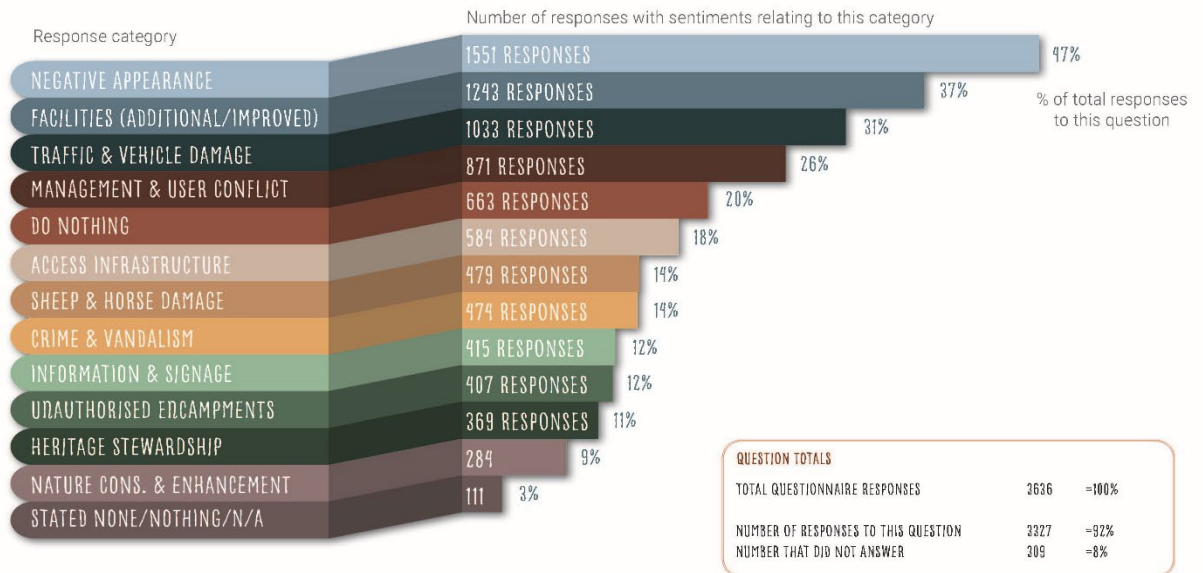
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Key Conclusions

- Around two thirds of respondents were aged between 35 to 54 and roughly a third under or over that;
 - The majority (73%) live adjacent to the Curragh Plains, with a further 21% living within an hour's drive. The response therefore is representative of the Curragh Plains' local population;
 - 75% visit the Curragh Plains daily or weekly, with the majority of visits (90%) being up to 3hrs;
 - The majority of respondents visit the Curragh Plains because they live or pass through it, or use them for recreation / sport. This is supported by a significant number of responses citing recreation as their main interest in the Curragh Plains, both active (70.8%) and passive (53.3%);
 - The wildlife, historical and horse racing aspects of the Curragh Plains also featured prominently.
-

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What aspects of the Curragh do you not like, or which you feel need improved?



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What aspects of the Curragh do you not like, or which you feel need improved?



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What aspects of the Curragh do you not like, or which you feel need improved?



- "I feel the overuse of the plains by sheep and horses completely ruins the place"
- "Fly tipping needs to be addressed urgently"
- "Better signage. Sli Na Slainte. Plaques at areas of interest. Plaque at Donnelly's Hollow needs preserving."
- "Hordes of caravans arriving each year and leaving a terrible mess and the associated local and social problems."
- "It is sad to see a lot of the buildings falling into disrepair."
"The old bunkers are very special, they are important landmarks, they all have a story to tell, they should be restored properly."
- "I think planting more native trees would be beneficial for biodiversity."
"Areas should be set aside so grasslands can establish and wildlife."
- "It's all great, should remain untouched."

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Key Conclusions

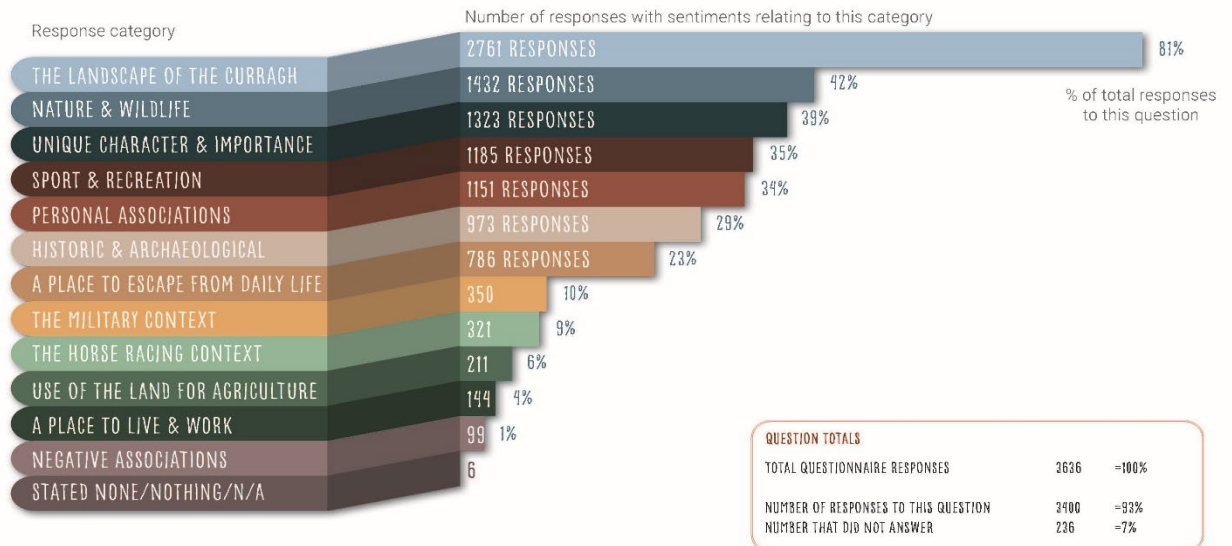
What aspects of the Curragh do you not like, or which you feel need improved?

- The most consistent response relates to its negative appearance. Littering, traffic, damage to the grasslands by vehicles & animals, and the condition of buildings and infrastructure were cited;
- A lack of facilities was also raised as a big issue, particularly in terms of parking, seating and bins;
- The management of the plains was criticised generally, in terms of litter and upkeep, and also in terms of the lack of enforcement and issues over user conflict.



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What in your opinion makes the Curragh special or important?



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What in your opinion makes the Curragh special or important?



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What in your opinion makes the Curragh special or important?



- "The military presence makes the Curragh a special place."
- "It is the most important part of the country for horse racing."
- The vast plains and sheep being able to roam freely.
- "The Curragh is a community of people, most lived there all their lives, and those that have moved stayed friends."
- Unfortunately often ruined by scramblers and cars driving around the grass leading to areas becoming muddy and over used."

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Key Conclusions

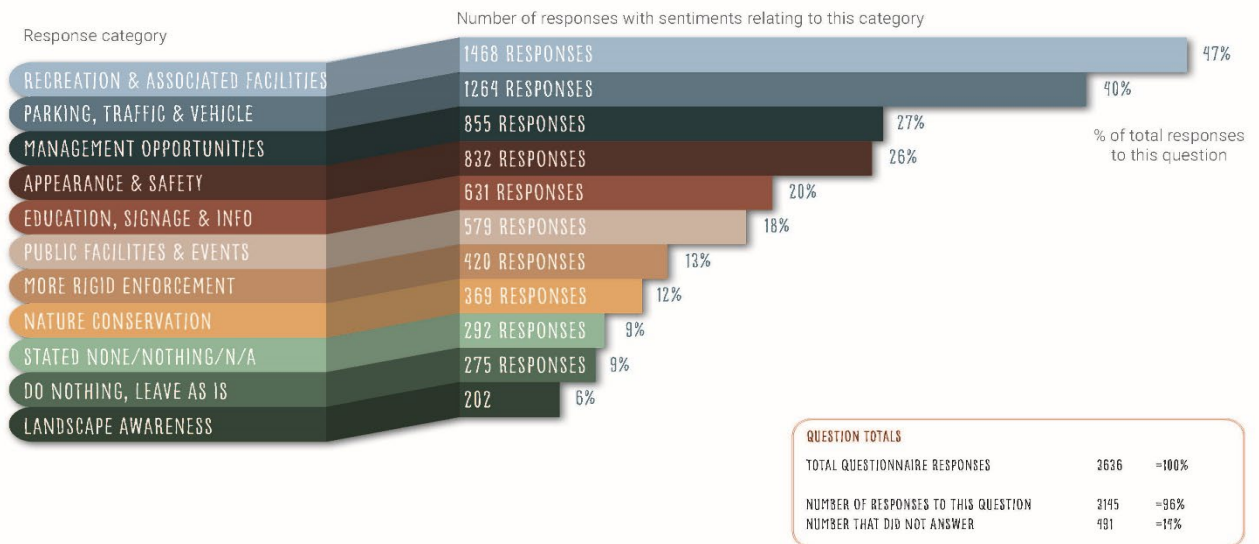
What in your opinion makes the Curragh Special or Important?

- 81% stated that it was the landscape of the Curragh that made it special, including its scale, scenery, and undeveloped nature;
- Closely linked, people cited its natural qualities, its wildlife, and the unique/unusual aspects of the Curragh such as its diversity, vastness, and magical qualities;
- The recreational value of the Curragh Plains and the importance it plays in people's lives socially but also in terms of mental and physical health featured heavily;
- Its history and archaeology, particularly in relation to the story of the country, was recognised as important.



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Have you any ideas for the Curragh that would help make it a better place for all?



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Have you any ideas for the Curragh that would help make it a better place for all?





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Have you any ideas for the Curragh that would help make it a better place for all?



- 

"better stewardship, a proper warden service."
 "catch and prosecute the people abusing the area"
 "needs more policing between gardai and military police"
- 

"It could be an opportunity for rewilding and improving biodiversity"
 "make it more bee/pollinator friendly"
- 

"leave it alone its beautiful just the way it is"
- 

"just recognition of its uniqueness and importance of its ecological values and to put in place the means to ensure it can continue as a place for all to enjoy."

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Key Conclusions

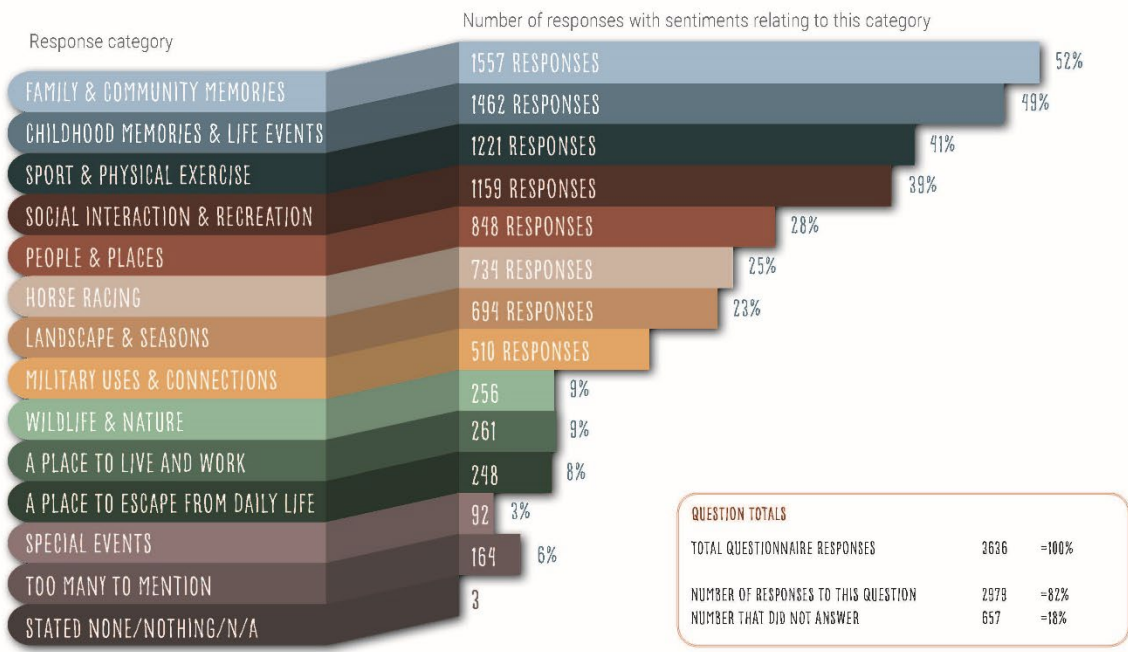
Have you any ideas for the Curragh that would help make it a better place for all?

- A significant number suggested facilities and infrastructure to enhance the recreational use of the plains, such as parking areas, bins, seating, picnic areas, toilets, coffee outlets etc. This included dedicated trails, bridleways, cycle trails and walking routes to manage some of the user conflicts;
- Control over litter and fly-tipping featured heavily as did managing sheep grazing more stringently;
- A high proportion discussed ideas for zoning uses and creating dedicated facilities / timetables for activities such as scramblers, off road vehicles, etc.
- Several suggested protection through National Park status, accompanied by the benefits that management personnel such as rangers, wardens and custodians would bring.
- Signage and education such as welcome and waymarking signage and signage that communicated the importance of the landscape and heritage features.



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What special stories or memories do you have about the Curragh?



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What special stories or memories do you have about the Curragh?



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What special stories or memories do you have about the Curragh?



- "Spent three and a half years in the military there in the early eighties and enjoyed every minute of it!"
- "Seeing wildlife and enjoying walking amongst trees"
- "Lived on the edge of it all my life, a facility that anyone would love to have."
- "The Curragh is an area offering peace, space, calmness, tranquility and great beauty."
- "Status quo at the racecourse. What a night!"
"Watching Braveheart being filmed"
- "Too many to write down ..its just so special to me"

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Key Conclusions

What special stories or memories do you have about the Curragh?

- It was clear to see from the majority of the responses how important this landscape is to the people that live around the Curragh and how much it has influenced their lives and the lives of their families, with many positive childhood memories.
- Likewise, its importance to people's mental and physical health, and as a place to meet friends, socialise and escape modern life was clearly communicated.
- The diversity of people's memories illustrates the diversity of this landscape in terms of use, seasonality, nature and historic significance, and many notable events were communicated.



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In addition to the short questionnaire, an opportunity to email through any additional information was provided via a dedicated project email address.



Appendix B: Biodiversity baseline

A desk study collating recent archive data relating to the Curragh. No new fieldwork has been conducted for this study.

In an agricultural context, there is a deficiency of minerals and nutrients over most of the Curragh. The soil leaching also tends to form a sub-surface, impermeable iron pan, which can lead to poor drainage in winter. The very porous nature of the topsoil on the other hand can lead to drought in dry weather.

As has been pointed out, these are hostile conditions for competitive plant species, amongst which all cultivated varieties of Perennial Rye-grass (*Lolium perenne*) can be included.

An overview of the habitats on site is provided by the Natural Heritage Area site synopsis:

Lowland acid grassland is the dominant habitat at the site. There is, however, variation in the grassland which is due in part to the soil variation and to the grazing regime. The grasslands on level ground are continually grazed throughout the year. Leaching takes place, which further depletes the nutrient levels.

Typically occurring species include an abundance of Common Bent (*Agrostis capillaris*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Sheep's-fescue (*Festuca ovina*) and Field Wood-rush (*Luzula campestris* s.l.). Spring-sedge (*Carex caryophyllea*) occurs throughout. In some areas, notably to the north and south of the town and in the north-west, Marsh Thistle (*Cirsium palustre*) is abundant.

Mat-grass (*Nardus stricta*), usually associated with over-grazed upland acidic grassland, occurs in the wet areas west of the racecourse but also at the south of the site near the gallops.

Throughout the unfertilised grasslands, surface acidification is reflected in the abundance of such mosses as *Rhytidiadelphus squarrosus* and *Pseudoscleropodium purum*.

Small areas of wet heath are found throughout the site, but especially west of the racecourse. These have been found to be associated with a perched water table. Species found throughout most of the patches, include Purple Moor-grass (*Molinia caerulea*), which is dominant, small amounts of Heather (*Calluna vulgaris*), Mat-grass (*Nardus stricta*), Heath Rush (*Juncus squarrosus*), Soft Rush (*J. effusus*) and lichen species (*Cladonia* and *Peltigera* spp.). Several species of sedge (*Carex* spp.) also occur – *Carex panicea*, *C. nigra*, *C. binervis*, *C. hostiana*, *C. pilulifera*, *C. echinata*, and locally there are stands of Common Cottongrass (*Eriophorum angustifolium*). Mosses found here include *Sphagnum capillifolium*, *Polytrichum commune*, *Aulacomnium palustre*, *Hypnum jutlandicum*, *Rhytidiadelphus squarrosus*, *Hylocomium splendens*, *Pleurozium schreberi*, *Pseudoscleropodium purum*, *Thuidium tamariscinum* and *Dicranum scoparium*. This is a particularly rare community at lowland levels in the east of the country.

Associated with the wet heath, but also occurring elsewhere, are semi-permanent pools supporting oligotrophic vegetation, including such species as Water-purslane (*Lythrum portula*), Intermediate Water-starwort (*Callitriche* cf. *hamulata*), Bulbous Rush (*Juncus bulbosus*) and several species of *Sphagnum* moss, including *S. auriculatum* var. *inundatum*, *S. auriculatum* var. *auriculatum* and *S. recurvum*. The presence of these is particularly unusual in a lowland situation.

At the east of the site, in the vicinity of the gravel and till mounds at Rabbit Hill, at Donnelly's Hollow and in the extreme east of the Military Ranges, the grassland of the slopes is very nutrient-poor and the soil layer is extremely shallow. Species diversity is quite high.

The area known as Donnelly's Hollow appears to be situated adjacent to a disused gravel pit. A diverse range of species occurs on the steep slopes and includes Wild Thyme (*Thymus praecox*), Yarrow (*Achillea millefolium*), Fairy Flax (*Linum catharticum*), Mouse-ear Hawkweed (*Hieracium pilosella*), Selfheal (*Prunella vulgaris*), Autumn Hawkbit (*Leontodon autumnalis*), clover (*Trifolium* spp.), Ribwort

Plantain (*Plantago lanceolata*) and a wide range of mosses including *Thuidium tamariscinum*, *Ctenidium molluscum*, *Brachythecium rutabulum*, *Hypnum cupressiforme*, *Ditrichum flexicaule*, *Climacium dendroides* and *Homalothecium lutescens*.

Dry Heath of the *Ulex* formation covers approximately 10-20% of the site and is associated mainly with the undulating hills within the site. West of the motorway and on the approximately 800ha of racecourse property there are bands of dry heath which support Heather (*Calluna vulgaris*), Heath Spotted orchid (*Dactylorhiza maculata*), Common Twayblade (*Listera ovata*) and butterfly orchids (*Platanthera* spp.). Other species found include Tufted Hair-grass (*Deschampsia cespitosa*), Heath Bedstraw (*Galium saxatile*), Heath grass (*Danthonia decumbens*), Tormentil (*Potentilla erecta*) and Sheep's-fescue (*Festuca ovina*).

There is succession to scrub taking place especially at the perimeter. Hawthorn (*Crataegus monogyna*) and Bramble (*Rubus fruticosus* agg.) are present with very occasional Sycamore (*Acer pseudoplatanus*), Elder (*Sambucus nigra*), willow (*Salix* spp.) and Ash (*Fraxinus excelsior*) saplings.

The Heritage Council provided a classification of habitats in Ireland in 2000 (Fossitt, 2000) which immediately became a standard tool in the ecological description of Irish sites.

Of the broad habitats covered, grassland is most extensive on the Curragh. Within the grassland classification, Dry-humid acid grassland GS3 is the semi-natural habitat that will predominate.

GS3- general description

Fossitt defines GS3 as

'Unimproved or semi-improved grassland that occurs on free-draining acid soils that may be dry or humid, but not waterlogged. This type of grassland mainly occurs on mineral rich or peaty podsols in upland areas but can also be found on siliceous sandy soils in the lowlands, as in the case of the Curragh in Kildare'.

She goes on to list typical sward characteristics:

Dominant grasses forming a dense sward:

- Common Bent (*Agrostis capillaris*)
- Sheep's-fescue (*Festuca ovina* agg)
- Red Fescue (*Festuca rubra*)
- Sweet Vernal-grass (*Anthoxanthum odoratum*)
- Wavy Hair-grass (*Deschampsia flexuosa*)
- Mat-grass (*Nardus stricta*)

Purple Moor-grass (*Molinia caerulea*) may be present but does not dominate.

Other typical grass like species:

- Heath Wood-rush (*Luzula multiflora*)
- Heath Rush (*Juncus squarrosus*)
- Green-ribbed Sedge (*Carex binervis*)
- Pill Sedge (*Carex pilulifera*) may also be prominent.

Common broadleaved herbs:

- Heath Bedstraw (*Galium saxatile*)
- Tormentil (*Potentilla erecta*)
- White Clover (*Trifolium repens*)
- Devil's-bit Scabious (*Succisa pratensis*)

- Sheep's Sorrel (*Rumex acetosella*)
- Heath Speedwell (*Veronica officinalis*)
- Common Dog-violet (*Viola riviniana*)
- Lousewort (*Pedicularis sylvatica*)
- Yarrow (*Achillea millefolium*)

These are all species that can grow in soils with low nutrient status. Fossitt points out that the presence of herbs that require higher nutrient availability indicate agricultural improvement and may be well represented in areas that are 'semi-improved'.

Moss cover is often extensive.

Dwarf heathland shrubs may also be present

- Heather (*Calluna vulgaris*)
- Bell Heather (*Erica cinerea*)
- Bilberry (*Vaccinium myrtillus*)

Scattered shrubs of Hawthorn (*Crataegus monogyna*) or patches of gorse (*Ulex* spp.) or Bracken (*Pteridium aquilinum*) are common.

Characterisation of GS3 in the Curragh

All the grass, and grass-like species of GS3 are typical throughout the Curragh grassland, some are typically abundant and relatively few other species occur. The only exception being Heath Wood-rush (*Luzula multiflora*) which is either replaced by or misidentified as Field Wood-rush (*Luzula campestris*). Only Heath Bedstraw (*Galium saxatile*) and Tormentil (*Potentilla erecta*) are typical amongst the herbs, and successive surveyors have described the GS3 in the Curragh as herb-poor, both in terms of diversity and cover.

Significantly, this grassland category includes examples of the 'Habitats Directive' Annex 1 priority habitat *Species-rich Nardus grasslands on siliceous substrates in mountain areas*. Despite the reference to mountain areas, species-rich stands in the Curragh would certainly be assigned to this internationally important habitat.

The recent Irish Semi-natural Grasslands Survey (O'Neill et al 2013) was of grassland habitats within NPWS designations and focussed upon candidature as 'Habitats Directive' Annex 1 Habitat.

Botanists seeking to classify plant associations rely upon 'relevées', small, representative samples of vegetation from which all plant species are rigorously identified, and their relative abundance recorded (also known as 'quadrats' in Northern Ireland). After the Irish Semi-natural Grasslands Survey (ISSG) a total of 4,5441, relevées from 192 separate grassland sites were organised into groups to provide a higher resolution of grassland classification than is provided by the Heritage Council's classification.

The matrix semi-natural grassland type in the Curragh falls into 4b *Nardus stricta* – *Festuca ovina*.

ISSG classification*:

	Fossitt Habitat	Annex 1 ' HD'	NVC	Means				Ellenberg indicator means			Mean Soil [P]	
				No. species	% herb cover	Soil pH	Soil % organic	Wetness	Reaction	Fertility		
1	Juncus acutiflorus/articulatus – Molinia caerulea											
1a	Juncus acutiflorus/articulatus – Holcus lanatus	GS4	6410	M23b	18	28	4.9	30	7.0	5.0	4.0	0.72
1b	Agrostis stolonifera – Filipendula ulmaria	GS4/GM1	6410	M23a	24	41	5.5	37	6.7	5.9	4.8	0.58
1c	Molinia caerulea – Succisa pratensis	GS4	6410	M26b	29	35	5.6	38	6.8	4.9	3.4	0.13
1d	Molinia caerulea – Potentilla erecta	GS4	6410	M24c	19	26	5	37	7.2	4.3	3.2	0.66
1e	Juncus acutiflorus/articulatus – Rhytidadelphus squarrosus	GS4	6410	M23b	25	27	4.8	29	7.1	4.4	3.4	0.59
2	Juncus effusus – Ranunculus repens											
2a	Agrostis stolonifera – Ranunculus repens	GS4/GM1	-	MG10a	15	34	5.5	27	6.7	6.2	5.5	0.86
2b	Juncus effusus – Holcus lanatus	GS4	-	MG10a	19	23	5	26	6.4	5.4	4.7	0.8
2c	Holcus lanatus – Lolium perenne	GA1/GS4	-	MG10a	13	26	5.1	18	5.8	6.1	5.4	0.98
2d	Juncus effusus – Rumex acetosa	GS4	-	M23b	13	16	4.8	29	5.8	6.1	5.4	0.73
3	Cynosurus cristatus – Plantago lanceolata											
3a	Briza media – Thymus polytrichus	GS1	6210	CG9b	46	50	6.2	29	5.3	5.6	2.6	0.23
3b	Cynosurus cristatus – Trifolium repens	GS1/GA1	-	MG6b	27	42	5.4	16	5.2	5.7	4.7	0.79
3c	Festuca rubra – Plantago lanceolata	GS2	6510	MG5a	23	50	5.8	19	5.1	6.2	4.8	0.39
3d	Cynosurus cristatus – Trifolium pratense	GS1	-	MG6b	28	44	5	18	5.3	5.4	4.1	0.51
3e	Festuca rubra – Rhinanthus minor	GS2	6510	MG5a	24	58	5.2	14	5.3	5.6	4.2	0.39

3f	<i>Festuca rubra</i> – <i>Lotus corniculatus</i>	GS1	-	MC9a	19	39	5.2	24	5.3	5.6	4.2	0.37
4	<i>Nardus stricta</i> – <i>Galium saxatile</i>											
4a	<i>Agrostis capillaris</i> – <i>Trifolium repens</i>	GS3/GS4	-	U4b	17	22	4.6	21	5.9	4.6	3.8	0.48
4b	<i>Nardus stricta</i> – <i>Festuca ovina</i>	GS3	6230	U5d	22	20	4.1	38	6.4	4.0	2.7	0.62
4c	<i>Agrostis capillaris</i> – <i>Festuca rubra</i>	GS3	6230	U5c	27	31	4.6	27	6.4	4.6	3.1	0.27
4d	<i>Agrostis canina/vinealis</i> – <i>Carex echinata</i>	GS4	6410	M25b	21	27	4.2	33	7.2	4.1	2.7	0.5

* Glossary:

Annex 1 HD: The potential 'Habitats Directive' Annex 1 habitats (for which Ireland has an international responsibility to conserve) to occur within the grassland type.

6210 = Semi-natural dry grasslands and scrubland facies on calcareous substrates (*important orchid sites)

6230 = Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and sub-mountain areas in Continental Europe)

6410 = Purple moor-grass meadows *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils

6510 = Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)

NVC: The equivalent National Vegetation Classification, habitat class a major UK classification of semi-natural vegetation. Too numerous to list here, but of importance:

U:5d = the *Calluna vulgaris*-*Danthonia decumbens* sub-community of the U:5 *Nardus stricta*-*Galium saxatile* grassland community

Ellenberg Indicator Means: In 1974, the German botanist Heinz Ellenberg's first published list of plant indicator values appeared in 'Zeigerwerte von pflanzen in Mitteleuropa' in German in *Scripta Geobotanica*, the first of 5 editions. The fourth edition (Ellenberg 1986) was translated into English, and the system began to gain currency in the British Isles. The values were subsequently adjusted to reflect genotypes of the British Isles (ITE 1999).

One of the environmental variables for which index values have been compiled is EbN, soil nitrogen, and in effect a general indicator of soil fertility. This is of great relevance in compiling a grassland habitats management plan. In the absence of chemical soil testing the nutrient status of a soil can be assessed using the mean EbN score, ideally adjusted to reflect comparative abundance.

Irish Semi-natural Grasslands Surveys in the Curragh

Two areas of the Curragh were included in the ISSG Survey and provide the most recent and most comprehensive grassland surveys undertaken. The site reports, part of the addendum to the main report, are reproduced unabridged below:

Site 1400 'The Curragh', extending to over 385 ha, was surveyed in May 2010.

ISGS site 1400 summary

The Curragh is a very large site located on an extensive plain adjacent to the southern side of the Curragh racecourse in Co. Kildare. The site has been designated as the Curragh pNHA (000392). Dry acidic grassland, Annex I habitat Species-rich *Nardus* grassland (6230) and semi-improved dry-humid acidic grassland occur on the site, as well as dry calcareous grassland and wet grassland.

In the dry acidic grassland, *Anthoxanthum odoratum* is abundant, *Holcus lanatus* and *Agrostis canina* are frequent and the herb cover is low. One relevée was recorded in this grassland type. Much of the site contains the Annex I habitat 6230. This differs from the non-Annex I quality grassland in that it is more species diverse and contains *Nardus stricta*, higher moss cover, and the presence of indicator species such as *Viola riviniana* and *Galium saxatile*. Fourteen assessment-stop relevées were carried out in this habitat, of which eleven failed. Reasons for failure included lack of positive indicator species, low broadleaved herb cover and high litter cover, among others.

Improved areas within the site are very heavily grazed or trampled. The acidic grassland types present were sometimes hard to tell apart as they graded into each other.

The dry calcareous grassland covers a very small area and but contains some indicator species for the Annex I habitat *Festuco-Brometalia* (6210). A single relevée was recorded here, and the most frequent species are *Plantago lanceolata*, *Pilosella officinarum*, *Festuca ovina* and *Agrostis capillaris*.

There are two types of wet grassland present. The first is species-poor, dominated by *Juncus effusus* and has abundant *Calliergonella cuspidata*. One relevée was recorded in this vegetation type. The other is more acidic in character, containing *Juncus effusus*, *Nardus stricta*, *Carex nigra* and *Hylocomium splendens*. Another relevée was recorded in this more acidic type.

The main adjacent habitats include roads, woodland and scrub and semi-natural grassland. The site is managed by sheep grazing with a small number of people having commonage rights to graze the area. Other important uses of the Curragh include amenity, including horse riding, and military activities. Frogs and rabbits were the only notable species recorded, but there are many archaeological features including lazy beds and ringforts. The damaging operations of adjacent forestry and dumping were recorded on the site.

Site 1401, the 'Little Curragh extending to over 162 ha was also surveyed in May 2010

ISGS site 1401 summary (Courtesy of the NPWS)

The Little Curragh is a very large site situated adjacent to the northern side of the Curragh racecourse, on an extensive plain in Co Kildare. Most of the site is located within the Curragh pNHA (000392).

A railway line runs east to west through the southern part of the site. The site is a complex mosaic of the Annex I habitat Species-rich *Nardus* grassland (6230), dry-humid acidic grassland, semi-improved humid acidic grassland, wet grassland, heath and scrub.

The wet grassland grades into humid acidic grassland and contains some species typical of acidic grassland; *Juncus effusus*, *Agrostis capillaris* and *Anthoxanthum odoratum* are frequent. Wet grassland was only mapped separately where the vegetation contained typical wet grassland species such as *Holcus lanatus* and *Carex disticha*. One relevée was recorded in wet grassland.

The dry-humid acidic grassland can be species-rich and contains species such as *Carex caryophylla* and *Galium saxatile*. Two relevées were recorded in this habitat type, the first was dominated by *Agrostis capillaris* and *Festuca ovina* and the second was more diverse with *Rhytidadelphus squarrosus*, *Nardus stricta* and *Carex* species frequent.

In some areas the dry-humid grassland grades into the Annex I habitat Species-rich *Nardus* grassland (6230). The Annex I quality grassland usually contains *Nardus stricta*, *Carex binervis*, *Carex pilulifera* and a higher broadleaf herb cover, with *Potentilla erecta* and *Galium saxatile* two of the more common species.

The Annex I quality grassland often occurs as a mosaic with dry-humid acidic grassland, but a sufficient quantity of it is present to allow the recording of eight assessment stops in the habitat. Overall, the 6230 habitat failed the assessment of structure and functions, only three of the eight stops passed, mainly as a result of insufficient cover of broadleaved herbs and high litter cover.

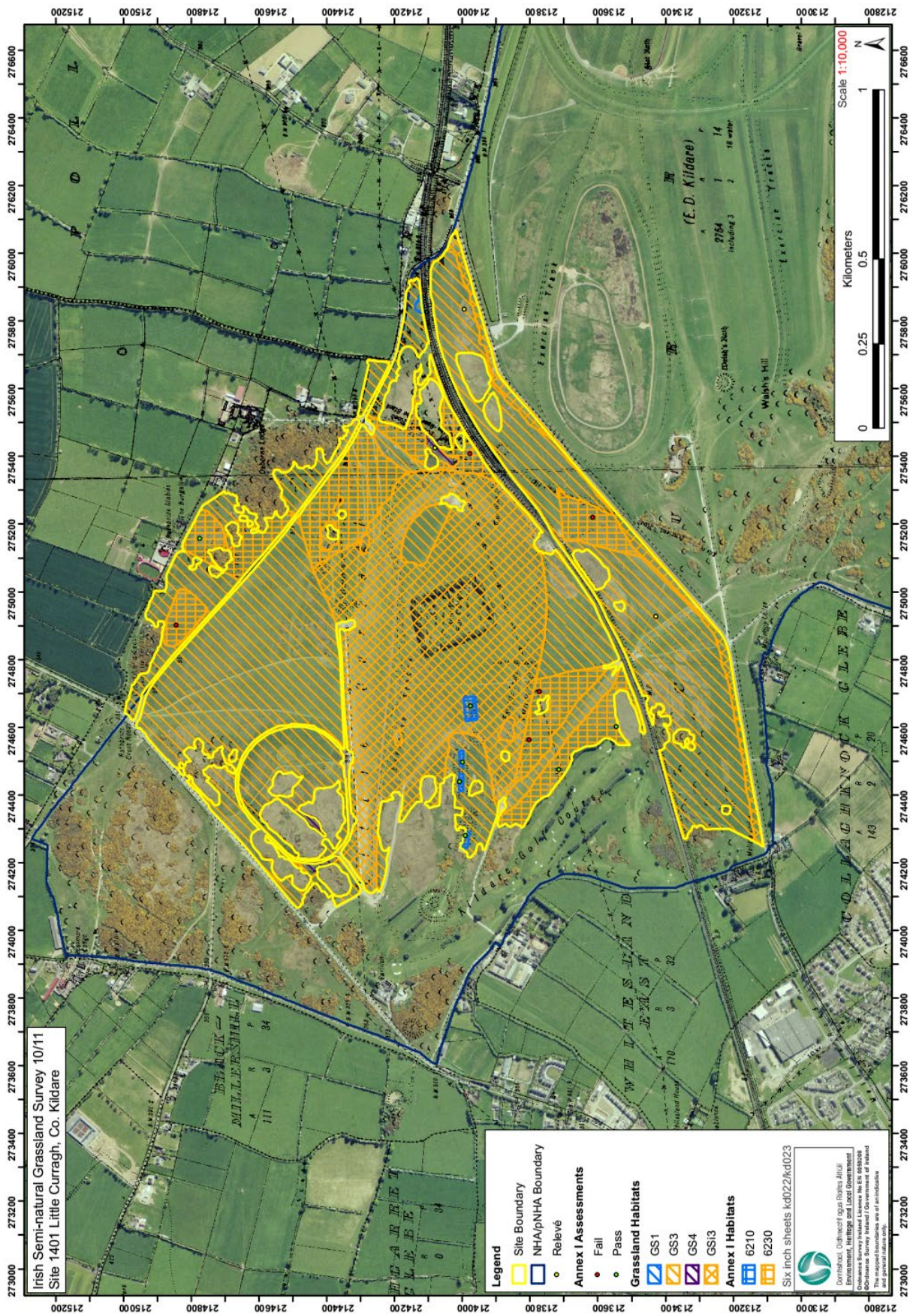
Large areas of the site are composed of semi-improved dry-humid acidic grassland where the humid acidic grassland has either been overgrazed by sheep or damaged by use as winter pasture for horses, leading to poaching, decreased species richness and increased abundance of mesotrophic grasses and herbs.

The Annex I habitat Festuco -Brometalia (6210) occurs on the site. It is found on man-made mounds of calcareous grassland which were created in the 19th century for military purposes. Four assessment-stop relevées were recorded in this habitat, and all of them had favourable structure and functions. These mounds were built using calcareous substrate from land just north of them. The grass species *Anthoxanthum odoratum* and *Danthonia decumbens* are common in areas as are the sedges *Carex flacca* and *Carex caryophylla*. Broadleaf cover is high and the positive indicator species *Galium verum*, *Leontodon hispidus*, *Lotus corniculatus*, and *Pilosella officinarum* are common.

In areas where horses are regularly exercised there is poaching and degradation of some acidic grassland areas. Harrowing has been undertaken across the site, which is damaging the heath and humid acidic grassland. There is scattered scrub (mainly *Ulex europaeus* with some *Crataegus monogyna*) throughout the site. Some of these have been cleared in the last few years but were regenerating at the time of survey. The majority of the site is managed by sheep grazing, with sheep on the site throughout the year.

The main adjacent habitats are scrub, heath and improved agricultural grassland. Frogs and rabbits were the only notable species recorded on the site and the archaeological features of earthworks and ringforts were noted. The damaging operation of dumping was recorded on the site.

ISGS site 1401 map



These accounts do not describe a habitat in generally good condition. Particularly the larger site where the 'improved areas' that were very heavily grazed or trampled, refer to *agricultural* improvement and habitat degradation through fertilisation and perhaps reseeded. This may be widespread if the areas of degraded improved grass and unimproved grass merge into each other.

Following the completion of the survey, the identification of Habitats Directive Priority Habitats was standardised. The final report explains that one of the largest areas of grassland habitat affected by the habitat review was at the Curragh, Kildare, which the survey data reported above identifies a high proportion of the 6230 *Nardus* grassland. The review, however, resulted in the acidic grasslands of the Curragh being no longer regarded as the Annex I habitat, due to a lack of species diversity.

This seems entirely reasonable as the interpretation manual of EU habitats (European Commission 2007) clearly defines the Annex 1 habitat species-rich grassland, so that habitats with a decreased number of species due to overgrazing should not be included.

Other habitats

The main GS3 Dry-humid acid grassland is extensive and largely unbroken around not the level plains around, and to the north of the Camp, but locally grades into, or forms mosaics with dry siliceous heath - HH1 These areas are easily defined by their Heather (*Calluna vulgaris*) cover, Patches of dry Heather (*Calluna vulgaris*) are generally very small.

On damper substrates, in the Little Curragh where heavily podsolised soils supporting perched water tables probably over an iron pan has resulted in a superficial shallow peat soil which allows the development of Wet Heath HH3. Again this forms mosaics with the GS3 but seems to prevail in larger blocks than does dry heath.

Heather (*Calluna vulgaris*) is again an identifier but here often with Purple Moor-grass (*Molinia caerulea*) Common Cottongrass (*Eriophorum angustifolium*), Sphagnum mosses, and other species that wet heath have in common with peat bogs.

In the course of site investigations to review the potential for SAC designation, an additional, previously unrecognised habitat type was identified in the north-west of the Curragh Plains, namely small, semi-permanent pools containing *Juncus bulbosus*, *Lythrum portula* and *Callitriche* sp. It was considered that these probably belong to the Habitats Directive Annex 1 habitat 3130 - Oligotrophic waters in medio-European and perialpine areas with amphibious vegetation: *Littorella* or *Isoetes* or annual vegetation on exposed banks. (John Cross. Internal NPWS memo). These are not species that would thrive in the base-rich aquifer water so these may be presumed to be semi-permanent water-bodies of intercepted rainwater and perched above the gravel in hollows over an iron pan.

Gorse (*Ulex europaeus*) (also known as furze) dominated scrub has developed in places, but particularly on slopes and around the edges of the Plain, including in the NW corner where it joins the mosaics with the grassland wet heath. Dense gorse (*Ulex europaeus*) areas fall within WS1 Scrub, a broad category that includes areas with at least 50% cover of shrubs, stunted trees, or brambles.

The comparatively less studied Blue Lands seems to include a diffuse scattering of gorse/furze clumps amongst the heavily sheep-grazed GS3.

Elsewhere, impeded drainage allows wet grassland GS4 to be identified. This is mainly identified by high cover of Soft-rush (*Juncus effusus*) Note that Soft-rush cover alone does not always signify wet grassland. It is a species that in Atlantic climates can colonise relatively dry sites if germination niches are available.

GS1, Dry calcareous and neutral grassland has been identified in a relatively few locations, over the majority of the Plains the calcium has long-since leached away. Fresh imported calcium-rich material has developed a characteristically more species-rich grassland sward.

GS4, wet grassland occurs around the Lough Bawn area – this not an open water lough but an area of Soft-rush (*Juncus effusus*) dominated and species-poor damp grassland of relatively low biodiversity value.

Fungi

Fungi are particularly important in the Curragh. Amongst mycologists, the Curragh is justifiably hallowed ground for the number of Waxcap fungi species that can be found there.

Waxcaps (*Hygrocybe* spp) are often brightly coloured pinks and oranges – the cap with an eponymous greasy-appearance. Although they most commonly appear above ground in late summer and autumn, the main 'body' of the plant is alive below ground year-round.

Waxcaps are found in grasslands that are generally nutrient-poor such as long established pastures, lawns, cemeteries and often can be found alongside other fungi.

Feehan and McHugh (1992) Pointed out that Waxcap grasslands appear to have disappeared from most of Europe as a result of intensive farming practises but were able to list 19 species from the Curragh, along with Other fungi associated with ancient grasslands within the Geoglossaceae (the earth tongues), Clavarioid species (fairy clubs) and Entolomatcaeeae (Pink Gills). These 'CHEG' taxa are sometimes used as an index of grassland quality/antiquity. Since Fehan and McHugh's work, attention was focussed upon the Curragh's fungi, and new species were subsequently found bringing the last published total to 33.

Griffith et. al. (2004) point out in their article for British Wildlife, that the Waxcap species attributed to the Curragh have been recorded from nearly 2000 hectares (= 20 million m²), and it shouldn't be assumed that the site quality is higher than smaller sites fungi-rich sites that have fewer species. Their example is a lawn in Wales with 27 Waxcap species over a couple of hundred m² compared to the 33 at the Curragh. Biodiversity (biological diversity) as a mathematical expression is a function of species richness and abundance per unit area, so their point is that the Welsh lawn has a higher biodiversity with respect to Waxcap fungi.

McHugh et. al. (2001) cite an evaluation system using Waxcaps alone:

Site Conservation Value	Number of Waxcaps in 1 visit	Total no. Waxcaps
Internationally important	15+	22+
Nationally important	11–14	17–21
Regionally important	6–10	9–16
Locally important	3–5	4–8
Not important	1–2	1–3

The Curragh easily tops the Irish 'league table' of Waxcap sites in relation to the total number of species. Most of the other high-scoring grassland sites are from upland sites, the next most highly rated of which was Binevenagh in Co. Derry with 21 species to the Curragh's 33.

When the number in a single visit is substituted, the Curragh is third behind Aghadachor a coastal Machair site in West Donegal 19 and Crossmurrin, and upland limestone site in Co. Fermanagh, both with 19. Compared with the 18 one might expect to find on a visit to the Curragh – this must surely be rather influenced by knowing where to look!

The area around Dan Donnelly's Hollow, and the Little Curragh grassland in the north-west are singled out as the most productive places to search.

McHugh et. al. (2001) provides a site account of the Curragh based upon the CHEG species represented:

The Little Curragh is a very large site situated adjacent to the northern side of the Curragh racecourse, on an extensive plain in Co Kildare. Most of the site is located within the Curragh pNHA (000392).

A railway line runs east to west through the southern part of the site. The site is a complex mosaic of the Annex I habitat Species-rich *Nardus* grassland (6230), dry-humid acidic grassland, semi-improved humid acidic grassland, wet grassland, heath and scrub.

The wet grassland grades into humid acidic grassland and contains some species typical of acidic grassland; *Juncus effusus*, *Agrostis capillaris* and *Anthoxanthum odoratum* are frequent. Wet grassland was only mapped separately where the vegetation contained typical wet grassland species such as *Holcus lanatus* and *Carex disticha*. One relevée was recorded in wet grassland.

The dry-humid acidic grassland can be species-rich and contains species such as *Carex caryophyllea* and *Galium saxatile*. Two relevées were recorded in this habitat type, the first was dominated by *Agrostis capillaris* and *Festuca ovina* and the second was more diverse with *Rhytidiadelphus squarrosus*, *Nardus stricta* and *Carex* species frequent.

In some areas the dry-humid grassland grades into the Annex I habitat Species-rich *Nardus* grassland (6230). The Annex I quality grassland usually contains *Nardus stricta*, *Carex binervis*, *Carex pilulifera* and a higher broadleaf herb cover, with *Potentilla erecta* and *Galium saxatile* two of the more common species.

The Annex I quality grassland often occurs as a mosaic with dry-humid acidic grassland, but a sufficient quantity of it is present to allow the recording of eight assessment stops in the habitat. Overall, the 6230 habitat failed the assessment of structure and functions, only three of the eight stops passed, mainly as a result of insufficient cover of broadleaved herbs and high litter cover.

Large areas of the site are composed of semi-improved dry-humid acidic grassland where the humid acidic grassland has either been overgrazed by sheep or damaged by use as winter pasture for horses, leading to poaching, decreased species richness and increased abundance of mesotrophic grasses and herbs.

The Annex I habitat *Festuco-Brometalia* (6210) occurs on the site. It is found on man-made mounds of calcareous grassland which were created in the 19th century for military purposes. Four assessment-stop relevées were recorded in this habitat, and all of them had favourable structure and functions. These mounds were built using calcareous substrate from land just north of them. The grass species *Anthoxanthum odoratum* and *Danthonia decumbens* are common in areas as are the sedges *Carex flacca* and *Carex caryophyllea*. Broadleaf cover is high and the positive indicator species *Galium verum*, *Leontodon hispidus*, *Lotus corniculatus*, and *Pilosella officinarum* are common.

In areas where horses are regularly exercised there is poaching and degradation of some acidic grassland areas. Harrowing has been undertaken across the site, which is damaging the heath and humid acidic grassland. There is scattered scrub (mainly *Ulex europaeus* with some *Crataegus monogyna*) throughout the site. Some of these have been cleared in the last few years but were regenerating at the time of survey. The majority of the site is managed by sheep grazing, with sheep on the site throughout the year.

The main adjacent habitats are scrub, heath and improved agricultural grassland. Frogs and rabbits were the only notable species recorded on the site and the archaeological features of earthworks and ringforts were noted. The damaging operation of dumping was recorded on the site.

Habitat notes MapCollected target notes

Location related target notes. Many of these recorded by Val Swan, the Kildare County Wildlife Ranger at the time of the NPWS's NHA designation exercise. These notes indicated as 'NHA'

1. 'Marie's strip' a relict section of heath within the IHRB lease. This is an outside the Plan area but is relevant to the study. Marie Dromey, investigating SAC candidature, realised the importance of this area in that it is an example of the heath type habitat that has been subject to less intensive grazing than is the norm within the Green Lands.

NHA: A raised dominated by dry heath with some areas of leached soils with very little vegetation. Plant species present in the heath areas include abundant *Calluna vulgaris*, *Deschampsia cespitosa*, *Agrostis capillaris*, *Hypericum pulchrum*, *Galium saxatile* and occasional *Ulex europaeus*, *Prunus spinosa* and *Crataegus monogyna*. The leached soils on the ridge support *Carex flacca*, *Plantago lanceolata*, *Carlina vulgaris*, *Linum catharticum* and *Achillea millefolium*. There were abundant mosses throughout and some lichen cover on the ground and trees. This area is within the confines of the approximately 800 ha of Turf Club property and is less grazed than outside it

2. NHA: Patches of wet heath of various sizes scattered throughout that part of the site west of the racecourse. These have been found to be associated with a perched water table. The ground is moderately hard underfoot. The habitat is unusual in a lowland grasslands context and all the more so as there are typical bog species found which are more suited to acidic or upland conditions. The geology of the Curragh is calcareous or base rich. However, leaching has occurred. Species found throughout most of the patches but not in all, include *Molinia caerulea* which is dominant, small amounts of *Calluna vulgaris*, *Nardus stricta*, *Juncus squarrosus*, *Juncus effusus*, Lichens, *Cladonia* sp. *Peltigera* sp.

Mosses found include *Sphagnum capillifolium*, *Polytrichum commune*, *Aulacomnium palustre*, *Hypnum jutlandicum*, *Rhytidiadelphus squarrosus*, *Hylocomium splendens*, *Pseudoscleropodium purum*, *Pleurozia schreberi*. *Thuidium tamariscinum* and *Dicranum scoparium*.

Found within and between the two gallops (one gallop is inside the other).

3. Marginal area developing heavier scrub cover. Abundant gorse with emergent trees.

4. North of the road excluded from the NHA, though within the Curragh Act and the Plan area. Seems to be normal GS3 habitat, although much poaching and other mechanical damage observed here.

5. The habitat mosaic here more extensively dominated by gorse (*Ulex europaeus*) than elsewhere on the site, and probably exclude from the ISGS for that reason, but much gorse clearance has been undertaken recently.

6. NPWS research staff recorded that 'Wet heath forms mosaic with the grassland and contains pools with *Sphagnum* carpets. *Juncus* species and locally *Eriophorum* form pronounced stands. The following species were recorded:

Wet heath*

- Soft-rush (*Juncus effusus*)
- Tormentil (*Potentilla erecta*)
- Heath Plait-moss (*Hypnum jutlandicum*)
- Heath Rush (*Juncus squarrosus*)
- Purple Moor-grass (*Molinia caerulea*)
- Glittering Wood-moss (*Hylocomium splendens*)
- Sharp-flowered Rush (*Juncus acutiflorus*)
- Heather (*Calluna vulgaris*)
- Carnation Sedge (*Carex panicea*)
- Mat-grass (*Nardus stricta*)
- Neat Feather-moss (*Pseudoscleropodium purum*)
- Common Sedge (*Carex nigra*)
- Tawny Sedge (*Carex hostiana*)
- Common Cottongrass (*Eriophorum angustifolium*)
- Haircap (*Polytrichum* sp.)
- Green-ribbed Sedge (*Carex binervis*)
- Cross-leaved Heath (*Erica tetralix*)
- Broom Fork-moss (*Dicranum scoparium*)
- Green-ribbed Sedge (*Carex binervis*)
- Pill Sedge (*Carex pilulifera*)
- Star Sedge (*Carex echinata*)
- Common Tamarisk-moss (*Thuidium tamariscinum*)
- Neat Feather-moss (*Pseudoscleropodium purum*)
- Bifid Crestwort (*Lophocolea bidentata*)
- Broom Fork-moss (*Dicranum scoparium*)
- Red Bog-moss (*Sphagnum capillifolium*)
- Red-stemmed Feather-moss (*Pleurozium schreberi*)
- Ringless Hook-moss (*Warnstorfia exannulata*)
- Bank Haircap (*Polytrichastrum formosum*)
- Soft Bog-moss (*Sphagnum tenellum*)

Including bryophytes subsequently identified by Neil Lockhart and assigned to habitat pools

- Water-purslane (*Lythrum portula*)
- Cf. Intermediate Water-starwort (*Callitriche hamulata*)
- Bog Groove-moss (*Aulacomnium palustre*)
- Cow-horn Bog-moss (*Sphagnum denticulatum*)
- Bulbous Rush (*Juncus bulbosus*)
- Lesser Cow-horn Bog-moss (*Sphagnum inundatum*)
- Small Sweet-grass (*Glyceria declinata*)
- Feathery Bog-moss (*Sphagnum cuspidatum*)
- Marsh Pennywort (*Hydrocotyle vulgaris*)
- Flat-topped Bog-moss (*Sphagnum fallax*)
- Lesser Marshwort (*Apium inundatum*)

The acidic grassland part of the mosaic is interspersed with *Ulex europaea* scrub. The vegetation is very heavily grazed and is dominated by grasses, principally the first 3 listed. Other species have only a small cover although the *Juncus* spp. and *Cirsium* are very prominent. Because of the grazing very few species are flowering.

- Common Bent (*Agrostis capillaris*)
- Sweet Vernal-grass (*Anthoxanthum odoratum*)
- Smooth Meadow-grass (*Poa pratensis* agg)
- Tormentil (*Potentilla erecta*)
- Pointed Spear-moss (*Calliergonella cuspidata*)
- Marsh Thistle (*Cirsium palustre*)
- Springy Turf-moss (*Rhytidiadelphus squarrosus*)
- Pill Sedge (*Carex pilulifera*)
- Glittering Wood-moss (*Hylocomium splendens*)
- Mat-grass (*Nardus stricta*)
- Green-ribbed Sedge (*Carex binervis*)
- Annual Meadow-grass (*Poa annua*)
- Carnation Sedge (*Carex panicea*)
- Sheep's-fescue (*Festuca ovina* agg)
- Yarrow (*Achillea millefolium*)
- Yorkshire-fog (*Holcus lanatus*)
- Heath Bedstraw (*Galium saxatile*)
- Crested Dog's-tail (*Cynosurus cristatus*)
- Soft-rush (*Juncus effusus*)
- Heath Wood-rush (*Luzula multiflora*)
- Compact Rush (*Juncus conglomeratus*)
- White Clover (*Trifolium repens*)

This corresponds well with the description of very short, overgrazed turf and Q1.

7. The general area described by NPWS staff as open grassland of moderate species diversity (compared with the grasslands between here and the camp)

These are typical Common Bent (*Agrostis capillaris*) and Mat-grass (*Nardus stricta*) grasslands in species-poor associations as described by the ISGS.

8. The elevated mounds of base-rich soil described by the ISGS. These earthworks are associated with military training and are thought to be around 150 years old. These formed of imported base rich soil, and still with a high calcium content and therefore a very different grassland to the main plain grassland, which has had a considerably longer history of leaching.

9. The Cill Dara Golf Club grounds are within the Plan area but appear not to have been the subject of any ecological survey. Satellite imagery shows agricultural treatments, presumed to be mowing, extending well beyond the area laid out as the golf course.

10. NHA: The Rathbride Fox Covert is surrounded by mature Beech and at the time of the NHA survey was not fenced off from sheep. Nettles and thistles within the covert indicate nutrient enrichment. Possibly manured.

11. Very hard grazed grassland matrix Described by NPWS as open grassland of low species diversity. This corresponds with the ISGS data recorded 10 years later, except that they also describe the area as having the unimproved GS3 matrix as intergrading agriculturally improved grassland.

12. Hard grazing has not prevented the development of mosaic dominated by gorse (*Ulex europaeus*) on the external boundary (12a), or within the site (12b) where it was described in the NHA survey as N55 'dense gorse on sloping ground'.

13. NHA: Coniferous Forestry planted circa 1940 comprising Norway Spruce, Scots Pine, Larch, Cypress and Douglas Fir. Old Badger setts found under the trees during the NHA survey. There is now a track to the N7 overpass running along the boundary.

14. NHA Between the Race of the Black Pig and the forestry is a hollow 30-40 m wide dominated by dry heath. Abundant Heather (*Calluna vulgaris*) with patches of Purple Moor-grass (*Molinia caerulea*), plus e.g.

- Tufted Hair-grass (*Deschampsia cespitosa*)
- Common Bent (*Agrostis capillaris*)
- Heath Bedstraw (*Galium saxatile*)
- Slender St John's-wort (*Hypericum pulchrum*)
- Common Spotted-orchid (*Dactylorhiza fuchsii*)
- Butterfly Orchid (*Platanthera* spp.)

15. Another location outside the Plan area, this is of potential significant as it is indicated as an area of cutover peat on the Quaternary drift map (see Map 4). It is currently a part of the water treatment system and a no walking area, associated structures to the south are presumably pump houses. Probably eutrophic due to effluent input.

16. NHA Old gravel pit area on map appears now to be gently undulating land mainly of grassland though there are occasional isolated gorse bushes present. No steep banks though the ground does slope.

17. NHA Rising ground dominated by *Ulex europaeus* with a species list indicating nutrient-poor conditions are present and that leaching has occurred. Species present include *Hieracium pilosella* agg., *Leontodon autumnalis*, *Cynosurus cristatus*, *Leucanthemum vulgare*, *Galium saxatile*, *Achillea millefolium*, *Trifolium* spp., *Thymus praecox* and *Rhytidadelphus* species.

18. NHA Pond associated with the Black Ditch. At the time of the survey in November, the pond appeared as a recently flooded hollow. However, some plants indicative of wetter conditions including *Glyceria fluitans*. *Myosotis* species and *Ranunculus flammula* were present. grass/heath species also submerged. The pond area within the depression seems to be approximately 1 m deep.

19. NHA The area known as Donnelly's Hollow appears to be situated adjacent to a disused gravel pit. There is a very steep drop into the hollow. There is some gorse on the level wound above the slope as well as being in the slope. Some bare ground exposed with tracks on the steep wound causing erosion. No evidence of vehicles of four wheels using the area. A diverse range of species was recorded from the steep slopes and include *Thymus praecox*, *Achillea millefolium*, *Bells perennis*, *Linum catharticum* *Hieracium pilosella* agg., *Prunella vulgaris*, *Leontodon autumnalis*, *Festuca rubra*, *Carex flacca*, *Cynosurus cristatus*, *Trifolium* spp., *Plantago lanceolata* and the mosses *Thuidium tamariscinum*, *Ctenidium molluscum*, *Brachythecium rutabulum*, *Hypnum cupressiforme*, *Ditrichum flexicaule*, *Climacium dendroides* and *Homalothecium lutescens*.

Val's notes transcribed above, describe a calcium rich GS1 habitat. Fehan and McHugh (1992) single out the area around Dan Donnelly's memorial as being particularly productive for Wax cap and Earth tongue fungi.

20. NHA. The site was visited on Monday 16th Nov. 1989 by Drs. Tom Curtis, Neil Lockhart and Colman O' Criodain. It was decided to exclude the golf course from the site. There is no defined boundary around much of the golf course. It extends across the road to the east and south towards the military ranges. The boundary is approximate and drawn from aerial photo and walking the area. There are areas of unimproved grassland and dry heath inside the exclusion area.

Nb, in the event the Royal course was included within the pNHA boundary (see map 10), but there is little data relating to the ecological condition.

21. NHA. Large patch of mature conifers including some Larch

22. NHA. Grassland in and around the military ranges is heavily grazed

23. NHA. Mosaic of acidic grassland and gorse on sloping ground. Gorse is generally more abundant on the sloping terrain. This area of the site in the south-west corner has a denser growth of gorse than elsewhere except perhaps the extreme north west of the site. Species lists are similar to those already described by C. Byrne (sic see Appendix 1 quadrats) though abundance may vary. There is a high concentration of *Hygrocybe* fungi in this area. It is the least used as it is on sloping ground and close to the military practice range. The extensive grassland areas in between the mosaic of *Ulex* and grassland are heavily grazed as these are on level ground and access is easy (the graziers appear to keep their sheep on separate areas, usually easily accessible by road and not too far inland of a road).

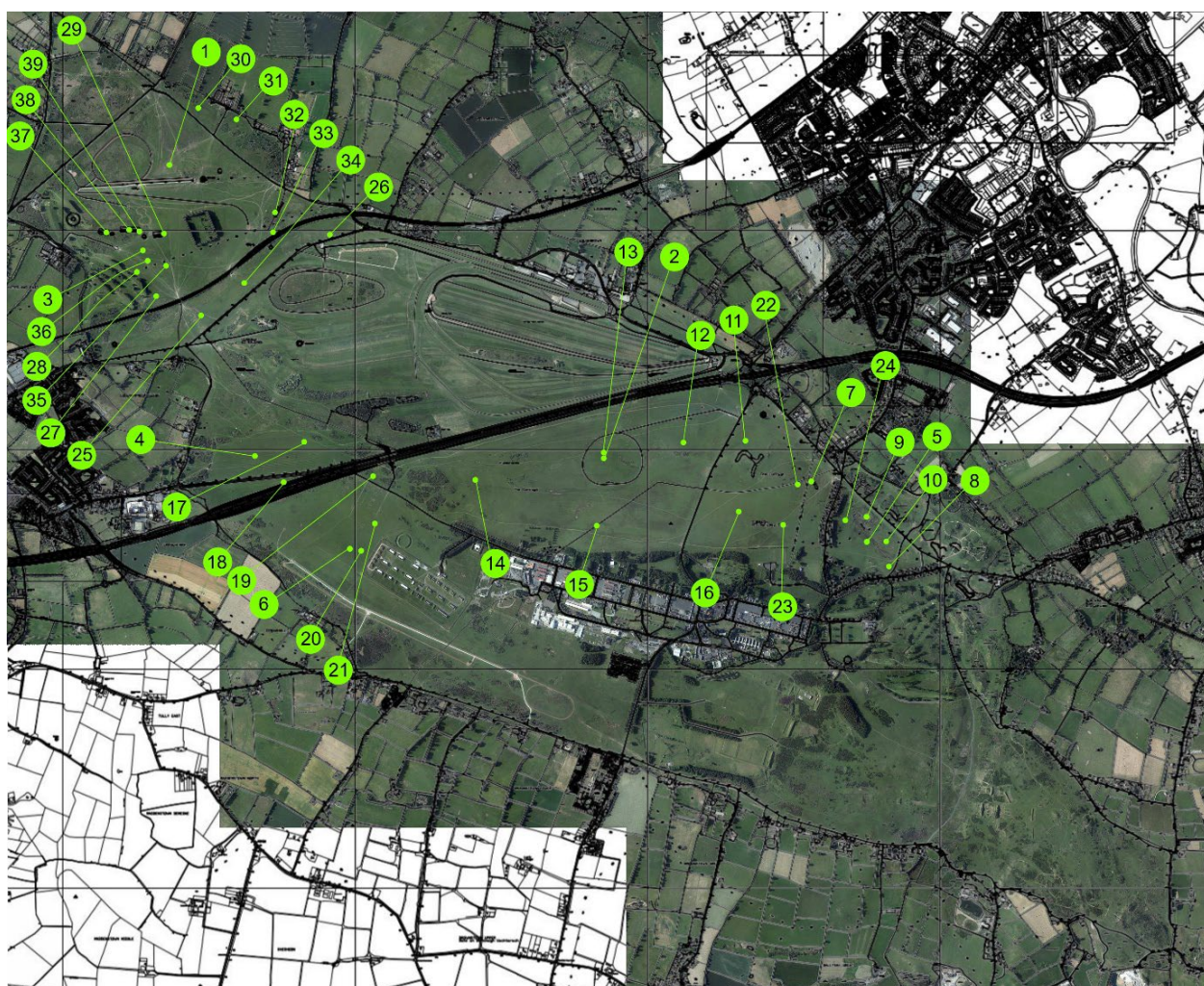
24. NHA. Rising ground dominated by *Ulex europaeus* with a species list indicating nutrient-poor conditions are present and that leaching has occurred. Species present include *Hieracium pilosella* agg., (sic = Mouse-ear-hawkweed (*Pilosella officinarum*)), *Leontodon autumnalis*, *Cynosurus cristatus*, *Leucanthemum vulgare*, *Galium saxatile*, *Achillea millefolium*, *Trifolium* spp., *Thymus praecox* and *Rhytidadelphus* species.

Val's list includes base-indicators, so perhaps leached but not podsolised.

Archived vegetation quadrat samples

Archived botanical Relevées are transcribed in Appendix 1 and provide a useful reference describing the vegetation with a small area selected as representative of a larger area of vegetation.

Quadrat location map



Rare plants

Notwithstanding the notable fungal flora, the Curragh is primarily a habitat site, and not well known for rare or protected plant species. The protected species known from the Curragh are Red Hemp-nettle (*Galeopsis angustifolia*) and Basil Thyme (*Clinopodium acinos*), both associated with disturbed gravel habitats beyond the periphery of the Curragh Plains rather than the designated site. For example, they were both recorded as frequent on the gravelled track beside the GAA pitch north of the old Curragh platforms on the Dublin to Cork main line, by Declan Doogue, (the Kildare BSBI County recorder) in 1979. He lists various other locations including abandoned sandpits

Blue Fleabane (*Erigeron acer*), a Red Data Book listed plant is another species of these disturbed gravels around the edge of the Curragh.

Heath False-brome (*Brachypodium pinnatum*) has been known from the railway bank for some time and is sometimes cited as a rare native. It is perhaps an introduced species here, as would explain its association with railway banks. It was frequent in one location in the centre of Little Curragh (Relevée 29) > 300 m from the railway

Its status here as a valued rare native plant is dubious in southern England, where it is native, it is a problematic species in some calcareous grassland habitats where it is invasive and suppresses species diversity. In this regard, its presence on the Curragh away from the railway is a matter of concern although the soils here are markedly acidic. Status of Heath False-brome (*Brachypodium pinnatum*) should be kept under review.

Biodiversity - Fauna

The Curragh regularly supports important populations of wintering Golden Plover, a species that is listed on Annex I of the E.U. Birds Directive – the NPWS site synopsis reports that flocks of 3000 birds have been recorded regularly since the winter of 1994/95. The Wild Kildare Facebook page updates this: 'Numbers can vary considerably and can be found almost anywhere on the Plains. High counts in the last few years are between 3,500 to 4,000 birds. In recent years, rare American birds, American Golden Plover, and Buff Breasted Sandpiper have been found feeding with the flock'

Lapwing, in flocks numbering in hundreds of birds, also have occurred on the site in more or less the same locations as the Plover but recently have not been returning reliably.

Wintering waders are not as constantly counted at the Curragh as they would be at coastal and inland wetland locations, but the available data suggest that numbers are rather variable between years:

Species	1995/96	1996/97	1997/98	2005/06	2007/08	2015/16	2016/17	2021/22
Golden Plover	7000	3000	103	5000	3000	3500	3000	400
Lapwing	780	800	486				45	

Much of the Curragh is either too disturbed or too uniformly grazed short for ground nesting birds, but the ground nesting Meadow Pipit and Skylark occur widely in grassland habitats around the Curragh and especially in the ungrazed grasslands enclosed by the Turf Club. These species were formally widespread in lowland habitats in Ireland but have now largely retreated to heathy uplands.

Irish Hare, a Red Data Book species, was plentiful on The Curragh in the 17th and 18th centuries – Hare are presumed to still use the site, but only one was seen by Val Swan then NPWS Wildlife Ranger in the extensive work conducted to map the NHA in 1998 and 1999.

The most recent Squirrel survey of Ireland (Lawton et. al. 2020) found that Grey Squirrel has virtually disappeared from Co. Fermanagh, Co. Monaghan and parts of Co. Meath and Co. Kildare since the 2012 survey. Red Squirrel sightings have increased considerably, and it has returned to parts of the midlands from which it had disappeared. The NPWS's Divisional Ecologist Ciara Flynn refers to the use by the protected Red Squirrel of even-aged Scots Pine planted along the roads and some of the roads around the Curragh.

Appendix C: Discussion note - Sheep Grazing intensity

The legislation awards rights to graze a certain number of sheep to specified grazing rights holders.

By comparison, working farm environmental plans specify grazing in terms of livestock units (LU) per hectare (ha) per year with limits imposed on the timing of grazing.

These are based on a 550 kg dairy cow representing 1 LU, so have to be translated to numbers of sheep per ha, though this can vary significantly by source, e.g.:

	Livestock Unit per head	Animals per livestock unit
Ewe	0.15	6.7
Breeding Ewes with lamb(s)	0.2	5
Breeding Ram	0.2	5
Other sheep > 1 year old	0.2	5

Sourced from Environmental Farming Scheme Higher Level Tranche 5 Applications Planner Instructions 2021

	Livestock Unit per head	Animals per livestock unit
40 kg Ewe	0.08	12.5
60 kg Ewe	0.1	10
80 kg Ewe	0.13	7.7

Sourced from English Nature's Lowland Grassland Management Handbook (Crofts & Jefferson, 1999)

	Livestock Unit per head	Animals per livestock unit
Lowland ewes	0.11	9.1
Breeding ewe hoggs 0.5 to 1 year	0.1	10
Other sheep > 1 year old	0.08	12.5
Store lambs under 1 year	0.04	25
Rams	0.08	12.5

Sourced from the Farm Management Pocketbook (Nix, 2004)

Proposed grazing intensity:

0.5 LU/ha/yr

This is within the normal range of grazing intensity for moderately unproductive grasslands as specified in various schemes.

It equates to a year-round density of ewes between 4,455 (EFS conversion) and 6,051 (Farm management Handbook Conversion). Given overgrazing is suspected, a final value of around 5,250 ewes seems a reasonable recommendation.

Proposed grazing timing

NI Environmental Farming Scheme Lowland dry acid grassland (restricted grazing) Remedial Management Option recommends:

The site must be managed by grazing extensively between 1 August and 30 April at an average stocking rate not exceeding 0.6 LU/ha in each year with no grazing permitted between 1 May and 31 July.

The 0.6 LU value cited refers to the density over those 9 months. Giving the GS3 grassland a break from grazing at any time of the year is considered to represent a biodiversity gain in terms of likely effect upon the grassland condition.

Summer grazing has the effect of reducing seed production which is a factor in reducing species richness. In this respect it is considered most advantageous to remove sheep from 1 June to 31 August rather than follow the EFS prescription.

If a year round density of 5,250 is to be accommodated in 9 months, then the winter stocking density will increase from the current allowable level to around 6,560. Although this covers a period when sheep may be removed for lambing anyway, it could require legitimising supplementary feeding.

If winter feeding is to be an on-going practise

- Nuts are better than big bale silage – they can be widely scattered and not focus hundreds of sheep on a small area (soil disturbance and nutrient enrichment through dunging)
- Designate agreed winter feeding areas in least sensitive areas of the flock range (probably more nutrient rich parts). This will require assessment on an individual home range basis.

Appendix D: Example indicators and metrics used in relation to biodiversity damage

A list of activities that could be potentially identified as requiring consent on a Natura 2000 (N2K) has been compiled by the NPWS and is currently in use:

- 01 Reclamation, including infilling.
- 02 Stocking or re-stocking with fish.
- 03 Blasting, drilling, dredging or otherwise removing or disturbing fossils, rock, minerals, mud, sand, gravel or other sediment.
- 04 All activities relating to turf cutting and/or peat extraction.
- 05 Cutting, uprooting or otherwise removing plants. [Consent is not required for harvesting of cultivated crops, or for grazing or mowing.]
- 06 Introduction, or re-introduction, of plants or animals not found in the area. [Consent is not required for the planting of crops on established reseeded grassland or cultivated land.]
- 07 All activities relating to turf cutting and/or peat extraction. [Consent is not required to continue domestic turf cutting from existing turf banks.]
 - Undertaking scientific research involving the collection and removal of biological material.
 - Construction or alteration of tracks, paths, roads, bridges, culverts or access routes.
- 08 Construction, removal or alteration of fences, stone walls, hedgerows, banks or any field boundary other than temporary electric fencing. [Consent is not required for normal maintenance.]
- 09 Digging, ploughing, harrowing or otherwise disturbing soil or substrate. [Consent is not required for these activities on established reseeded grassland or cultivated land provided it is greater than 50m from a river, stream, floodplain, wetland, lake, turlough or pond.]
- 10 Applying inorganic or organic fertiliser, including slurry and farmyard manure. [Consent is not required for these activities on established reseeded grassland or cultivated land provided it is greater than 20m from a river, stream or floodplain; or greater than 50m from a wetland, lake, turlough or pond.]
- 11 Applying lime. [Consent is not required for this activity on established reseeded grassland or cultivated land provided it is greater than 20m from a river, stream or floodplain; or greater than 50m from a wetland, lake, turlough or pond.]
- 12 Storage, burial, disposal or recovery of any materials. [Consent is not required for these activities on established reseeded grassland or cultivated land provided it is greater than 20m from a river, stream or floodplain; or greater than 50m from a wetland, lake, turlough or pond.]
- 13 Burning, topping, clearing scrub or rough vegetation or reseeded. [Consent is not required for these activities on established reseeded grassland or cultivated land provided it is greater than 20m from a river, stream or floodplain; or greater than 50m from a wetland, lake, turlough or pond.]
- 14 Modification of caves and/or their entrances.
- 15 Agricultural improvement of heath or bog.
- 16 Application of pesticides, including herbicides. [Consent is not required for these activities on established reseeded grassland or cultivated land provided it is greater than 20m from a river, stream or floodplain; or greater than 50m from a wetland, lake, turlough or pond.]

- | | |
|----|---|
| 17 | Supplementary feeding of livestock. [Consent is not required for this activity on established reseeded grassland or cultivated land provided it is greater than 20m from a river, stream or floodplain; or greater than 50m from a wetland, lake, turlough or pond.] |
| 18 | Significant changes in livestock density (including introduction of grazing), changes in livestock type or grazing season, other than on established reseeded grassland. [Consent is not required for changes of less than 20% in livestock density unless notice has been given that a lower percentage is applicable to a particular site.] |
| 19 | Grazing of livestock between 1st April and 31st October on traditional winterages. |
| 20 | Changing of agricultural use from hay meadow to any other use. |
| 21 | Mowing of grass crops. [Consent is not required unless notice has been given that mowing on specified lands is likely to interfere with the breeding and reproduction of corncrakes during the period specified in the said notice.] |
| 22 | Works on, or alterations to, the banks, bed or flow of a drain, watercourse or waterbody. |
| 23 | Drainage works including digging, deepening, widening or blocking a drain, watercourse or waterbody. |
| 24 | Entry of livestock or machinery into stretches of river containing, or upstream from, freshwater pearl mussel. |
| 25 | Water abstraction, sinking of boreholes and wells. |
| 26 | Felling of trees or removing timber, including dead wood. |
| 27 | Planting of trees or multi-annual bioenergy crops. |
| 28 | Any activity intended to disturb birds, including by mechanical, air, gas, wind powered or audible means. |
| 29 | Developing or consenting to the development or operation of commercial recreational/visitor facilities or organised recreational activities. |
| 30 | Recreational use of an off-road vehicle. |
| 31 | Using or permitting the use of land for car parking where it may damage the vegetation, soil or substrate. |
| 32 | Alteration, renovation or removal of buildings, ruins or other structures. |
| 33 | Undertaking active acoustic surveys in the marine environment. |
| 34 | Harvesting marine invertebrate species in intertidal areas. |
| 35 | Driving mechanically propelled vehicles in intertidal areas, except over prescribed access routes. |
| 36 | Lighting up caves, buildings or other places used by bats for roosts. |

This list is intended to cover a wide range of potential risks to SACs and SPAs. Similarly in Northern Ireland a typical list of notifiable operations (formerly known as Potentially Damaging Operations) for a grassland Area of Special Scientific Interest covers the gamut of perceived threats:

1. Any activity or operation which involves the damage or disturbance by any means of the surface and subsurface of the land, including ploughing, rotovating, harrowing, reclamation and extraction of minerals, including sand, gravel and peat.
2. Any change in the present annual pattern and intensity of grazing, including any change in the type of livestock used or in supplementary feeding practice.
3. Any change in the established method or frequency of rolling, mowing or cutting.
4. The application of manure, slurry or artificial fertiliser.

5. The application of herbicides, fungicides or other chemicals deployed to kill any form of wild plant, other than plants listed as being noxious in the Noxious Weeds (Northern Ireland) Order 1977 (sic, Thistles, Docks, Ragwort and Wild Oat).
6. The storage or dumping, spreading or discharge of any material not specified under paragraph 5 above.
7. The destruction, displacement, removal or cutting of any plant, seed or plant remains, other than for:
8. plants listed as noxious in the Noxious Weeds (Northern Ireland) Order 1977.
9. normal cutting or mowing regimes for which consent is not required under paragraph 3 above.
10. The release into the area of any animal (other than in connection with normal grazing practice) or plant. 'Animal' includes birds, mammals, fish, reptiles, amphibians and invertebrates; 'Plant' includes seed, fruit or spore.
11. Burning.
12. Changes in tree or woodland management, including afforestation, planting, clearing, selective felling and coppicing.
13. Construction, removal or disturbance of any permanent or temporary structure including building, engineering or other operations.
14. Alteration of natural or man-made features, the clearance of boulders or large stones and grading of rock faces.
15. Operations or activities, which would affect wetlands (include marsh, fen, bog, rivers, streams and open water), e.g.:
 16. change in the methods or frequency of routine drainage maintenance.
 17. modification of the structure of any watercourse.
 18. lowering of the water table, permanently or temporarily.
 19. change in the management of bank-side vegetation.
20. The killing or taking of any wild animal except where such killing or taking is treated as an exception in Articles 5, 6, 11, 17, 20, 21 and 22 of the Wildlife (Northern Ireland) Order 1985.
21. The following activities undertaken in a manner likely to damage or disturb the wildlife of the area:
 22. Educational activities.
 23. Research activities.
 24. Recreational activities.
 25. Exercising of animals.
 26. Changes in game, waterfowl or fisheries management or fishing or hunting practices.
 27. Use of vehicles or craft likely to damage or disturb the wildlife of the area.

The NI list applies to Ballymacallion ASSI, a species-rich humic grassland site in Derry, but could equally apply to many other grassland sites.

Another expansive list of 'Notifiable Actions' has been compiled for all fully designated lowland dry grassland NHAs in the Republic of Ireland.

- Grazing of livestock above a sustainable density (as defined in approved farm plans).
- Grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung.
- Changing of traditional use from hay meadow (to either grazing or silage making), or from grazing to silage cutting.
- Adding lime/adding fertiliser of any sort to areas not previously fertilised.
- Applying fertiliser which would increase the level of nitrogen / phosphorous in soils which already have in excess of the REPS index 2 levels.
- Mowing grass before the 30th of June (except for lands that hold breeding corncrakes, or certain rare meadows, where special provisions will apply).
- Burning of vegetation /ploughing or cultivation of lands which have not been so managed for the last 20 years.

- Reclamation, infilling, or land drainage/ reseeding, planting of trees or any other species use of any pesticide or herbicide.
- Dumping, burning, or storing any materials.
- Alteration of the banks, bed or low of watercourses.
- Operation of commercial recreation facilities (e.g., pony trekking)
- Introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area.
- Developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.
- Removal of soil, mud, gravel, sand, or minerals.
- Developing roads or car parks.
- Construction of fences, buildings, or embankments.
- Afforestation.



Appendix E: Public Consultation Findings 2022

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Introduction

The second consultation event sought opinion on the draft Conservation Management Plan and the draft Interpretation and Wayfinding Strategy.

An in-person event (attended by representatives of the client and consultant team) was held at the Curragh Racecourse on 19th October 2022, with printed consultation boards being made available after the event at the Council Offices, Kildare Library, Newbridge Library and in Kilcullen.

A short survey was carried out via an online form, and an alternative hard copy version.

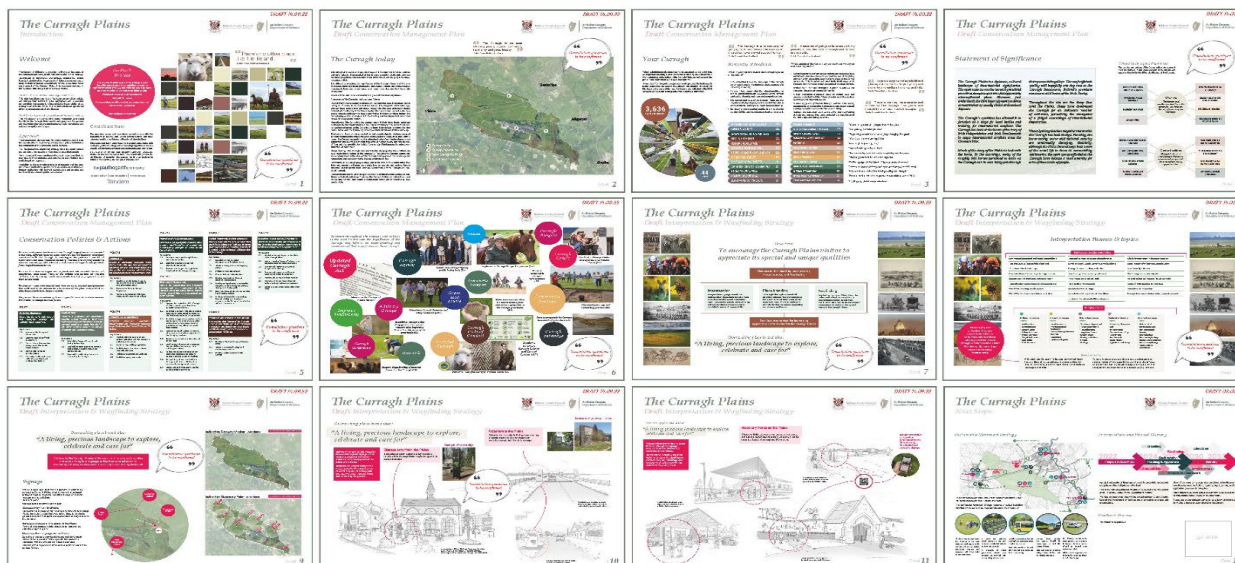
The survey comprised a series of objective and qualitative questions that augmented the discussions had at the in-person event.

As per previous consultation, an email address was communicated for any more substantive responses.



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Consultation panels



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Overview of responses

TOTAL NUMBER OF SURVEY RESPONSES - 260

ONLINE 242

KILDARE 1

KILCULLEN 6

NEWBRIDGE 4

COUNTY COUNCIL OFFICE 7

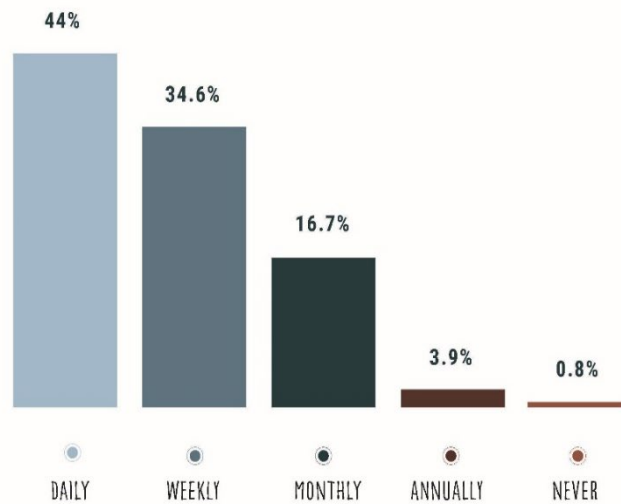
FIRST CONSULTATION EVENT

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QUESTIONS ABOUT YOU...

TOTAL NUMBER OF RESPONDENTS
257 OUT OF 260

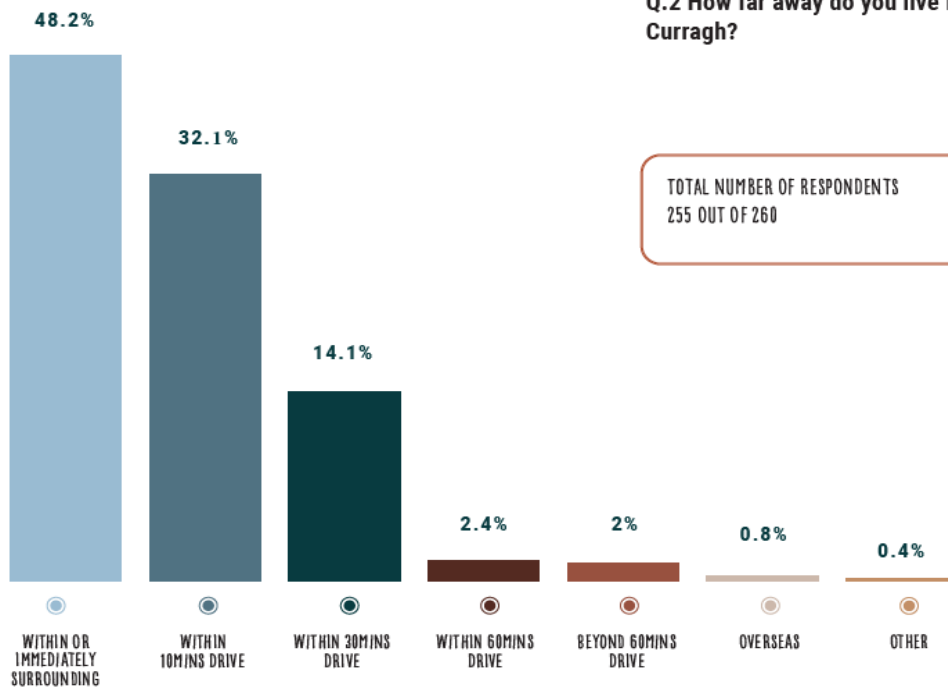
Q.1 How often do you visit the Curragh Plains?



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QUESTIONS ABOUT YOU...

Q.2 How far away do you live from the Curragh?



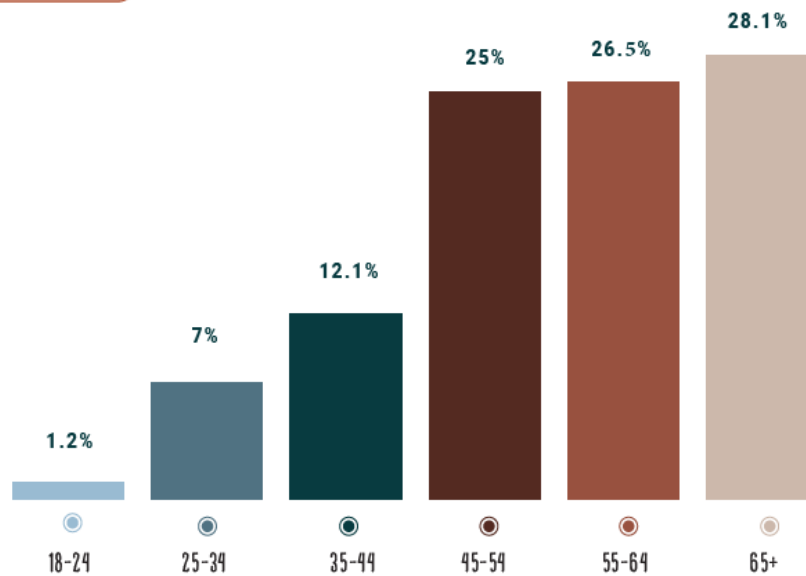
TOTAL NUMBER OF RESPONDENTS
255 OUT OF 260

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QUESTIONS ABOUT YOU...

Q3. What is your age range?

TOTAL NUMBER OF RESPONDENTS
256 OUT OF 260

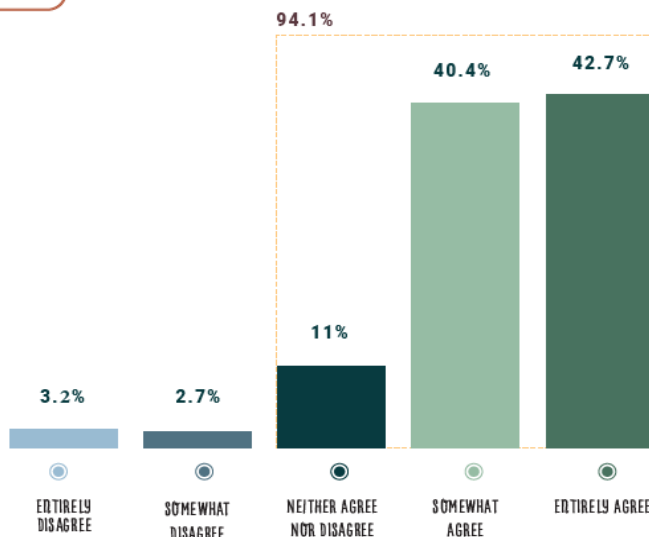


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QUESTIONS ON THE DRAFT PROPOSALS...

TOTAL NUMBER OF RESPONDENTS
255 OUT OF 260

Q.4 To what extent do you agree with the Statement of Significance, Threats and Opportunities?



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QUESTIONS ON THE DRAFT PROPOSALS...

Q.5 Is there anything else significant about the Curragh Plains that you feel should be included here?

A large number used this question to make general comments, comments relating to opportunities, comments relating to issues that have been addressed in the policy and action recommendations, or give their general feelings about the Curragh.

There were many general comments made in relation to the landscape and archaeological significance of the Curragh, its mythical significance, and the significance of the various uses and users of the Curragh.

Some feedback that should be reviewed going forward includes:

- Significance and connection with St. Brigid
- Criticism that statement of significance does not reflect the flora / fauna enough
- Criticism that the proposals do not recognise the beauty of the plains as they are without interpretation
- Criticism that the work should include the entirety of the Curragh, including the Curragh Camp

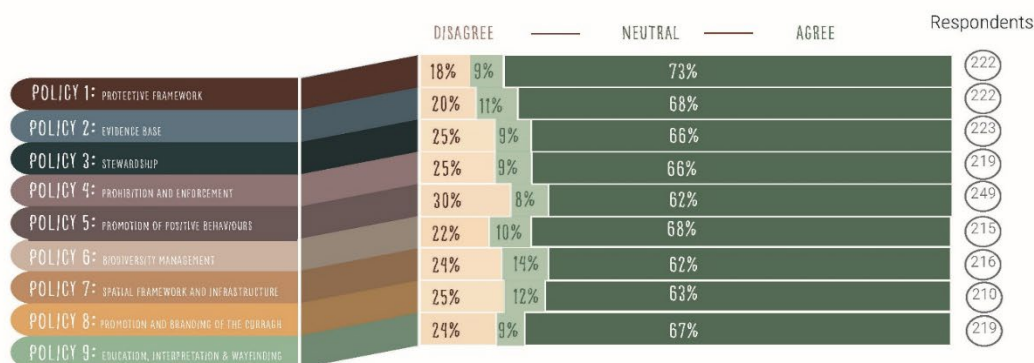
- “It's place in the surrounding landscape”
- “The statement is entirely human orientated and does not recognise the nature value of the Curragh beyond galloping horses and grazing sheep”
- “Whilst horses and sheep are significant, the use of the plains by families as a place of recreation is also very significant”
- “The use of the plains for exercise by people is significant”
- “I feel that to divorce the Curragh Camp from the plains crazy.”
- “Disappointing but understandable to have the Curragh Camp missing, although its museum is mentioned in the draft.”

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QUESTIONS ON THE DRAFT PROPOSALS...

Picking up on the general response to the policies, a minimum of 70% (most being 75%-80%) agreed, or had a neutral stance to the policies.

Q.6 Please indicate to what extent you agree with the with following policies



In trying to understand the nature of the responses we looked to the responses provided at Question 7.

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QUESTIONS ON THE DRAFT PROPOSALS...

Q.7 Do you have any comments or suggestions about the draft policies and actions?

There was a lot of positivity around the work that had been done, and a large proportion of the respondents agreed, or had a neutral stance to many of the policies.

There was much concern embedded within the feedback on the actions relating to:

- Accountability
- Enforcement
- Timelines and increased speed of action

Whilst many of the comments were general and overarching in nature, the following pages outline some of the comments.

- “So much covered from all aspects well done”
- “I am impressed with the draft consultation document which I hope will deliver on its aspirations”
- “All policies are thoughtful and positive”
- “Love the idea of stewardship, conservation, biodiversity, education in local schools needed. Website and info for public much needed”
- “Initiatives, needs are obvious for many years but the lack of implementation and any body taking proper sense of responsibility is totally absent”
- “This is a very comprehensive ambitious plan but if there is no immediate protective intervention there won't be anything special to warrant the other development strategies.”
- “Get the basics done quickly to encourage people to get behind the entire plan”
- “Please get some protection in place asap”

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QUESTIONS ON THE DRAFT PROPOSALS...

Q.7 Do you have any comments or suggestions about the draft policies and actions?**Policy 1: Protective Framework**

- “There is a need to modernise legislation”
- “Would National Park status not speed up the implementation of the plan with greater resources being made available?”

Policy 2: Evidence Base

- “The community or members of the curragh community should be included in the advisory group”
- “Research needed on sport and recreation use on the Curragh and its impact on human and animal wellbeing.”

Policy 3: Stewardship

- “Significant emphasis needs to be placed on the nomination of an appropriate management body for these actions. Representative, empowered and resourced.”
- “The curragh rangers should be independent”
- “Can a system of reporting be set up to ensure it is easy for the public to report any breaking of rules that are witnessed.”

Policy 4: Prohibition and Enforcement

- “You don't list the use of drones and model aircraft in wildlife habitats or the Hunting of wild animals.”
- “Introduce equine use regulations.”
- “Policy 4.1 seems like it will have little to no effect. There are already laws about encampments which are not enforced.”
- “Travellers to be removed from the curragh”

Policy 5: Promotion of Positive Behaviours

- “Policy 5 – 5.1 Code of conduct and Charter should be mandatory, voluntary would be ignored.”
- “farmers should take more responsibility for the sheep”

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QUESTIONS ON THE DRAFT PROPOSALS...

Q.7 Do you have any comments or suggestions about the draft policies and actions?**Policy 6: Biodiversity Management**

- “Policy 6.6: if trees are removed there will be considerable upset among locals as many people don't understand or appreciate the significance or importance of the grassland.”
- “Policy 6.6 while tree planting should not be allowed, there are a number of historic small plantations that add interest.”
- “Could some “Curragh woodlands” be identified and maintained or improved by the addition of native trees perhaps?”
- “The furzes – concerns that works leave an eyesore i.e. tracks, and loss of furze removes wildlife shelter”

Policy 7: Spatial Framework and Infrastructure

- “There should be no more building on the curragh. There is enough vacant infrastructural and building to have a visitor centre”
- “Designated parking spots on the outskirts of the plains, not on the plains themselves defeats the purpose”
- “It would be great if there were safe paths out to curragh from Kildare Town”

Policy 8: Promotion and Branding of the Curragh

- “Encourage Curragh branding on area signage and for a wide variety of products. Consistently promote stewardship, events, release of research through media channels.”
- “Curragh lamb should be as recognisable as connemara”
- “Encourage Curragh branding on area signage and for a wide variety of products.”

Policy 9: Education, Interpretation & Wayfinding

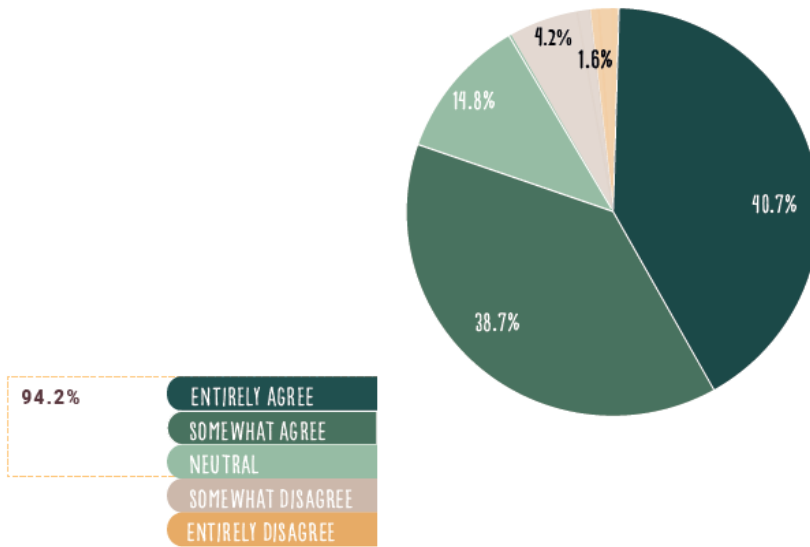
- “an app for navigating the Curragh Plains”
- “Promote the connection to the horse through various educational campaigns and partnerships.”
- “Are gateway to plains structures necessary or could they be more low key.”
- “Part of what made the walks on the Curragh to great is just roaming the many acres, there really shouldn't be way markings”

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QUESTIONS ON THE DRAFT PROPOSALS...

TOTAL NUMBER OF RESPONDENTS
243 OUT OF 260

Q.8 To what extent do you agree with the proposed Themes and topics?

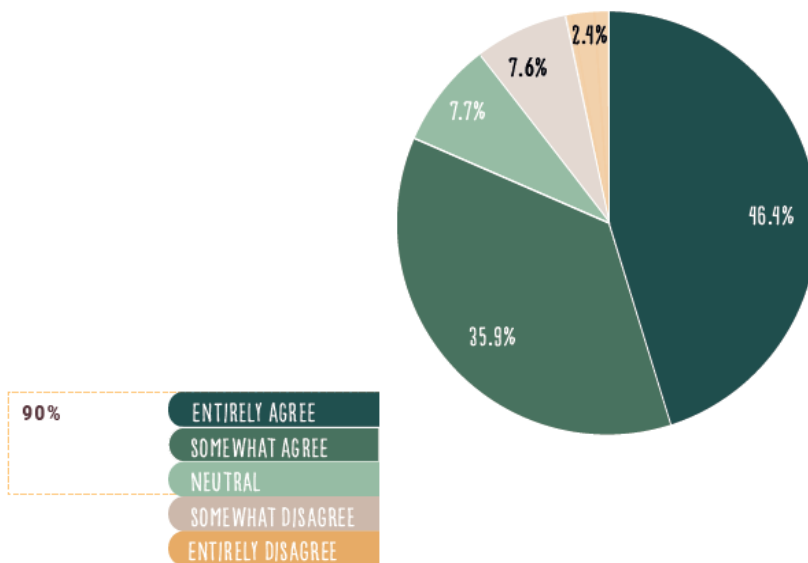


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QUESTIONS ON THE DRAFT PROPOSALS...

TOTAL NUMBER OF RESPONDENTS
248 OUT OF 260

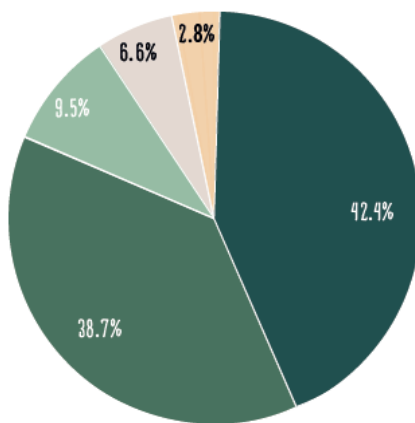
Q.9 To what extent do you agree that these interpretation proposals will improve the experience of visiting the Curragh and understanding its rich diversity?



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TOTAL NUMBER OF RESPONDENTS
243 OUT OF 260

Q.10 To what extent do you agree with the Sustainable Movement Strategy for the Curragh Plains?



90.6%

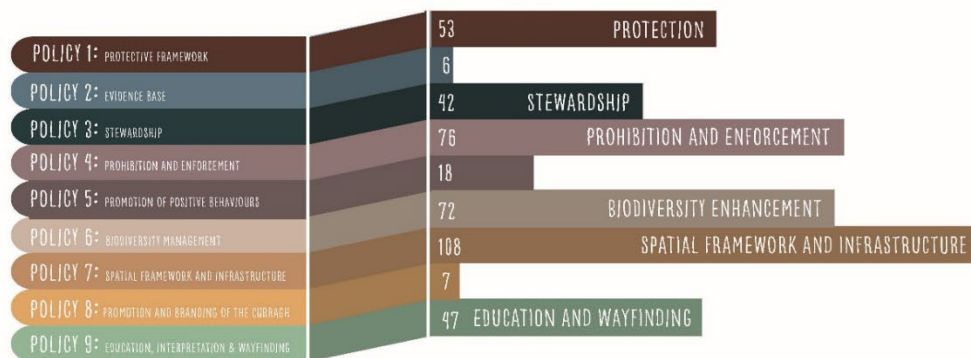
- ENTIRELY AGREE
- SOMEWHAT AGREE
- NEUTRAL
- SOMEWHAT DISAGREE
- ENTIRELY DISAGREE

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QUESTIONS ON THE DRAFT PROPOSALS...

Views were expressed throughout all the qualitative responses. Generally, the responses given related to a draft Policy/Action of the draft plan, or an issue such as protective framework or stewardship. The findings have been structured in this way with one 'point' being assigned for each of the priorities given.

Q.11 Based on all draft proposals, what do you think should be the Top 3 priority projects for the Curragh Plains?



One point was assigned for each of the three provided, albeit it is recognised that not all respondents completed this section, and some did not list three priorities. The analysis provides a useful "heatmap" as to where priorities were assigned.

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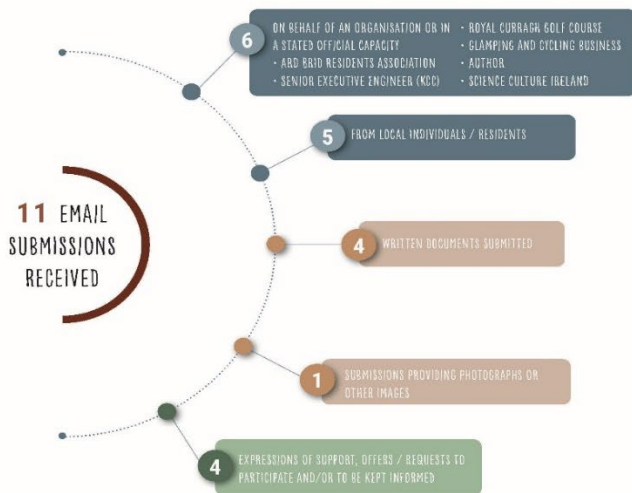
In addition to the short questionnaire, an opportunity to email through any additional information was provided via a dedicated project email address.

"The title of Ranger of the Curragh is a very historical title dating back to the 1660s and with a tradition dating back almost 350 years"

"We support the 9 policy initiatives in the plan to protect and conserve the special status of this landscape"

Royal Curragh Golf Course

"a branding exercise is a useful exercise with clear entry points to the Curragh signalled"



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S
- NEED FOR PARKING FACILITIES
 - NEED FOR SIGNAGE
 - ENFORCEMENT POWERS
 - WALKING ROUTES / CYCLE ROUTES AND LANES
 - CURRAGH RANGER
 - INFRASTRUCTURE FOR SHEEP
 - PARK AND STRIDE FACILITY
 - CYCLE PARKING
 - INCLUSION OF CURRAGH CAMP
 - REMOVAL OF VEGETATION
 - MANAGEMENT STRUCTURE
 - INTERPRETIVE CENTRE
 - REMOVAL OF VEGETATION
 - BIODIVERSITY ENHANCEMENT
 - BRAND DEVELOPMENT
 - ILLEGAL ENCAMPMENTS

Appendix F: Research Note – Theoretical Framework behind Management

The current situation being experienced on the Curragh fits within a pattern called the *tragedy of the commons*. Conceptualised in 1833 by economist William Forster Lloyd, the term *tragedy of the commons* was first used by ecologist Garret Hardin in 1968 (Spiliakos, 2019). The theory explains the tendency for individuals to make the best decisions for themselves regardless of the negative effect on others. Over time, other stakeholders now fearful that they are missing out on their share of the pie and operating in a space of insufficient regulation, rush to gain greater economic value from the common resource. As the resource eventually becomes significantly denuded it becomes apparent that optimising for the self in the short term hasn't been optimal for anyone in the long term. Ultimately, overuse beyond its carrying capacity destroys the commons for all.

Although humanity can be rational, the instincts of fight or flight and the pleasure-driven hunger for immediate gratification still drive much of our behaviour (Schwartz, 2012). Thousands of years ago these instincts served us very well. However, now in a more complex world they serve to push the individualistic drive to accumulate more and more. This can be detrimental to all. We use our brains to rationalise or minimise our choices rather than question them (ibid). Schwartz has posited that the way out of this individualistic lens is to engage in shared commitment to sustainably use a resource or commons. This appears idealistic. However, some self-sacrifice now to ensure an improved commons in the long-term is ultimately a form of enlightened self-interest. There are three behaviours he has proposed to solving the tragedy of the commons. These are particularly relevant to those who use the commons:

- Widen the lens (i.e. ask what impact will my actions have on others?)
- Consume less
- Add more value to the commons

In the Curragh, no rush to exploit a diminishing resource was apparent. Instead, stakeholders/users mostly did what they felt was appropriate for their gain within the law. Often however, stakeholders/users pushed beyond the limits of what ethically or legally they should do as users of the Curragh. Some of these actions which impacted on the landscape were largescale. The vast majority though, were individually small. Nonetheless, combined, the impact of even the small actions on the landscape has been substantial. The ecological quality of the Plains is already denuded. Much of the site's built heritage and field monuments have also suffered. It is likely that a large degree of the Curragh's misuse is down to lack of awareness to its significance and a culture of simply taking the site for granted. Regardless, of the reasons, the Curragh is in poor shape. It requires protection.

If we choose to act and protect the resource, five questions emerge (Harford, 2013):

- How will we act?
- Who must do what?
- Who will benefit?
- How will the actions be agreed?
- Who will police behaviour?

When Hardin presented the tragedy of the commons concept, he proposed only two solutions to saving deteriorating commons. The first was that they be nationalised and strictly managed by the state. The second was that they be fully privatised and parcelled out (ibid). Thankfully, these conclusions have been proven to be simplistic. Political scientist and Nobel laureate in economics Elinor Ostrom has shown that instead of inevitable destruction of the commons by exploitation, firm state control or privatisation, common resources can be sustainably managed by its stakeholders. By reviewing successful examples around the globe of managing common resources Ostrom created a set of design principles. She concluded that the communal management arrangements that worked were rarely designed by the top down but from the bottom up. Another one of Ostrom's conclusions was that there was no panacea (Smith, 2009). She recognised that each place was different and required a bespoke solution (Nijhuis, 2021). Her eight design principles are:

1 - Well-defined boundaries

Defines the community of users and boundaries around the commons itself. In the Curragh, the number of recreational users has increased significantly in the past two decades.

2 - Congruence between appropriation and provision rules and local conditions

Rules must be bespoke for each commons. They must be fair to all stakeholders and fairly implemented.

3 - Collective-choice arrangements

The stakeholders can create their own rules and modify them if circumstances change. This principal can be abused by a strong stakeholder for their advantage to the detriment of others or the long-term health of the commons (Cox et al, 2010). There must be a reasonable balance between costs and benefits for stakeholders.

4 - Monitoring

This is both the presence of monitors and key measurements to chart the health of the commons. Monitoring makes those who break the rules visible and facilitates rule enforcement. Monitoring must be fair and transparent. Areas to be measured (i.e. individual practices and environmental health) should also be agreed by the stakeholders. Adequate resources must be put in place to allow appropriate monitoring.

5 - Graduated sanctions

Sanctions deter excessive violations of agreed community rules. The severity of sanctions depends on the nature of the transgression and the frequency of rule breaking. Behavioural consensus building and the creation of a culture of respect for the landscape is more important than sanctions. Nonetheless, the real possibility of sanctions must be put in place to facilitate fairness.

6 - Conflict resolution mechanisms

Conflict is inevitable. Thus, low-cost, and fair conflict resolution mechanisms are important to resolve issues quickly and amicably.

7 - Minimum recognition of rights

This stipulates that external government agencies do not challenge the right of local users to create their own institutions (ibid). External rules from the government often do not correspond with the local realities. Flexibility, cooperation, and partnership are essential.

8 - Nested enterprises

This refers to governance activities being organised in multiple layers. For example, this could mean aside from a Curragh Plains management committee made up of key stakeholders that the various sports clubs and community groups would agree an annual calendar of events to avoid peaks of usage on the Plains and disperse activities across the site. It may also include the Department of Defence preparing a conservation plan for the Curragh Camp and that the plan be implemented. The various stakeholder groups and layers of governance should work towards creating amicable relationships with each other.

Ostrum's principles have undergone relatively recent review as to their applicability (Cox et al. 2010). They were found to be fit for purpose in the successful creation of communal approaches to commons management.

Complexity of rules undermines overall success of management of a commons (Smith, 2009).

A fatal source of bad management is the inappropriate application of uninformed external authority, including the unfairness of rules not being applied to favourites (ibid).

Reviewing the approaches of Hardin and Ostrum, as sale and division of the Curragh Plains fundamentally goes against what makes the Curragh significant, there are only two routes to managing the Plains. The first is strict government control. The second is communal stakeholder management. The latter is more complex. However, it is likely to lead to a situation where the pie is enlarged and innovative responses to challenges are encouraged while maintaining the long-term health of the site. The alternative is the simple but blunt prescriptive control of activities that strict government control would create.

Advantages and disadvantages of various management approaches

Form of management	Advantages	Disadvantages
Strict state control	<ul style="list-style-type: none"> • Strong control maintained • Less onerous administration 	<ul style="list-style-type: none"> • Multiple breaches of rules likely (rules simply ignored without strong enforcement) • Conflict with local communities is likely to be high • Cuts off possible solutions to issues from other groups/parties • Limits opportunities for funding
Communal stakeholder management	<ul style="list-style-type: none"> • Greater opportunity to solving more of the issues connected with the Curragh by involving other stakeholders • Opportunity to create a strong culture of respect and custodianship • Opportunity to be an exemplar in historic landscape management • Opportunity to obtain more funding for actions than would otherwise be the case 	<ul style="list-style-type: none"> • Process is difficult to manage (requires good structure and group constitution) • Some conflict between stakeholders is inevitable

After examining the likely advantages and disadvantages of both viable management approaches, the pursuit of a communal management option is considered to relate most closely to the complexities of the Curragh Plains.