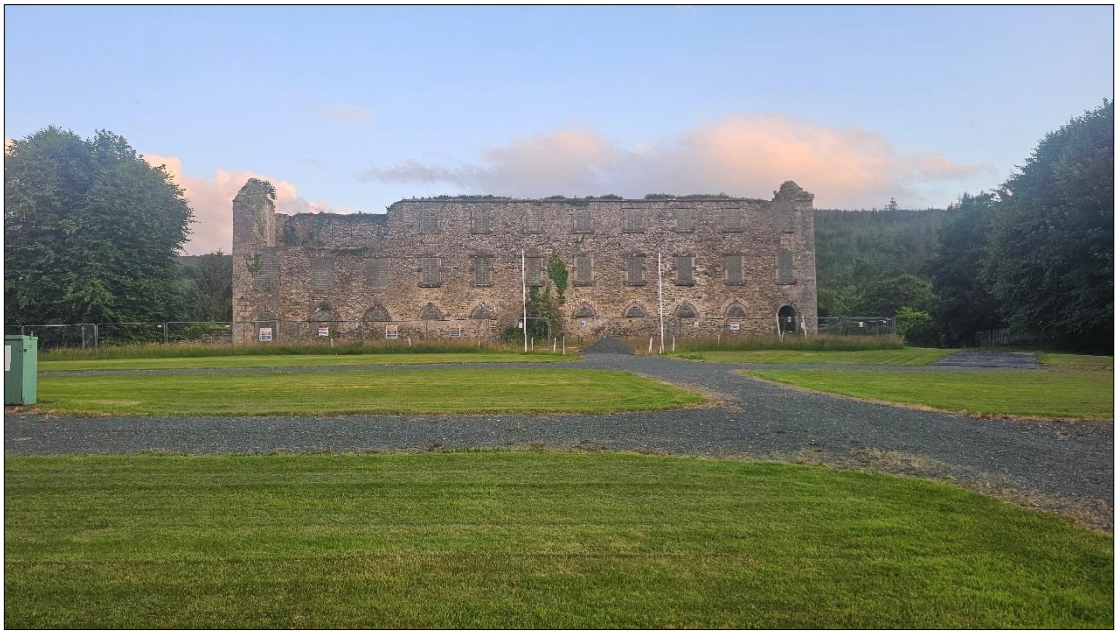
Drumgoff Barracks, Glenmalure, Co. Wicklow

Ecological Survey 2025



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FINAL REPORT

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Drumgoff Barracks, Glenmalure, Co. Wicklow

Ecological Survey 2025

Table of Contents

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1. INTRODUCTION

1.1 Background

This report updates previous ecological studies completed in 2023 and 2024 of Drumgoff Barracks. The study in 2024 was prepared by a specialist ecological team consisting of Faith Wilson (an independent ecological consultant and licensed bat specialist), Dr Paul Whelan (Lichenologist) and Dr Joanne Denyer (Bryophyte specialist) who were appointed by Yvonne Whitty Archaeology, the project archaeologist, to prepare a report for the conservation of Drumgoff Barracks. The 2024 study updated a baseline ecological survey that was completed in 2023. Drumgoff Barracks are located in the Glenmalure Valley in County Wicklow (**Figure 1**). The project was funded under the Community Monuments Fund (Ref: CMF 2025 STREAM 1).

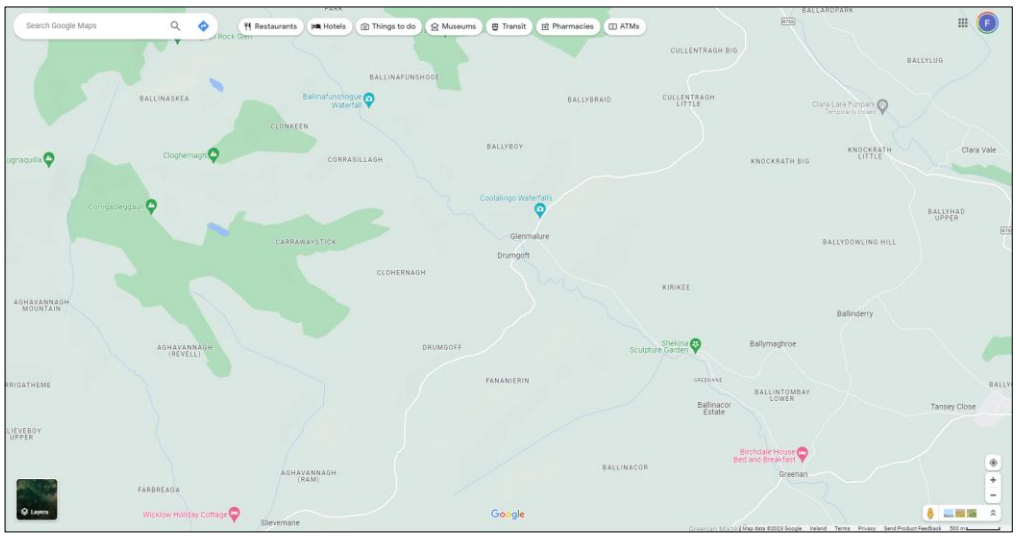

Figure 1. Drumgoff is located in the townland of Drumgoff in the Glenmalure Valley, in County Wicklow (Google Maps).

The Irish Caravan and Camping Club (ICCC) has owned this site since 1982 and its grounds are used as a camping ground, with the barracks fenced off for safety reasons (**Plate 1**). This report forms part of a conservation plan for Drumgoff Barracks (RMP no WI029-017) on behalf of the ICCC to carry out essential repairs to the site.

The scope of works completed in 2024 included:

- A bat survey to inform a bat derogation licence
- A lichen survey
- A bryophyte survey

This survey updates the 2024 survey from the perspective of bats to support an application for a bat derogation licence for the conservation works.

1.2 Relevant Legislation

1.2.1 Nature Conservation Designations

International Conservation Designations

Special Areas of Conservation (SACs) are habitats of international significance that have been identified by NPWS and submitted for designation to the EU. SAC is a statutory designation, which has a legal basis under the EU Habitats Directive (92/43/EEC) as transposed into Irish law through the European Communities (Natural Habitats) Regulations, 1997, which were amended in 1998, 2005 and 2011. The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the Court of Justice of the European Union (CJEU) judgements.

A Special Protection Area (SPA) is a statutory designation, which has a legal basis under the EU Birds Directive (79/409/EEC). The primary objective of SPAs is to maintain or enhance the favourable conservation status of the birds for which the SPAs have been designated.

National Conservation Designations

Proposed NHAs are habitats or sites of interest to wildlife that have been identified by NPWS. These sites become NHAs once they have been formally advertised and land owners have been notified of their designation. NHAs are protected under the Wildlife (Amendment) Act, 2000, from the date they are formally proposed. NHA is a statutory designation according to the Wildlife (Amended) Act, 2000 and requires consultation with NPWS if any development impacts on a pNHA.

1.2.2 Bats

Eleven species of bats occur in Ireland and all are protected under both national and international law.

Wildlife Act 1976

In the Republic, under Schedule 5 of the Wildlife Act 1976, all bats and their roosts are protected by law. It is unlawful to disturb either without the appropriate licence. The Act was amended in 2000.

Bern and Bonn Convention

Ireland has also ratified two international conventions, which afford protection to bats amongst other fauna. These are known as the 'Bern' and 'Bonn' Conventions. The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), exists to conserve all species and their habitats, including bats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was

instigated to protect migrant species across all European boundaries, which covers certain species of bat.

EU Habitats Directive

All bat species are given strict protection under Annex IV of the EU Habitats Directive, whilst the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) and Greater Horseshoe Bat (*Rhinolophus ferrumequinum*) are given further protection under Annex II of the EU Habitats Directive. Both are listed as a species of community interest that is in need of strict protection and for which E.U. nations must designate Special Areas of Conservation (SACs). The latter is only known from a single site and no breeding populations have been recorded to date. The former are a species of the western seaboard of Ireland and have not yet been recorded on the east coast.

The principal pressures on Irish bat species have been identified as follows:

- urbanised areas (e.g. light pollution);
- bridge/viaduct repairs;
- pesticides usage;
- removal of hedges, scrub, forestry;
- water pollution;
- other pollution and human impacts (e.g. renovation of dwellings with roosts);
- infillings of ditches, dykes, ponds, pools and marshes;
- management of aquatic and bank vegetation for drainage purposes;
- abandonment of pastoral systems;
- speleology and vandalism;
- communication routes: roads; and
- inappropriate forestry management.

1.2.3 Bryophytes

There are a number of legally protected bryophytes, which are listed under the Flora (Protection) Order 2022.

1.2.4 Lichens

Only one species of lichen (Scrambled-egg Lichen (*Fulgensia fulgens*)) is legally protected under the Flora (Protection) Order 2022.

1.2.5 Invasive Species

The legal framework for the control or eradication of non-native invasive species in the Republic of Ireland is the Birds and Habitats Regulations (2011), which include legislation on invasive and non-native species in Sections 49 and 50.

Since then the EU Regulation on Invasive Alien Species (EU Regulation 1143/2014) also came into force on the 3rd August 2016.

The plant and animal species to which the Birds and Habitats Regulations (2011) apply are presented in Schedule Three. Part 1 details the plants species,

while Part 3 outlines those animal or plant vector materials and are presented below.

Third Schedule: Part 1 Plants

Non-native species subject to restrictions under Regulations 49 and 50.

First column	**Second column**	**Third column**
Common name	**Scientific name**	**Geographical application**
American Skunk-cabbage	*Lysichiton americanus*	Throughout the State
A red alga	*Grateloupia doryphora*	Throughout the State
Brazilian Giant-rhubarb	*Gunnera manicata*	Throughout the State
Broad-leaved Rush	*Juncus planifolius*	Throughout the State
Cape pondweed	*Aponogeton distachyos*	Throughout the State
Cord-grasses	*Spartina* (all species and hybrids)	Throughout the State
Curly Waterweed	*Lagarosiphon major*	Throughout the State
Dwarf Eel-grass	*Zostera japonica*	Throughout the State
Fanwort	*Cabomba caroliniana*	Throughout the State
Floating Pennywort	*Hydrocotyle ranunculoides*	Throughout the State
Fringed water-lily	*Nymphoides peltata*	Throughout the State
Giant hogweed	*Heracleum mantegazzianum*	Throughout the State
Giant Knotweed	*Fallopia sachalinensis*	Throughout the State
Giant-rhubarb	*Gunnera tinctoria*	Throughout the State
Giant salvinia	*Salvinia molesta*	Throughout the State
Himalayan Balsam	*Impatiens glandulifera*	Throughout the State
Himalayan Knotweed	*Persicaria wallichii*	Throughout the State
Hottentot-fig	*Carpobrotus edulis*	Throughout the State
Japanese Knotweed	*Fallopia japonica*	Throughout the State
Large-flowered Waterweed	*Egeria densa*	Throughout the State
Mile-a-minute Weed	*Persicaria perfoliata*	Throughout the State
New Zealand Pigmyweed	*Crassula helmsii*	Throughout the State
Parrot's Feather	*Myriophyllum aquaticum*	Throughout the State
Rhododendron	*Rhododendron ponticum*	Throughout the State
Salmonberry	*Rubus spectabilis*	Throughout the State
Sea-buckthorn	*Hippophae rhamnoides*	Throughout the State
Spanish Bluebell	*Hyacinthoides hispanica*	Throughout the State
Three-cornered Leek	*Allium triquetrum*	Throughout the State
Wakame	*Undaria pinnatifida*	Throughout the State
Water Chestnut	*Trapa natans*	Throughout the State
Water Fern	*Azolla filiculoides*	Throughout the State
Water Lettuce	*Pistia stratiotes*	Throughout the State
Water-primrose	*Ludwigia* (all species)	Throughout the State
Waterweeds	*Elodea* (all species)	Throughout the State
Wireweed	*Sargassum muticum*	Throughout the State

EU Regulation 1143/2014 on Invasive Alien Species

On 14 July 2016 the European Commission published Commission Implementing Regulation 2016/1141 which set out an initial list of 37 species to which EU Invasive Alien Species Regulation 1143/2014 will apply. The associated restrictions and obligations came into force on 3rd August 2016.

Plant species listed on the directive include:

- American Skunk Cabbage *Lysichiton americanus*
- Asiatic Tearthumb *Persicaria perfoliata* (*Polygonum perfoliatum*)
- Curly Waterweed *Lagarosiphon major*
- Eastern Baccharis *Baccharis halimifolia*
- Floating Pennywort *Hydrocotyle ranunculoides*
- Floating Primrose-Willow *Ludwigia peploides*
- Green Cabomba *Cabomba caroliniana*
- Kudzu Vine *Pueraria lobata*
- Parrot's Feather *Myriophyllum aquaticum*
- Persian Hogweed *Heracleum persicum*
- Sosnowski's Hogweed *Heracleum sosnowskyi*
- Water Hyacinth *Eichhornia crassipes*
- Water Primrose *Ludwigia grandiflora*
- Whitetop Weed *Parthenium hysterophorus*

Animal species listed on the directive include:

- Amur Sleeper *Perccottus glenii*
- Asian Hornet *Vespa velutina*
- Chinese Mitten Crab *Eriocheir sinensis*
- Coypu *Myocastor coypus*
- Fox Squirrel *Sciurus niger*
- Grey Squirrel *Sciurus carolinensis*
- Indian House Crow *Corvus splendens*
- Marbled Crayfish *Procambarus* spp.
- Muntjac Deer *Muntiacus reevesii*
- North American Bullfrog *Lithobates (Rana) catesbeianus*
- Pallas's Squirrel *Callosciurus erythraeus*
- Raccoon *Procyon lotor*
- Red Swamp Crayfish *Procambarus clarkii*
- Red-eared Terrapin/Slider *Trachemys scripta elegans*
- Ruddy Duck *Oxyura jamaicensis*
- Sacred Ibis *Threskiornis aethiopicus*
- Siberian Chipmunk *Tamias sibiricus*
- Signal Crayfish *Pacifastacus leniusculus*
- Small Asian Mongoose *Herpestes javanicus*
- South American Coati *Nasua nasua*
- Spiny-cheek Crayfish *Orconectes limosus*
- Topmouth Gudgeon *Pseudorasbora parva*
- Virile Crayfish *Orconectes virilis*

On 13 July 2017 the European Commission published Commission Implementing Regulation 2017/1263 which added a further 12 species to the current list of 37 species regulated under the EU Invasive Alien Species Regulation (1143/2014).

These are:

Plant species

- Alligator Weed (*Alternanthera philoxeroides*)
- Milkweed (*Asclepias syriaca*)
- Nuttall's Waterweed (*Elodea nuttallii*)
- Chilean Rhubarb (*Gunnera tinctoria*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- Himalayan Balsam (*Impatiens glandulifera*)
- Japanese Stiltgrass (*Microstegium vimineum*)
- Broadleaf Watermilfoil (*Myriophyllum heterophyllum*)
- Crimson Fountaingrass (*Pennisetum setaceum*)

Animal species

- Egyptian Goose (*Alopochen aegyptiacus*)
- Raccoon Dog (*Nyctereutes procyonoides*)
- Muskrat (*Ondatra zibethicus*)

The associated restrictions and obligations came into force from 2 August 2017 for all these species apart from the Raccoon Dog, which came into force on 2 February 2019.

Other Invasive Species

The main guidance document that has been prepared dealing with invasive species/noxious weeds on sites is the NRA *'Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'* which was published in 2010. This document details other non-native species of note.

A detailed survey for such species within the environs of Drumgoff Barracks was conducted in 2024 in order to ensure that any proposed works do not result in the disturbance and spread of any invasive species.

2. METHODOLOGY

2.1 Desk Study and Consultation

A desk study was completed in 2024 to collate any available information on the ecological environment around Drumgoff Barracks, in particular records of bryophytes and lichens. Consultations with Howard Fox (lichenologist) were made by Faith Wilson to see if he held any records of lichens from Drumgoff.

2.2 Field Surveys

Specialist surveys for bats, lichens and mosses were conducted in and around Drumgoff Barracks in 2024. The bat surveys were updated in July 2025.

2.2.1 Lichens

Paul Whelan was commissioned by Faith Wilson to undertake a lichen survey of Drumgoff Barracks. The lichen survey examined the external structural substrates which include the granite blocks of the main structure and some other siliceous rocks such as schists, the old mortar between the blocks and the deteriorating render on part of the building. Access was by the use of a motorised hoist. Many of the searches for lichens above human height were taken in vertical transects from the hoist. Samples were collected and then examined under a microscope to aid in their identification.

2.2.2 Mosses and Bryophytes

Dr Joanne Denyer (Denyer Ecology) was commissioned by Faith Wilson to undertake a bryophyte survey of Drumgoff Barracks. The survey area included the wall tops of the Barracks (where accessible from the hoist), mosses found in gravelled areas at the rear of the property.

The following resources were consulted as part of the desktop survey:

- British Bryological Society Atlas of British and Irish bryophytes (Blockeel et al., 2014a & 2014b).
- British Bryological Society Atlas dataset.

All accessible areas of the building and adjacent walls were walked over and surveyed in July 2024. It was possible to use the hoist to survey the wall tops of the Barracks. All bryophyte species encountered were sampled by Faith Wilson and the samples then identified by Dr Denyer for confirmation.

Vascular plant nomenclature follows that of the *New Flora of the British Isles*. 4th Edition (Stace, 2019). The bryophyte nomenclature adopted by Blockeel *et al.* (2021) is used.

The survey was undertaken after a long period of dry weather and the bryophytes were very dry. A spray bottle was used to wet species for examination. However, it is possible that some species may have been missed if they had not survived the dry weather.

2.2.3 Bats

The bat survey completed in 2025 built on the bat surveys completed in 2024 and the previous preliminary bat study completed in 2023.

The provision of a hoist on site in 2024 had allowed for the visual examination of parts of the barracks which had previously not been able to be accessed, including the internal walls as well as some of the crevices and holes in the stonework on the exterior of the walls. These were examined for signs of bat use using an endoscope.

Bat usage of structures is usually detected by the following signs (though direct observations are also occasionally made):

- bat droppings (these will accumulate under an established roost or under access points);
- insect remains (under feeding perches);
- oil (from fur) and urine stains;
- scratch marks; and
- bat corpses.

The property was surveyed at dusk on the 8th July 2025 when the emergence of bats was recorded and bat activity in the site was assessed. The bat detectors used during the emergence and transect surveys were Wildlife Acoustics Inc. (Massachusetts, USA) Echo Meter Touch Pro 2 which is triggered to record when a bat call is emitted louder than 18dB for 1sec. These detectors use full spectrum sampling; detecting all frequencies simultaneously, meaning that multiple bat calls can be recorded at the same time. Several heterodyne detectors (Bat Box 2, Pettersson D100) were also used.

A Song meter mini static bat detector was deployed on the Herras fencing surrounding the Barracks building.

Bats were identified by their ultrasonic calls coupled with behavioural and flight observations and on computer by sound analysis of recorded echolocation and social calls with dedicated software (Wildlife Acoustic's Kaleidoscope Pro; version 5.6.0).

A Guide TK612 thermal imaging scope was also used to assist the survey.

The survey focused on the Barracks Building as it is here that the conservation works are proposed.

2.2.4 Flora

Further notes on the various plants growing within the grounds of the Barracks were also recorded in 2024.

3. RESULTS

3.1 Drumgoff Barracks

Drumgoff Barracks is located halfway up the Glenmalure valley on the banks of the Avonbeg River at Drumgoff and was built on the slightly rising ground of an ancient glacial deposit.

Figure 2. Drumgoff Barracks (Google Maps)

The barracks consist of an outer defence wall, approach road, gate, bridge traversing the Avonbeg River and a three - storied building. Drumgoff Barracks are listed in the Record of Monuments and are subject to a preservation order made under the National Monuments Acts 1930 to 2014 (PO no. 110/1940). Its SMR/RMP number is W1029-017.

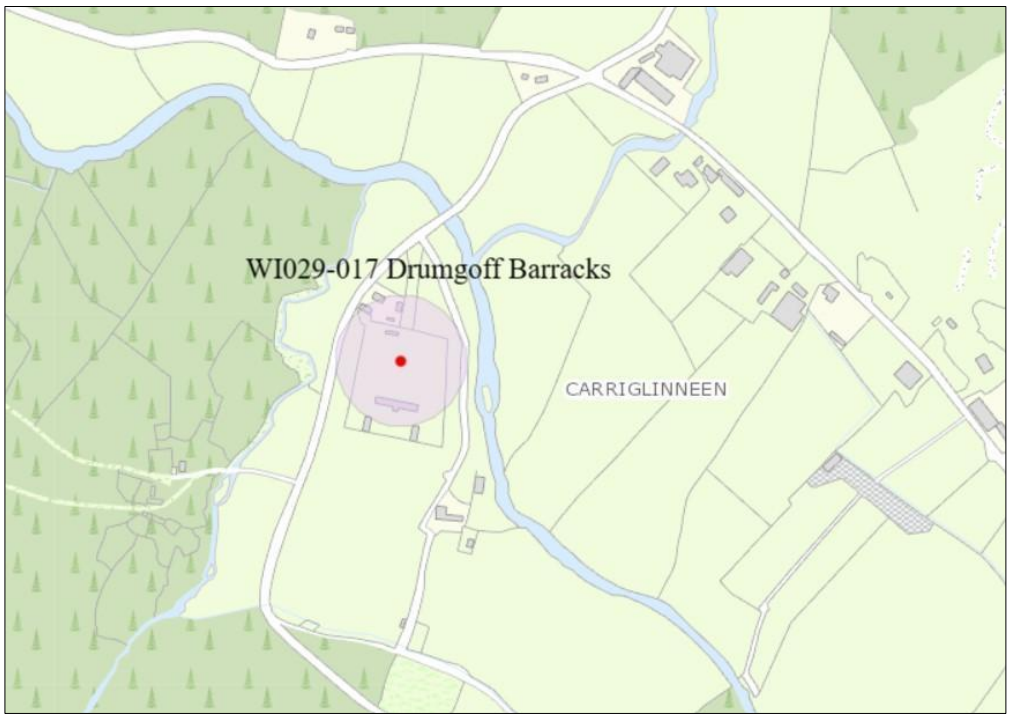

Figure 3. Drumgoff Barracks – National Monument WI029-017.

The barracks are currently fenced off from the wider grounds for safety reasons. The windows and some areas of wall that had collapsed have been bricked up. The building no longer has a roof and limited vegetation grows on the building walls.

3.2 Biological Records held by The National Biodiversity Data Centre

The National Biodiversity Data Centre (NBDC) provides information on biological records submitted throughout Ireland. It does not have any records from the actual monument itself. Drumgoff Barracks lie within the 1km square T1090 (**Figures 4 & 5**).

The species recorded are clearly not indicative of all those likely to be present in the area surrounding Drumgoff as, in total, only 1 species of lichen (Heath Navel (*Lichenomphalia umbellifera*)) and 1 species of moss (Alpine Water-moss (*Fontinalis squamosa*)) had been previously recorded for this square, and until the survey was completed in 2023 no bats had been recorded.

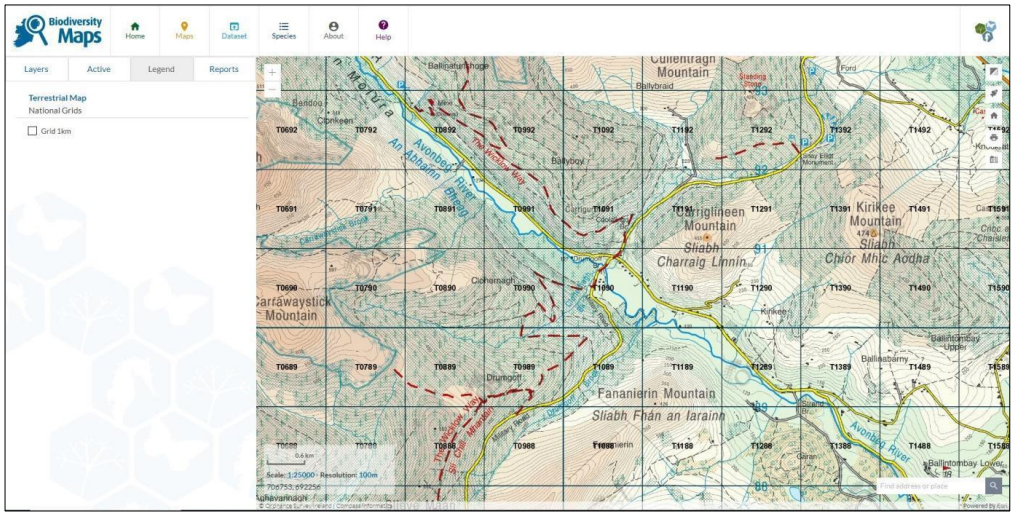

Figure 4. The location of NBDC 1km square T1090.

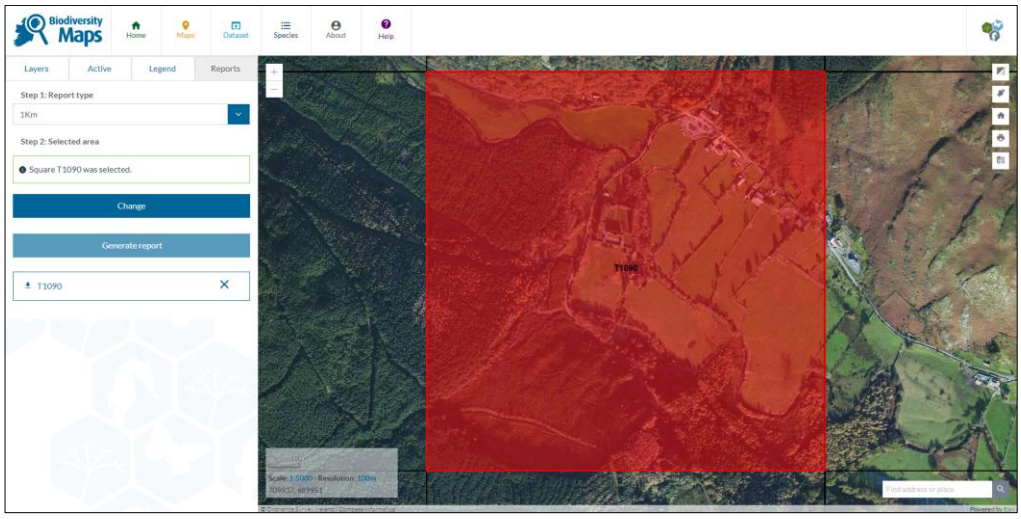

Figure 5. NBDC records were available for 1km square T1090.

3.3 Rare, Scarce and Threatened Flora

There are historic records of Small cudweed (*Filago minima*) from the roadside at Drumgoff. This species was last reported from here in 1898 in the second edition of the Cybele Hibernica[1]. Searches for this species conducted as part of the rare Plant Survey of County Wicklow in 2007 failed to re-find this plant.

3.4 Habitats of Drumgoff Barracks

The barracks itself and the various buildings on site are best described as stone walls and other stonework (BL1). The traditional lime mortar within the walls and the wall tops support an array of ferns including Rustyback (*Asplenium ceterach*), Wall Rue (*Asplenium ruta-muraria*), Black Spleenwort (*Adiantum nigrum*), Common Polypody Fern (*Polypodium vulgare*) and Hart's Tongue Fern (*Phyllitis scolopendrium*).

Also recorded on the wall tops of the barracks was Perennial Ryegrass (*Lolium perenne*), Wild Carrot (*Daucus carota*), Common Ivy (*Hedera helix*), Common Ragwort (S*enecio jacobaea*), Biting Stonecrop (*Sedum acre*), the occasional young Rowan (*Sorbus aucuparia*), Red Fescue (*Festuca rubra*), Elder (*Sambucus nigra*), Smooth Hawk's beard (*Crepis capillaris*), Sheep's-bit (*Jasione montana*), Ribwort Plantain (*Plantago lanceolata*), Yarrow (*Achillea millefolium*), Nettle (*Urtica dioica*), some good lichens, and Soft Brome grass (*Bromus hordeaceus*).

A treeline of Lime trees (*Tilia cordata*) and Sycamore (*Acer pseudoplatanus*) are found around the boundary of the barracks.

The gravelled area surrounding the barracks has become colonised by a rich diversity of species forming an area of Dry Meadow and Grassy Verge (GS2) grassland. There are a number of grass species present: Yorkshire Fog (*Holcus lanatus*), Cock's-foot (*Dactylis glomerata*), Red Fescue (*Festuca rubra*), Perennial Ryegrass (*Lolium perenne*), False Oat Grass (*Arrhenatherum elatius*), Heath Grass (*Danthonia decumbens*), Early Hair-grass (*Aira praecox*), and Soft Brome grass (*Bromus hordeaceus*).

The following species were also recorded in this area: Ribwort Plantain (*Plantago lanceolata*), Broad-leaved Willowherb (*Epilobium montana*), Hairy Willowherb (*Epilobium hirsutum*), Common Ragwort (*Senecio jacobaea*), Common Daisy (*Bellis perennis*), Common Nipplewort (*Lapsana communis*), Hawkweed (*Hieracium spp.*), Bog Pimpernel (*Anagallis tenella*), seedlings of Downy Birch (*Betula pubescens*) and Grey willow (*Salix cinerea*), Sheep's-bit (*Jasione montana*), Self-heal, (*Prunella vulgaris*), Greater Plantain (*Plantago major*), Cut-leaved Geranium (*Geranium dissectum*), Meadow Buttercup (*Ranunculus acris),* Perennial Sow Thistle (*Sonchus arvensis*), Dandelion (*Taraxacum* agg.), White Clover (*Trifolium repens*), Red Clover (*Trifolium pratense*), Slender St John's-wort (*Hypericum pulchrum*), Nipplewort (*Lapsana communis*), Field Forget-Me-Not (*Myosotis arvensis*), Herb Robert (*Geranium robertianum*), Germander Speedwell (*Veronica chamaedrys*), Ox-eye Daisy (*Leucanthemum vulgare*), Sheep's Sorrel (*Rumex acetosella*), Hogweed (*Heracleum sphondylium*), Lesser Stitchwort (*Stellaria graminea*), Curly Dock (*Rumex crispus*), Nettle (*Urtica*

[1] Brunker, J.P. (1950). Flora of the County of Wicklow. Flowering plants, higher cryptograms and characeae. Dundalgan Press, Dundalk.

dioica), Oak (*Quercus* sp.) seedlings, Yarrow (*Achillea millefolium),* Lords-and-ladies (*Arum maculatum)*, and Common Knapweed (*Centaurea nigra*).

Near to the ornamental planting by the door of the Barracks, there are ornamental shrubs and the invasive species Montbretia (*Crocosmia x crocosmiiflora*).

Plate 1. The fenced off barracks with dry meadow grassland within.

Plate 2. Vegetation on the Barrack walls is generally limited to the upper parapets.

Plate 3. Various derelict buildings have been renovated and repurposed by the Irish Caravan and Camping Club as both a toilet block and a club-house.

Plate 4. Oxeye daisy and yellow clover in the picnic area outside the club building.

Plate 5. Deadwood stacked at the base of the barracks.

Plate 6. Ornamental planting near the front door.

Plate 7. Maidenhair spleenwort and Wall rue ferns growing on brickwork of building exterior.

Plate 8. Nettles these are the food plant for a variety of butterflies.

Plate 9. Rich wall vegetation on the wall tops of the boundary walls.

Plate 10. The barracks interior with collapsed stonework and vegetative growth within.

Plate 11. Dense Ivy and re-sprouting Elder within the barracks.

Plate 12. Common polypody ferns and mosses on the stonework.

Plate 13. Collapsed stonework, slates and roof timbers now covered in ivy, mosses and ferns within the Barracks.

Plate 14. Sycamore and Elder seedlings.

Plate 15. Common polypody ferns, ragwort and opportunistic Sycamore seedlings on the wall tops.

Plate 16. Looking down the Glenmalure valley.

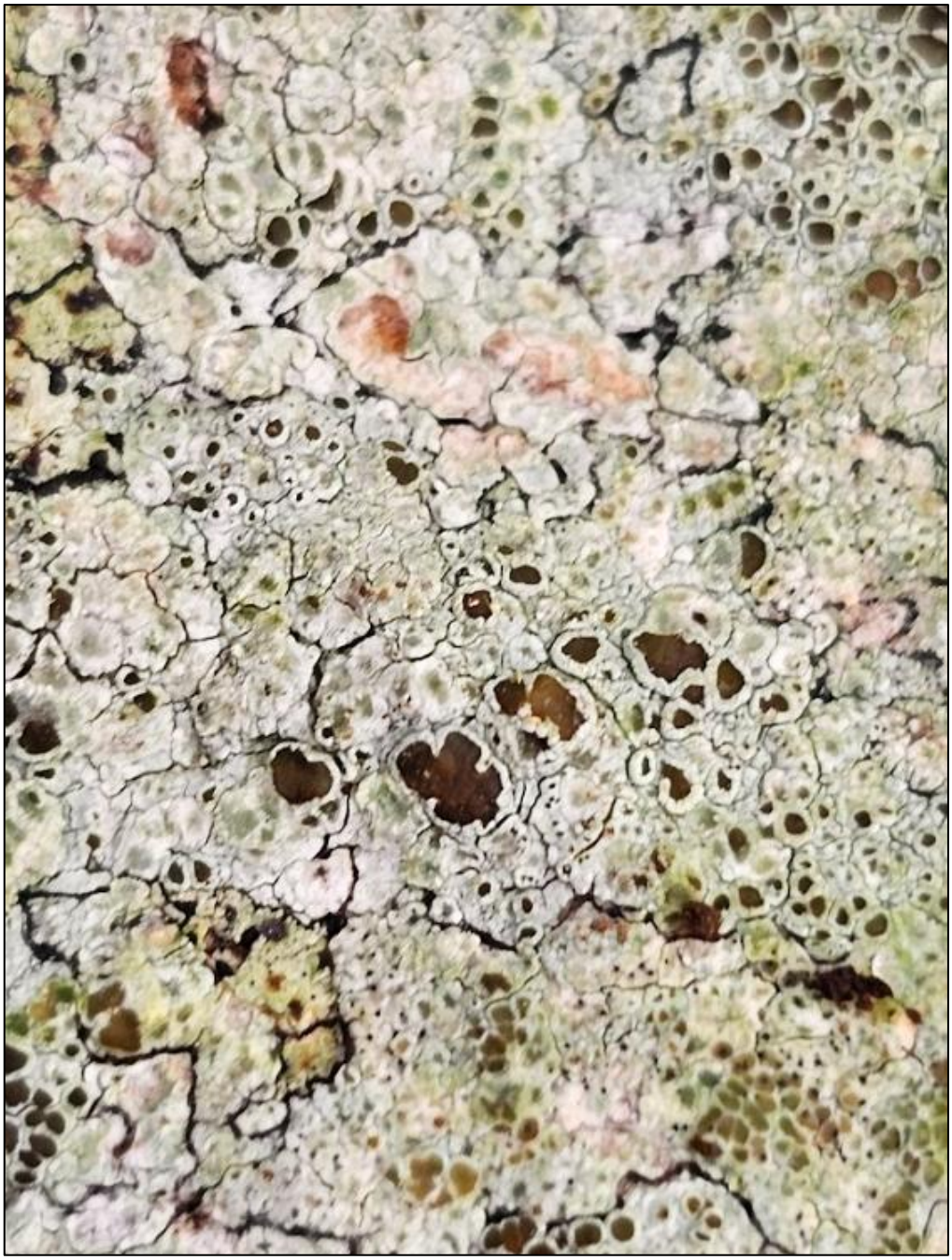

Plate 17. Lichen.

Plate 18. Tall unmown grasses near the Barracks (inside the fence).

Plate 19. Yellow and white clovers with Autumn Hawkbit.

Plate 20. The gravelled area in front of the stone wall – this area supports a great population of Bog pimpernel.

Plate 21. Clovers and Selfheal form a rich resource for pollinators.

Plate 22. Bog pimpernel - This delicate little perennial plant normally grows in wet peaty ground such as bogs and damp marshes so finding a big population of it on the gravel near the back wall of the Barracks was interesting.

Plate 23. Sheep's bit.

Plate 24. Lime trees near the eastern end of the Barracks.

Plate 25. Camping pitches – a change in grassland management here is recommended.

3.5 Lichens

There are no previous records of lichens from Drumgoff Barracks.

Access to the building was by the use of a motorised hoist. Many of the searches for lichens above human height were taken in vertical transects from the hoist.

Of note are the granite arch and keystone around the door, the surrounding red brick and the capping (See **Plate 26** arrowed white) at the top of the building. This variation in substrate types produced typical species from a deteriorating ruin.

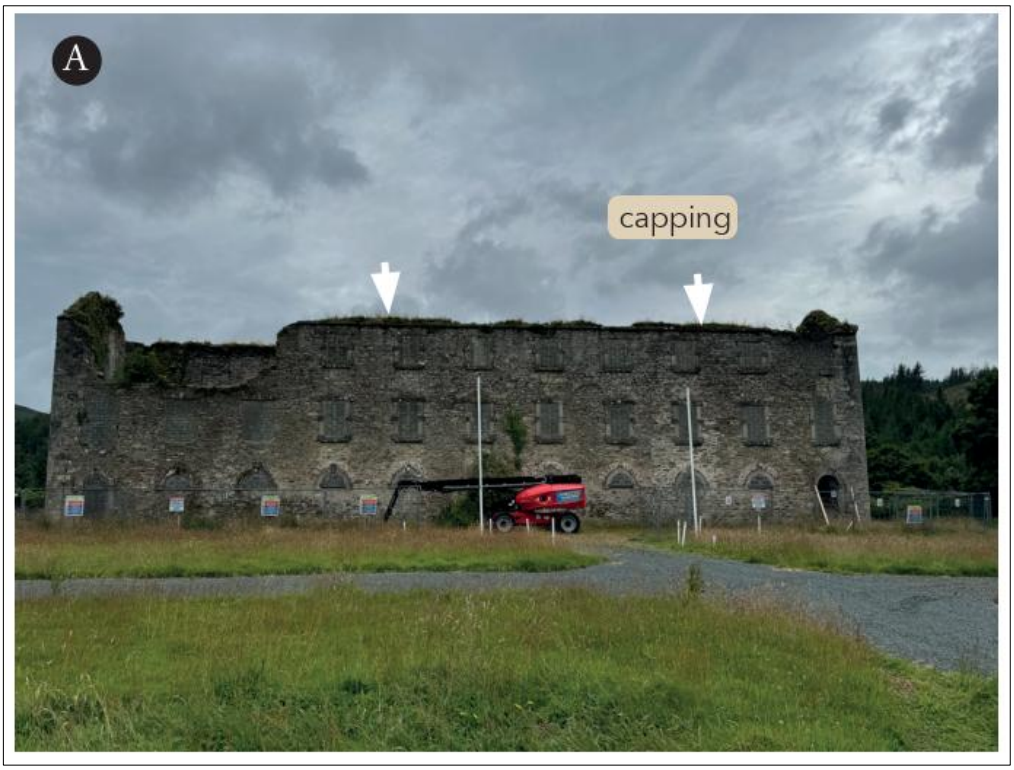

Plate 26. Access to the building was by means of a motorised hoist.

The wall at the back of the building was also surveyed and revealed a few interesting species.

The building has been stabilised in recent years by cement blocks. Some cement was also used as pointing.

The interior of the building was not included in the lichen survey, mainly because of the lack of light (lichens are light-loving) due to shading from an extensive amount of vegetation (mainly sycamore, elder and mountain ash) and the danger of entering the structure. However, one damp-loving, shade loving species could be easily identified growing in corners and on some sections of red brick and crumbling mortar, namely *Lepraria incana*.

Summary of lichen biodiversity

The majority of the species are typical of an old ruin composed mainly of granite and mortar in a state of decay. However a few interesting species for this habitat did stand out, namely:

Petractis clausa
Recorded on the back bounding wall, this is a first record for Co. Wicklow (and indeed the east coast of the republic of Ireland). It has a preference for limestone but in this case was on schist rock in the wash-path of run-off from mortar above it (**Plate 27** arrowed white).

Its habitat of shade and damp was otherwise suitable. Microscopic examination showed its typical spores of 3-septate with a distinct perispore. [Look-alike *Gyalecta jenensis* var. *jenensis*.]

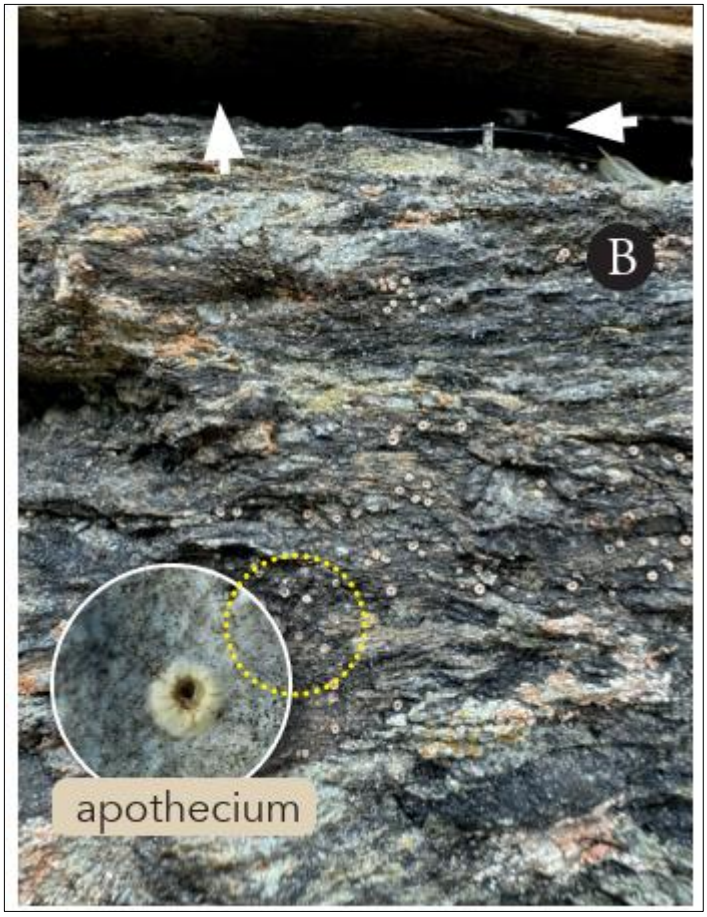

Plate 27. *Petractis clausa* on schists in the path of a base-rich wash from mortar above (arrowed white).

Collema auriforme

The capping stone running around the building (**Plate 28**) is home to many green plants (ferns, mosses and grasses).

Specimens of *Collema auriforme* were found under the capping stones at the front of the building and along the edge of the vegetation growing on the capping stones (arrowed yellow and white respectively).

Plate 28. ***Collema auriforme*** **occurs on the capping around the margins of the green vegetation and also under the capping. Both positions gave it a constant supply of water which *Collema* species thrive in.**

Plate 29 locates some other species associated with the capping stones.

The substrates just below the capping proved to be a rich habitat for lichens.

This is likely due to the shelter the capping offers which prevents the lichens from drying out too quickly and the slow leakage of water from the green plants off the capping itself.

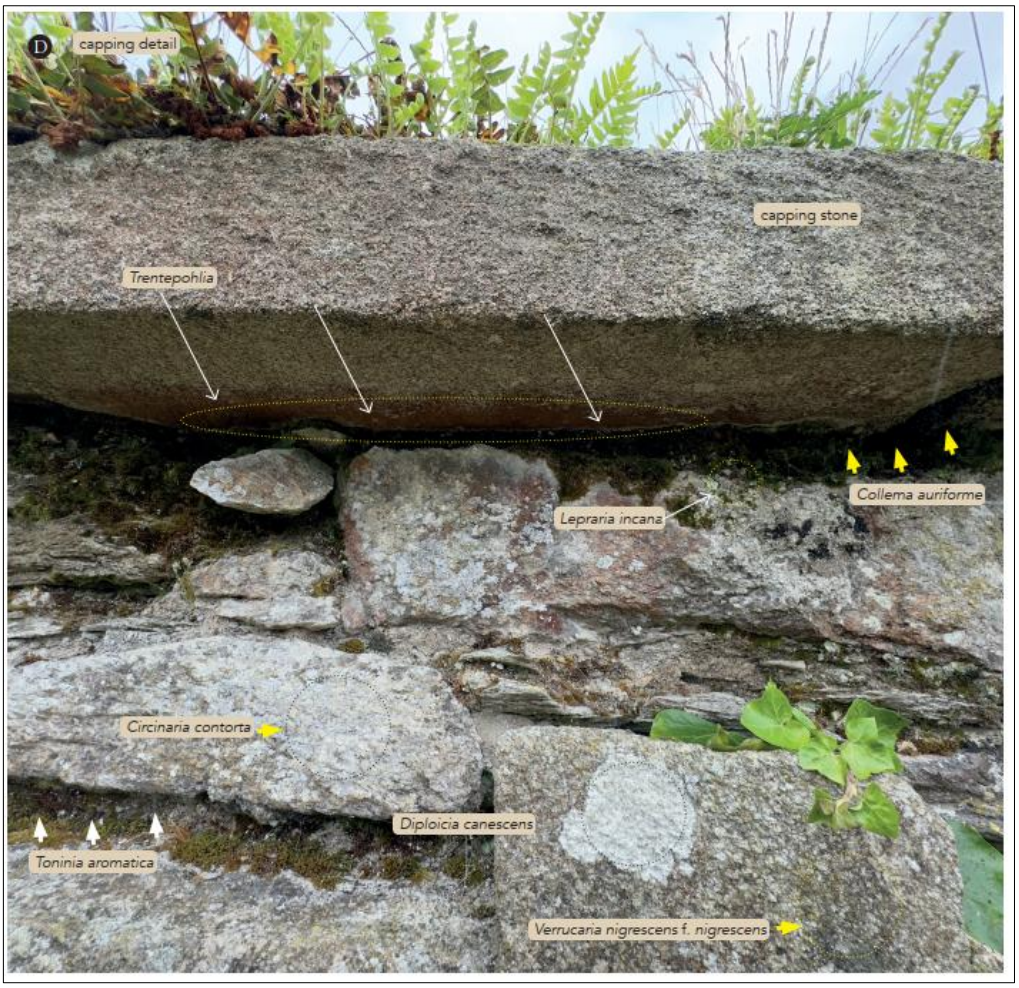

Plate 29. Lichen Species below the wall capping.

Forty five species were recorded in total as set out below on **Figure 6**.

Species	Substrate
Lepraria incana	anything
Arthonia arthonioides	bark
Arthopyrenia salicis	bark
Athallia holocarpa	cement
Circinaria contorta	cement/mortar
Acrocordia conoidea	compact mortar
Xanthoria parietina	everything
Arthrorhaphis citrinella	granite
Aspicilia cinerea s. lat	granite
Buellia aethalea	granite
Buellia stellulata	granite
Buellia subdisciformis	granite
Caloplaca chlorina	granite
Candelariella vitellina	granite
Diploschistes scruposus	granite
Gyrographa saxigena	granite
Lecanora polytropa	granite
Lecidea lapicida	granite
Ochrolechia parella	granite
Pertusaria corallina	granite
Placopsis gelida	granite
Porpidia tuberculosa	granite
Psilolechia lucida	granite
Tephromela atra	granite
Caloplaca aurantia	limestone
Acrocordia salweyi	mortar
Adelolecia pilati	mortar
Arthonia calcarea (was Opegrapha calcarea)	mortar
Aspicilia calcarea	mortar
Caloplaca cirrochroa	mortar
Caloplaca citrina s. lat.	mortar
Caloplaca decipiens	mortar
Caloplaca flavescens	mortar
Caloplaca flavescens	mortar
Caloplaca saxicola	mortar
Collema auriforme	mortar
Lecanora campestris	mortar
Lecanora crenulata	mortar
Myriolecis dispersa	mortar
Physcia caesia	mortar
Toninia aromatica	mortar
Verrucaria nigrescens forma nigrescens	mortar
Belonia nidarosiensis	mortar - north facing
Petractis clausa - first Wicklow record.	mortar/rock/red brick
Diploicia canescens	rock/bark

Figure 6. Lichen species recorded at Drumgoff Barracks in 2024.

3.6 Mosses

There are a number of bryophytes (mosses and liverworts) of ecological importance found in the Glenmalure Valley – mostly in the upland areas.

The mosses found growing on the walls of the barracks were sampled by Faith Wilson and identified by Dr Joanne Denyer. They are as follows:

Mosses:
Barbula unguiculata
Bryum capillare
Calliergonella cuspidata
Ctenidium molluscum
Dicranum scoparium
Didymodon fallax
Fissidens adianthoides
Homalothecium sericeum
Hypnum cupressiforme
Plagiothecium undulatum
Polytrichum juniperinum
Rhizomnium punctatum
Rhynchostegiella tenella
Rhytidiadelphus squarrosus
Riccardia chamedryfolia
Streblotrichum convolutum
Tortella tortuosa
Tortula muralis
Trichostomum crispulum

Liverworts:
Lophocolea bidentata
Lophocolea ventricosa
Pellia neesiana

These are a nice range of bryophytes typical of stonewalls and calcareous mortar. In the acidic uplands of County Wicklow they are often restricted to these wall habitats where the lime mortar occurs.

3.5 Faunal Interest

A Hedgehog (*Erinaceus europaeus*) was recorded during the bat survey in both 2024 and 2025. The long grasses support many insects on which the hedgehog feeds.

Plate 30. Hedgehog.

3.6 Bats

3.6.1 Desktop Research

The Bat Conservation Ireland Database holds records of bats from the Drumgoff area. Several bat species have been recorded roosting within a 10km radius of Drumgoff Barracks and are included within the Bat Conservation Ireland Database. These include:

- Brown Long-eared Bats (*Plecotus auritus*)
- Natterer's Bat (*Myotis nattereri*)
- Leisler's Bat (*Nyctalus leisleri*)
- Whiskered Bat (*Myotis mystacinus*)
- Brandt's Bat (*Myotis brandtii*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)

3.6.2 2023 Survey Results

In 2023, six species of bats were recorded in the environs of Drumgoff Barracks; Leisler's Bat, Common Pipistrelle, Soprano Pipistrelle, Natterer's Bat, Brown Long-eared Bat, Whiskered Bat, and Daubenton's Bat. **The clubhouse building was confirmed as bat roost in 2023 as bat droppings were found there. No works to this building are proposed.**

3.6.3 2024 Survey Results

During the 2024 survey, a number of Common Pipistrelle, Soprano Pipistrelle and Leisler's Bats were observed emerging from the Barracks. A possible brown long eared bat and a *Myotis* bat was recorded.

A Common pipistrelle was also seen emerging from the toilet block. An unidentified bat was also observed emerging from the windows at the rear of the barracks as shown on **Plate 31**.

There was very good activity of Common and Soprano Pipistrelle bats throughout the night as can be seen on **Figure 7** below.

Figure 7. Bat registrations during the 2024 survey.

Plate 31. Bats were seen emerging from here during the 2024 and 2025 surveys.

Figures 8 – 12 contain sonograms of the bat echolocation calls recorded during the 2024 surveys.

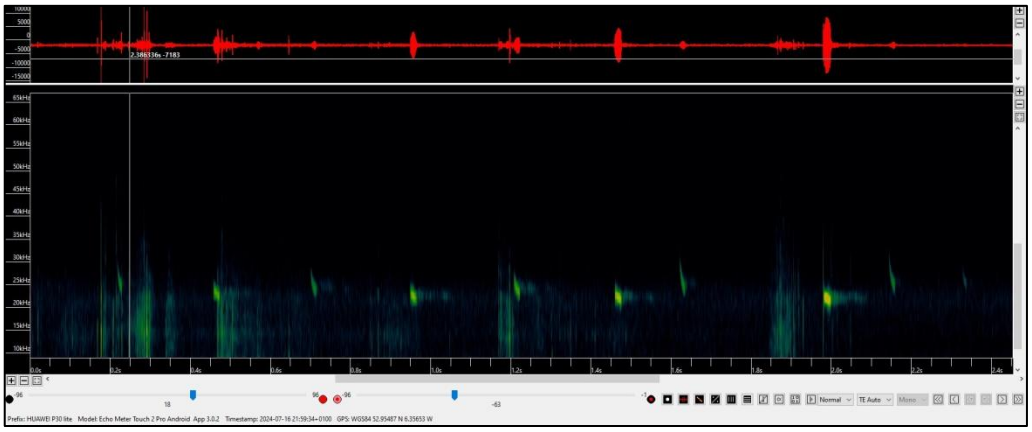

Figure 8. Leisler's bat over Drumgoff.

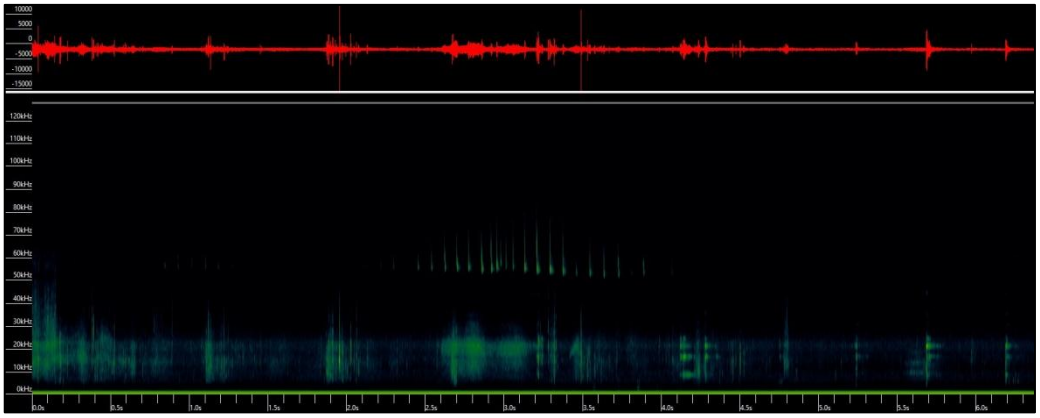

Figure 9. Soprano pipistrelle bat.

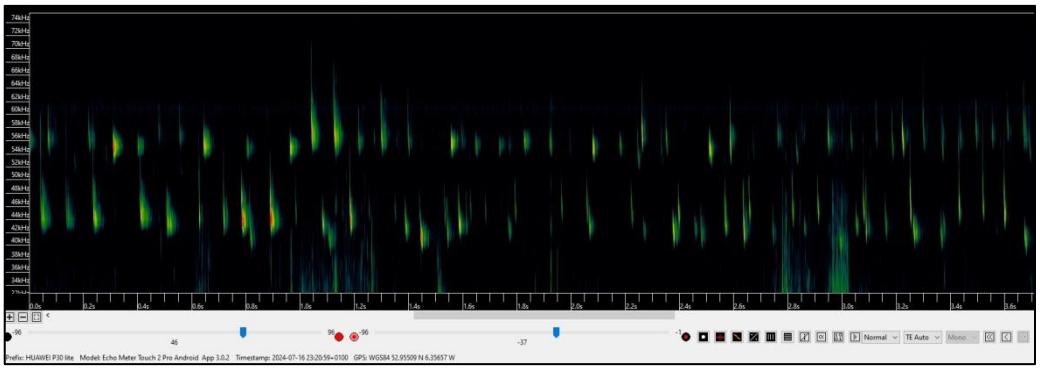

Figure 10. Common and Soprano pipistrelle bat. There is also a possible Nathusius's pipistrelle bat present here too.

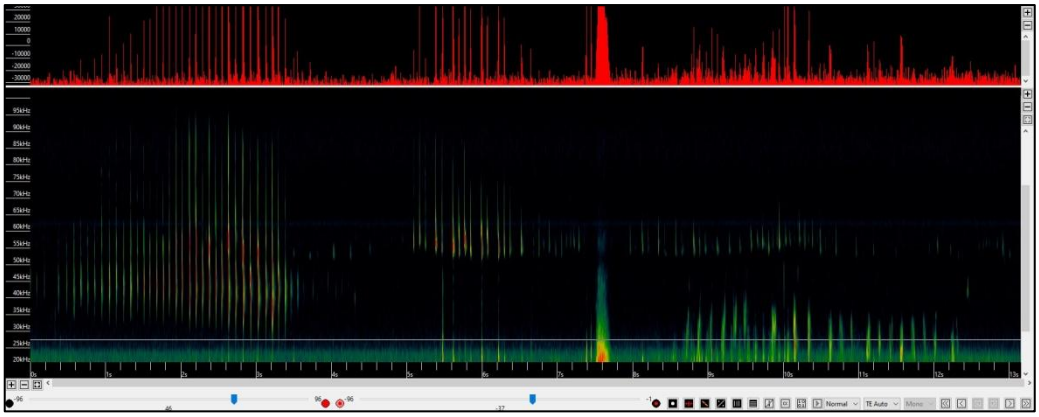

Figure 11. Soprano pipistrelle and possible Brown long-eared bat.

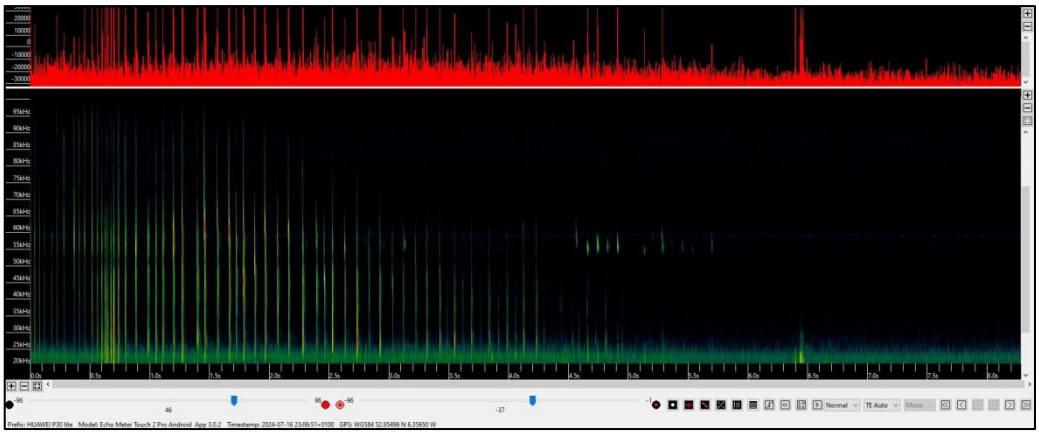

Figure 12. Daubenton's bat and Soprano pipistrelle.

The landscape surrounding Drumgoff Barracks offers a darkened and safe hunting area for bats with a diversity of natural vegetation which in turn supports a variety of insects on which bats feed.

A healthy population of Rush veneer moths were noted during the 2024 survey. The proximity of the site to the Avonbeg River also adds to the interest of the site from the perspective of bats and to the importance of the area for wildlife.

The 2024 survey found that the Barracks building, the toilet block and the clubhouse building were all confirmed as bat roosts.

A bat derogation licence is required for any works to these structures that could disturb the bats or interfere with their roosting spaces.

3.6.4 2025 Survey Results

The survey completed in 2025 recorded a similar suite of species utilising the site with both Leisler's bat, Common and Soprano pipistrelle bats roosting in small numbers within the Barracks buildings. Brown long-eared bat were detected in the south eastern corner of the site. A possible Daubenton's bat was also heard.

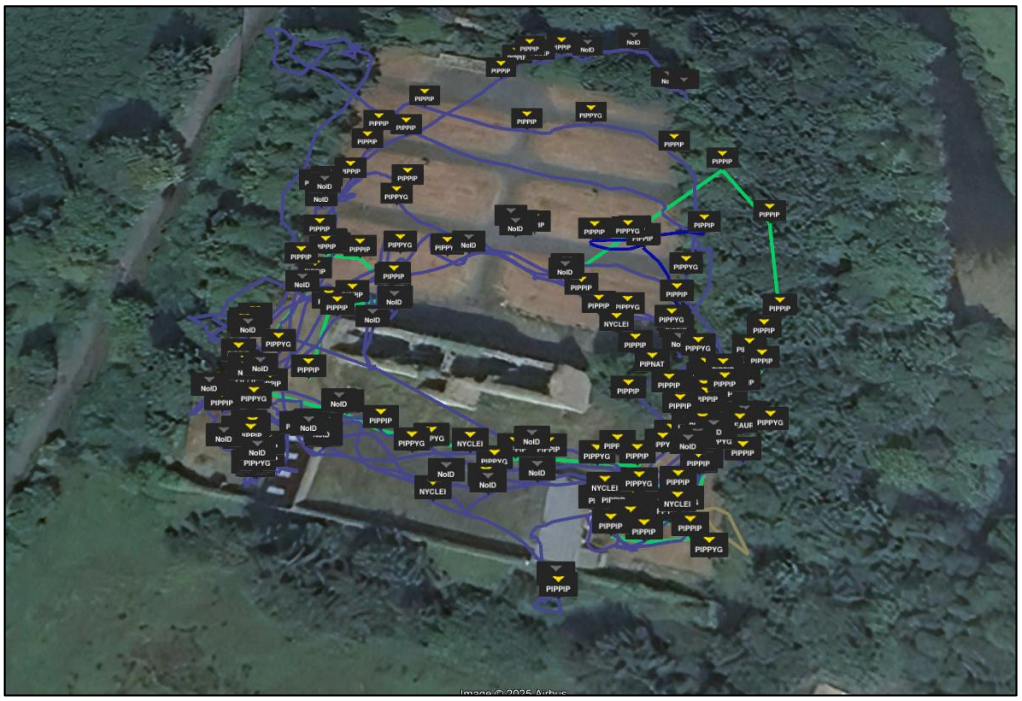

Figure 13. Bat registrations during the 2025 survey.

Figure 14. Sonogram of Brown Long eared bat at Drumgoff.

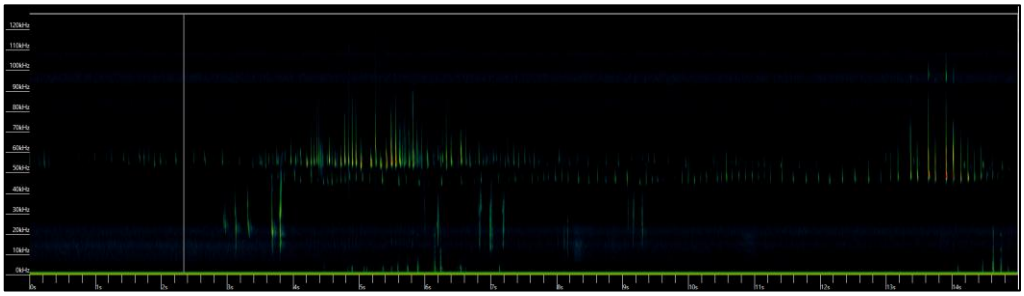

Figure 15. Sonogram of Common pipistrelle, Soprano pipistrelle and Brown Long eared bat at Drumgoff.

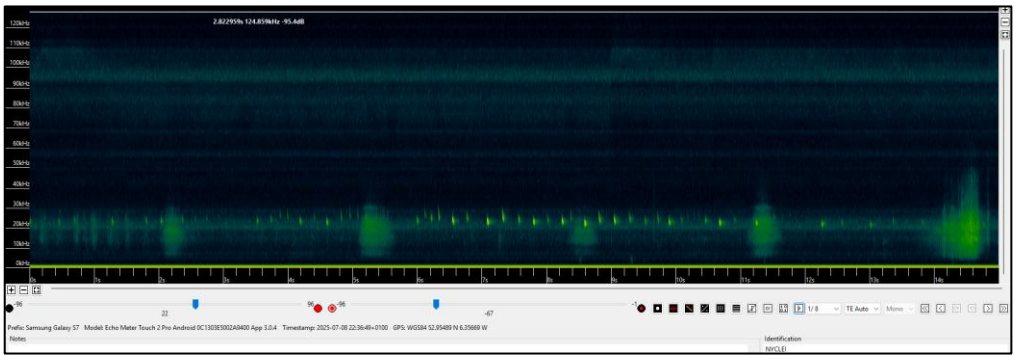

Figure 16. Sonogram of Leisler's bat at Drumgoff.

4. PROPOSED CONSERVATION WORKS

A conservation management plan has been developed for Drumgoff Barracks, 'Conservation and Management Plan Drumgoff Barracks, Glenmalure, Co. Wicklow. CMF24-2-WI002 and CMF24-1-WI002', which is a national monument under the ownership of The Irish Camping and Caravan Club.

The plan is supported by National Monuments, Wicklow County Council and The Irish Camping and Caravan Club.

This plan includes proposals to complete conservation works to the structure as the condition of the building has significantly deteriorated in recent years and walls need to be stabilised and masonry reinstated and stitched back in to conserve this national monument.

The report 'Assessment of Drumgoff Barracks, Glenmalure, Co. Wicklow funded by The Department of Housing, Local Government and Heritage under the Community Monuments Fund 2024 (CMF24-2-WI002) – Condition Report' prepared by the structural engineer (John Kelly of David Kelly Partnership), which accompanies this report states the following:

'The building is in poor condition. The loss of cross-walls, collapse of stairs, decay of embedded timber wall-plates and lintels, and deterioration of wall-tops means the building will continue to deteriorate. There has been recent significant loss of masonry / wall, and without intervention, there is a high probability of further loss and potentially catastrophic collapse'

This report recommends **major intervention** to the building based on this structural assessment to both conserve the national monument and ensure the health and safety risk posed by the building to the club is reduced.

5. MEASURES TO PROTECT/CONSERVE BIODIVERSITY

The general recommendations made in the ecological report prepared in 2023 should be considered and implemented in Drumgoff. These are presented again below.

5.1 General Recommendations

Any work undertaken on Drumgoff Barracks to conserve the monument should be mindful of the natural heritage and character of the place and should enhance the character and setting of the monument.

5.2 Tree & Vegetation Protection

If any test trenching or excavation works are to take place near the boundary trees protective fencing should be erected in advance of any construction works commencing outside the drip-line of the canopy of retained trees to prevent damage by machinery, compaction of soil, etc. in accordance with BS 5837:2012. This should be signed off on by a qualified arborist or ecologist to ensure it has been erected properly before any machinery is allowed in the vicinity/work commences.

5.3 Protection of Breeding Birds

If any vegetation clearance works are proposed (for example from a built heritage perspective) this will be undertaken outside of the breeding bird season from March 1st to August 31st (in accordance with the Wildlife (Amendment) Act (2000)) to avoid direct impacts on breeding birds.

Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, restricts the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife, from 1 March to 31 August. **No clearance of vegetation suitable for nesting birds within the site (dense ivy, shrubs, bramble tangles, etc.) should take place during this period. Should such clearance be required than the area proposed for clearance should be inspected by an ecologist to ascertain if any nesting birds are present.**

5.4 Grassland Management

Where possible some areas of grass and other vegetation in the barracks should continue to be left long over the summer months to allow plants to flower and set seed and provide cover for small mammals, feeding opportunities for birds, small mammals and insects and habitat for invertebrates. Bats feed on insects, so maintaining feeding areas for them is critical.

At the end of the summer (once the breeding season is complete) these areas can be cut/strimmed and the cuttings should be removed.

Other areas such as the main camping pitches, could be managed as a short mow meadow throughout the season with the grass cuttings removed where possible or alternatively be left grow long and then cut and baled by a local farmer and removed before camping activity begins.

Guidance is available from the All-Ireland Pollinator Plan on how to manage both long flowering and short flowering meadows. Short flowering meadows shouldn't be cut until after the 15th April to allow dandelions to flower (an important resource for pollinators to forage on in spring) and then cut every six weeks – see **Figure 17** below. Long flowering meadows can be left till the autumn, the seeds allowed to fall and all the cuttings then removed to reduce fertility over time.

Figure 17. Managing a short flowering meadow.

5.5 Protection of Confirmed Bat Roost – Bat Derogation Licence

Bats have been confirmed roosting within both the clubhouse building, the toilet block and the Barracks, so all of these buildings are a confirmed bat roost and this coupled with the diversity of species recorded highlights the importance of the area for bats.

A bat derogation licence from NPWS is therefore required for any works to these buildings that could disturb the bats.

This must be applied for and granted in advance of any permissions or funding for works to take place to these buildings.

The bat derogation licence normally has a period of validity for the works – this depends on what type of roost is encountered and what the proposed works are. The aim of this is to avoid impacting the bats during the most vulnerable periods in their life cycle – breeding or hibernation.

Proposed Building Conservation Works - Barracks:

The works will be phased over a number of years, with the proposed Phase 1 works for 2025 focused on the most urgent stabilisation.

1. External – East Gable - Fit temporary restraints at each floor level pending determination of cause.
1. Internal - Replace with new concrete or durable timber lintel
2. External – North Elevation - Consolidate surviving masonry and exposed wall core
3. External – North Elevation - Stitch crack (see East gable)
4. Internal - Remove all collapsed masonry from within building. Sort stone and retain for re-use in future conservation works.

Note that conservation works are **only proposed to the main Barracks** building under the Community Monuments Fund.

This report forms part of the application for a Derogation Licence for these works.

The bat derogation licence must undergo three tests for approval as follows:

- Test 1: Reason for the Derogation
- Test 2: Absence of Alternative solutions
- Test 3: Impact of a Derogation on Conservation Status

A bat derogation licence will be sought for conservation works under the following reason:

"In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment"

A conservation management plan has been developed for Drumgoff Barracks (Whitty *et al.* (2024)). The structural survey of the building has identified that the condition of the building has deteriorated in recent years and walls need to be stabilised and masonry reinstated and stitched back in to conserve this National Monument and to reduce the health and safety risks posed to the members of the club utilising the site. These conservation works have potential impacts on roosting bats which utilise the structure.

A Do Nothing approach is not favourable as if no works are proposed the building will continue to deteriorate. The purpose of the works is to secure the surviving historic masonry for the long-term. It is currently in poor condition and will continue to deteriorate without intervention. The increased frequency of heavy rainfall events resulting from global warming will accelerate this deterioration. In addition the building currently poses a health and safety risk and a large percentage of the grounds of the club surrounding the building have been fenced off for safety reasons.

The proposed conservation works and mitigation measures set out below ensure the protection of the bats during the works and the long-term

conservation of their roosting locations within the structure as well as the structure itself. All three species of bats utilising the stricture are widespread species in Ireland and are listed as 'Least Concern' on the Ireland Red List No. 12: Terrestrial Mammals (Marnell et al., 2019), meaning they are not in any threatened category.

The proposed conservation works to Drumgoff Barracks will not be detrimental to the maintenance of populations of these species at a favourable conservation status in their natural range as required under Section 54 (2) of the European Communities (Birds and Natural Habitats) Regulations. A range of roosting locations will be retained within the structure to provide continued access to roosting sites for bats.

5.6 Resurvey of Potential Bat Roosts prior to Works

There are a series of suitable crevices, holes and areas of dense ivy on the barracks. These offer roosting potential for bats for both breeding and hibernation purposes and should not be refilled, repointed or otherwise repaired or restored without consultation with a suitable qualified bat specialist.

Given that it is likely that some time will have passed between the current survey and any proposed conservation works (which may take place over a number of years) the barracks will need to be resurveyed for roosting bats to inform the works and potentially to reapply for a new bat derogation licence if required.

Note that these surveys are seasonally constrained so they will need to be scheduled accordingly. The recommended time period for bat surveys is shown on **Figure 18** and **Table 1** below (Source: NPWS Bat Mitigation Guidelines).

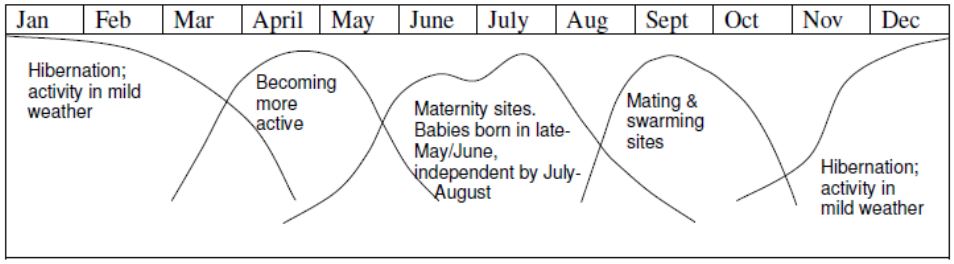

Figure 8. The bat year. Although there are species-specific differences, the bat year can be divided into the two major phases of breeding and hibernation, with other activities interspersed.

Figure 18. The Bat Year (Source: NPWS Bat Mitigation Guidelines).

Once the bat derogation licence is granted and the works are due to commence any features within the structure which have been identified as having potential for roosting bats will be re-examined prior to any works commencing to ensure that bats have not taken up residence within same in the intervening period.

In general repointing works should be conducted outside the bat breeding and hibernation seasons as shown on **Figure 18** above.

Once a scaffold tower or similar has been erected these features can be inspected using an endoscope by a bat specialist to determine if any bats are present. Suitable bat access points will be shown to the project stone mason and the potential for their retention discussed.

Any areas which do not require pointing from a structural perspective can then be lightly blocked with hessian cloth to ensure that bats cannot re-enter these crevices during the works.

This will then be removed as repointing takes place or on completion leaving these crevices accessible to bats in the future.

Table 1. The appropriate months for bat surveys (Source: NPWS Bat Mitigation Guidelines).

Season	Roost Type	Inspection	Bat detectors and emergence counts
Spring (Mar – May)	Building	Suitable (signs, perhaps bats)	Limited, weather dependent
	Trees	Difficult (best for signs before leaves appear)	Very limited, weather dependent
	Underground	Suitable (signs only)	Static detectors may be useful
Summer (June-August	Building	Suitable (signs and bats)	Suitable
	Trees	Difficult	Limited; use sunrise survey
	Underground	Suitable (signs only)	Rarely useful
Autumn (September – November)	Building	Suitable (signs and bats)	Limited, weather dependent
	Trees	Difficult	Rather limited, weather dependent; use sunrise survey?
	Underground	Suitable (signs, perhaps bats)	Static detectors may be useful
Winter (December - February)	Building	Suitable (signs, perhaps bats))	Rarely useful
	Trees	Difficult (best for signs after leaves have gone)	Rarely useful
	Underground	Suitable (signs and bats)	Static detectors may be useful

5.7 Creation of nesting/roosting opportunity within restored/repaired stonework

Where parts of the walls are to be rebuilt/repaired provision for nesting birds/roosting bats can be incorporated into the stonework without compromising the structure or longevity of the repair. **Figures 19** and **20** below give an idea of how to accommodate same for bats.

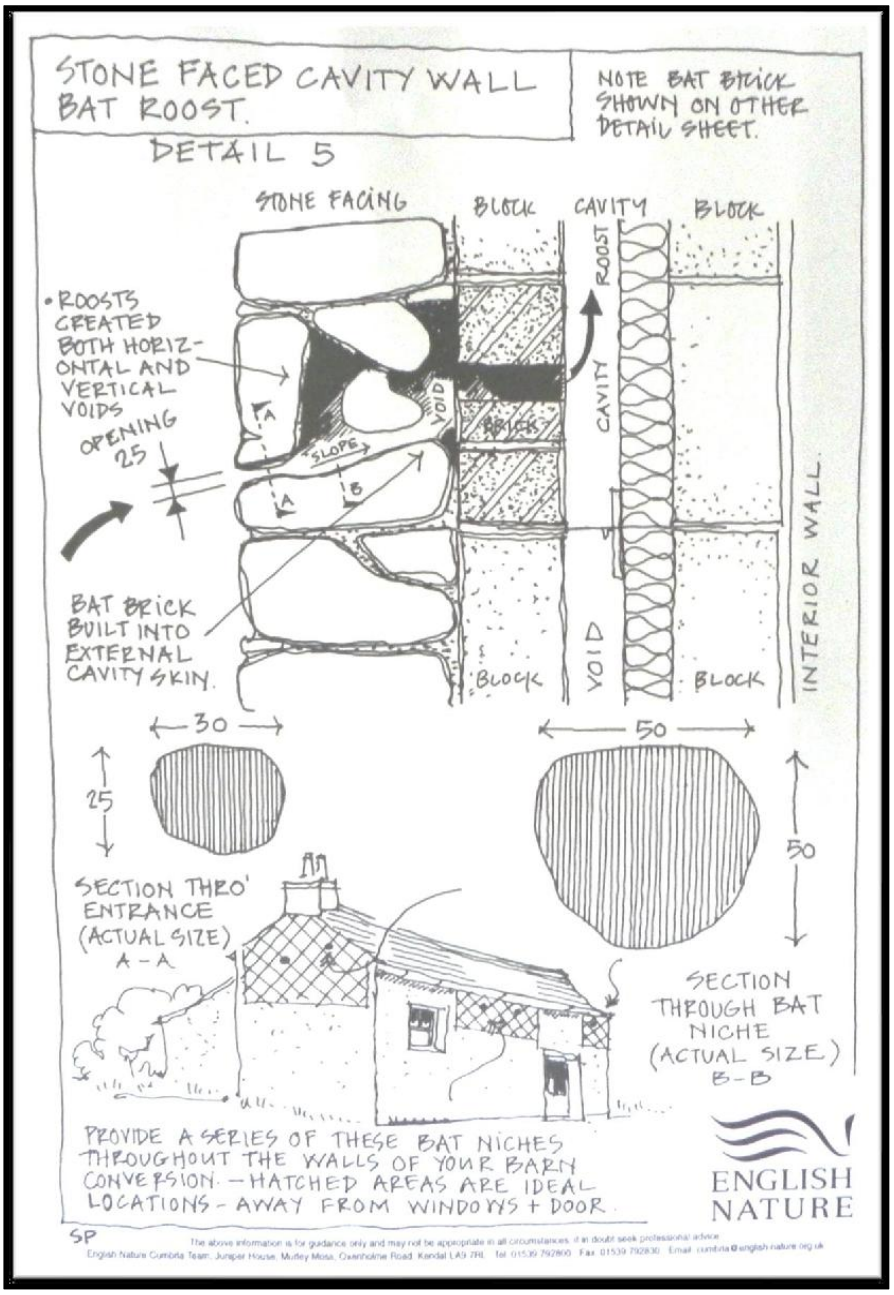

Figure 19. Accommodating roosting spaces for bats in stonework.

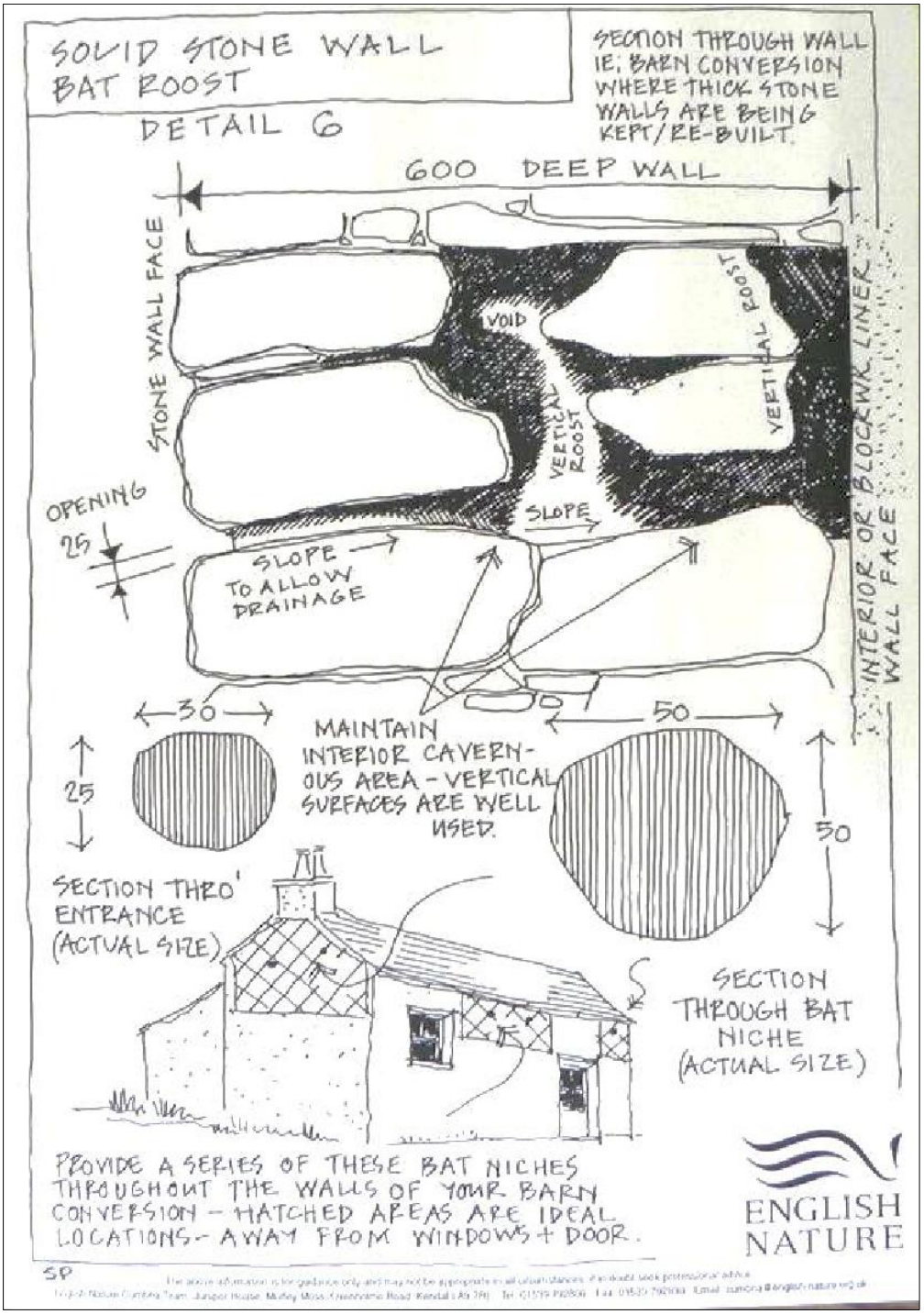

Figure 20. Accommodating roosting spaces for bats in stonework.

5.8 Monitoring of Works

The works will be monitored by the bat specialist and a post works completion report prepared and submitted to NPWS as part of the licence return.

5.9 Bryophyte Conservation

The survey of the stonework for bryophytes (mosses and liverworts) found a good diversity of species present. These should be conserved in situ and the stones not cleaned off or power washed. Where such stones need to be removed and reset/ reconstructed they can be kept with the mosses/lichens intact and

then reinstated with this vegetation facing outwards so they can still recolonise the structure.

5.10 Lichen Conservation

The building has a rich biodiversity of silica-loving saxicolous species. They add the expected colour and texture to a building of this age.

To remove lichen from the stonework is expensive and a waste of time as lichens will return in time, possibly in as short as five years. The community of returning lichens are likely to be different and of poorer biodiversity than those that currently exist. This is due to atmospheric conditions being different now than when the lichen colonisation started several hundred years ago.

Today the level of nitrate is higher than at any time in recent history. Nitrates promote the growth of the 'weed' lichens which are mostly yellow and orange species. These will inhibit the growth of more delicate species such as *Petractis clausa.* The building is also likely to take on a yellow hue.

To preserve the present lichen biodiversity and overall colour of the building the current best practise as used in other European countries should be adopted.

Stonework

- that the stonework should not be cleaned of the lichens.
- any stonework that is removed during repair should be replaced in the same orientation to allow its lichens to achieve the same amount of light and continue their growth.

Mortar

While it is accepted that much of the mortar will need to be replaced it should be done in such a way that some good runs of mortar be left intact. This will allow for the recolonisation of the new mortar work with species from the old mortar. Mortar should never be replaced with cement as a substitute.

As mortar mixes tend to be a 'local' recipe, this should be retained as much as possible.

If pointing is going to take several years, being applied in stages, then it should be done in a haphazard way in the sense that not all one side or one large area is completed at once. By taking a haphazard approach, lichen on old mortar can colonise new mortar.

5.11 Conservation of Vegetation

The vegetation of bryophytes (mosses, liverworts and lichens) and ferns on the stonework of the barracks and walls and should be conserved during any works.

By retaining soil on stonework and creating small ledges in the stonework new plants such as ferns have a place to colonise over time.

5.12 Invasive Species

Any tools or equipment brought to the monument must be fully cleaned prior to use to ensure that it does not inadvertently introduce any invasive species to the area.

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7. APPENDIX I: SITE SYNOPSIS FOR DESIGNATED SITES

SITE SYNOPSIS

Site Name: Wicklow Mountains SAC

Site Code: 002122

Wicklow Mountains SAC is a complex of upland areas in Counties Wicklow and Dublin, flanked by the Blessington reservoir to the west and Vartry reservoir in the east, Cruagh Mountain in the north and Lybagh Mountain in the south. Most of the site is over 300 m, with much ground over 600 m. The highest peak is 925 m at Lugnaquilla. The Wicklow uplands comprise a core of granites flanked by Ordovician schists, mudstones and volcanics. The form of the Wicklow Glens is due to glacial erosion. The topography is typical of a mountain chain, showing the effects of more than one cycle of erosion. The massive granite has weathered characteristically into broad domes. Most of the western part of the site consists of an elevated moorland, covered by peat. The surrounding schists have assumed more diverse outlines, forming prominent peaks and rocky foothills with deep glens. The dominant topographical features are the products of glaciation. High corrie lakes, deep valleys and moraines are common features of this area. The substrate over much of the area is peat, usually less than 2 m deep. Poor mineral soil covers the slopes, and rock outcrops are frequent. The Wicklow Mountains are drained by several major rivers including the Dargle, Liffey, Dodder, Slaney and Avonmore. The river water in the mountain areas is often peaty, especially during floods.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]
- Natural dystrophic lakes and ponds [3160]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- European dry heaths [4030]
- Alpine and Boreal heaths [4060]
- Calaminarian grasslands of the Violetalia calaminariae [6130]
- Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]
- Blanket bogs (* if active bog) [7130]
- Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]
- Calcareous rocky slopes with chasmophytic vegetation [8210]
- Siliceous rocky slopes with chasmophytic vegetation [8220]
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]
- *Lutra lutra* (Otter) [1355]

The vegetation over most of Wicklow Mountains SAC is a mosaic of heath, blanket bog and upland grassland (mostly on peaty soil, though some on mineral soil), stands of dense Bracken (*Pteridium aquilinum*), and small

woodlands mainly along the rivers. Mountain loughs and corrie lakes are scattered throughout the site.

The two dominant vegetation communities in the area are heath and blanket bog. Heath vegetation, with both wet and dry heath well represented, occurs in association with blanket bog, upland acid grassland and rocky habitats. The wet heath is characterised by species such as Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), cottongrasses (*Eriophorum* spp.), Tormentil (*Potentilla erecta*), Mat-grass (*Nardus stricta*), bent grasses (*Agrostis* spp.) and bog mosses (*Sphagnum* spp.). In places the wet heath occurs in conjunction with flush communities and streamside vegetation, and here species such as Heath Rush (*Juncus squarrosus*) and sedges (*Carex* spp.) are found. Dry heath at this site is confined to shallow peaty soils on steep slopes where drainage is better and particularly in sheltered conditions. It is characterised by species such as Heather, gorse (*Ulex* spp.), Bell Heather (*Erica cinerea*), Bilberry (*Vaccinium myrtillus*), Purple Moor-grass (*Molinia caerulea*) and lichens (*Cladonia* spp.). In places the heath grades into upland grassland on mineral soil.

Blanket bog is usually dominated by cottongrasses, Heather and bog mosses. On steeper slopes there is some flushing and here Purple Moor-grass, Heath Rush and certain *Sphagnum* species become more common. The Liffey Head blanket bog is among the best of its kind in eastern Ireland, with deep peat formations and an extensive system of dystrophic pools developed among the hummocks and hollows on the bog surface. The vegetation is largely dominated by Heather and Cross-leaved Heath, with cottongrasses (*Eriophorum vaginatum* and *E. angustifolium*), Deergrass (*Scirpus cespitosus*) and Bog Asphodel (*Narthecium ossifragum*). In drier areas, Bilberry and Cowberry (*Vaccinium vitis-idaea*) are common, while the scarce Bog-rosemary (*Andromeda polifolia*) is also found. Blanket bog occurs over extensive areas of deeper peat on the plateau and also on gentle slopes at high altitudes.

Due to the underlying rock strata, the water of the rivers and streams is acid rather than alkaline. The water is generally oligotrophic and free from enrichment. The lakes within the area range from the high altitude lakes of Lough Firrib and Three Lakes, to the lower pater-noster lakes of Glendalough, Lough Tay and Lough Dan. Spectacular corrie lakes, such as Loughs Bray (Upper and Lower), Ouler, Cleevaun, Arts, Kellys and Nahanagan, exhibit fine sequences of moraine stages. The deep lakes are characteristically species-poor, but hold some interesting plants including an unusual form of Quillwort (*Isoetes lacustris* var. *morei*), a stonewort (*Nitella* sp.) and Floating Bur-reed (*Sparganium angustifolium*).

Alpine vegetation occurs on some of the mountain tops, notably in the Lugnaquilla area, and also on exposed cliffs and scree slopes elsewhere in the site. Here alpine heath vegetation is represented with heath species such as Crowberry (*Empetrum nigrum*) and Cowberry, and others such as Dwarf Willow (*Salix herbacea*), the grey-green moss *Racomitrium lanuginosum,* and scarce species such as Mountain Clubmoss (*Diphasiastrum alpinum*), Firmoss (*Huperzia selago*), and Starry Saxifrage (*Saxifraga stellaris*). Some rare arctic-alpine species have been recorded, including Alpine Lady's-mantle (*Alchemilla alpina*) and Alpine Saw-wort (*Saussurea alpina*).

Old lead mine workings at Glendasan support an estimated 3.6 hectares of Calaminarian Grassland, with a suite of rare metallophyte (metal-loving) bryophytes, including the moss *Ditrichum plumbicola* and the liverworts *Cephaloziella massalongi* and *C. nicholsonii*.

Small areas of old oakwood (Blechno-Quercetum petraeae type) occur on the slopes of Glendalough and Glenmalure, near Lough Tay and Lough Dan, with native Sessile Oak (*Quercus petraea*) trees, many of which are 100-120 years old. On wetter areas, wet broadleaved semi-natural woodlands occur which are dominated by Downy Birch (*Betula pubescens*). Mixed woodland with non-native tree species also occurs.

The site supports a range of rare plant species. Parsley Fern (*Cryptogramma crispa*), Marsh Clubmoss (*Lycopodiella inundata*), Lanceolate Spleenwort (*Asplenium billotii*), Small-white Orchid (*Pseudorchis albida*) and Bog Orchid (*Hammarbya paludosa*) are all legally protected under the Flora (Protection) Order, 2015. Greater Broomrape (*Orobanche rapum-genistae*), Alpine Saw-wort and Alpine Lady's-mantle are listed in the Irish Red Data Book. The rare Myxomycete fungus *Echinostelium colliculosum* has been recorded from the Military Road.

The Red Data Book fish species Arctic Char has been recorded from Lough Dan, but this population may now have died out.

Mammals and birds which occur are typical of the uplands. Deer are abundant, mainly hybrids between Red and Sika Deer. Other mammals include Hare, Badger and Otter, the latter being a species listed on Annex II of the E.U. Habitats Directive. Pine Marten has recently been confirmed as occurring within the site. Among the birds, Meadow Pipit, Skylark, Raven and Red Grouse are resident throughout the site. Wheatear, Whinchat and the scarce Ring Ouzel are summer visitors. Wood Warbler and Redstarts are rare breeding species of the woodlands. Dipper and Grey Wagtail are typical riparian species. Merlin and Peregrine, both Annex I species of the E.U. Birds Directive, breed within the site. Recently, Goosander has become established as a breeding species.

Large areas of the site are owned by the National Parks and Wildlife Service (NPWS) and are managed for nature conservation based on traditional land uses of upland areas. The most common land use is traditional sheep grazing, but others include turf cutting, mostly hand-cutting but some machine-cutting also occurs. These activities are largely confined to the Military Road, where there is easy access. Large areas which had been previously hand-cut and are now abandoned are regenerating. In the last 40 years, forestry has become an important land use in the uplands, and has affected both the wildlife and the hydrology of the area. Amenity use is very high, with Dublin city close to the site. Peat erosion is frequent on the peaks. This may be a natural process, but is likely to be accelerated by activities such as grazing.
Wicklow Mountains is important as a complex, extensive upland site. It shows great diversity from a geomorphological and a topographical point of view. The vegetation provides examples of the typical upland habitats with heath,

blanket bog and upland grassland covering large, relatively undisturbed areas. In all, twelve habitats listed on Annex I of the E.U. Habitats Directive are found within the site. Several rare or protected plant and animal species occur, adding further to its value.

31.05.2017

SITE SYNOPSIS

Site Name: Wicklow Mountains SPA

Site Code: 004040

This is an extensive upland site, comprising a substantial part of the Wicklow Mountains. Most of the site is in Co. Wicklow, but a small area lies in Co. Dublin. The underlying geology of the site is mainly of Leinster granites, flanked by Ordovician schists, mudstones and volcanics. The area was subject to glaciation and features fine examples of glacial lakes, deep valleys and moraines. Most of site is over 300 m, with much ground being over 600 m; the highest peak is Lugnaquilla (925 m). The substrate over much of site is peat, with poor mineral soil occurring on the slopes and lower ground. Exposed rock and scree are features of the site. The predominant habitats present are blanket bog, heaths and upland grassland.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Merlin and Peregrine.

A series of surveys of the Wicklow Mountains SPA indicates that up to 9 pairs of Merlin breed within the site in any one year. Traditionally a ground-nesting species, Merlin in the Wicklow Mountains are usually found nesting in old crows nests in conifer plantations. The open peatlands provide excellent foraging habitat for Merlin with small birds such as Meadow Pipit being their main prey. The cliffs and crags within the site also provide ideal breeding locations for Peregrine (20 pairs in 2002). Other birds of the open peatlands and scree slopes that have been recorded within the site include Ring Ouzel and Red Grouse.

The Wicklow Mountains SPA is of high ornithological importance as it supports nationally important populations of Merlin and Peregrine, both species that are listed on Annex I of the E.U. Birds Directive. Part of Wicklow Mountains SPA is a Statutory Nature Reserve.

7.7.2014