# **Ecological Report on Kilbarron Castle, County Donegal**

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### Location of the Castle

The ruins of Kilbarron Castle are on a rocky promontory situated on the coast of Donegal Bay in the townland of Cloghbolie (Irish Grid Reference 183900 365190) located between Ballyshannon and Rossnowlagh.

#### Brief description of the proposed works.

The proposal is to work to conserve the ruins of Kilbarron Castle and to do it in a way that minimises the impact on the site and it's vegetation.

### **The Castle Site**

The castle is situated on a promontory bounded on three sides by cliffs. The landward side is fenced off to prevent animals wandering onto the site. There are gaps to allow access by walkers.

The surrounding vegetation is coastal heathland.

Some of the most common species present are: -

Calluna vulgaris - common heather Erica cinerea - bell heather Erica tetralix - cross leaved heath (damp places) Empetrum nigram - crowberry Polygala vulgaris - common milkwort Pedicularis sylvatica - lousewort Orchis maculata - Early purple orchid Lychnis flos-cuculi- ragged robin Succisa pratensis - Devilsbit scabious Sphagnum and polytrichum mosses Lichens growing in amongst the heather Ulex europaeus - gorse

Crossed by old, lichen rich, dry stone walls. Some Iron Age earthworks covered in short turf.

There are small streams trickling down to the sea with watercress growing in the water.

Although I have never seen any rare species in this community, this type of ecosystem is rare globally although not in the island of Ireland.

Coastal or maritime heath is an endangered habitat. It has a very restricted distribution in Europe.

#### Vegetation growing on the castle promontory

The area can be divided into several habitat types: -

1. The grassy promontory

This largely consists of species present in rough grassland. I could find nothing unusual although I did visit in September and October when flowering was more or less at an end. However I have been visiting the site every year since the early 1990's. My mother and aunt - both keen botanists have also visited on several occasions during that time and we have never found any individually rare species of flowering plants.

Grassland mainly consisting of Festuca rubra with Molina sp. and Dactylis glomerata - cocksfoot. I visited long after flowering and it was impossible to name the species of grass. However it was rough tussocky grassland and the following flowering plants:

Cirsium arvense - creeping thistle Urtica dioca - stinging nettle Achillea millefolium - yarrow Rumex acetosella - sheep sorrel Rumex sp. - Dock Crataegus monogyna - hawthorn very stunted Rubus agg. blackberry Hypochaeris radicata - cats ear Centaurea nigra agg. - knapweed Trifolium pratense - red clover Trifolium repens - white clover Bellis perennis - daisy Galium velum - ladies bedstraw Vicia sepium - bush vetch Plantago lanceolata - ribwort plantain Senecio jacobsen - ragwort Lactuca serriola - prickly lettuce



Plantago lanceolata



Trifolium pratense

2. Castle flag - the area of rocks underneath the castle leading down to the sea.

Asplenium marinum - sea spleenwort in crevices Plantago corunopus - buckshorn plantain - rosettes on the rocks Armeria maritima - sea thrift - on the cliffs and rocks. Cochlearia officialis - common scurvy grass on the rocks and cliff crevices



The cliffs below the castle. Cushions of thrift and lichens.



Recent rockfall below the castle walls

3. Castle walls above the castle flag.

Hedera helix - the walls are largely ivy covered. Asplenium marinum - sea spleenwort in crevices underneath the walls. Prunus spinosa - stunted blackthorn on the sea. Galium velum- ladies bedstraw at the base of the walls.



lvy covered walls and blackthorn.



Sea spleenwort in the crevices under the wal

4. More sheltered walls away from the sea

Lichens Cushions of moss on the walls Hedera helix - Some ivy colonisation Plantago maritima Taraxacum officinale - dandylion Potentilla erecta - tormentil Hypochaeris radicata - cats ear Pilosella officinarum - mouse ear hawkweed Empetrum nigrum - crowberry Lotus corniculatus- birds foot trefoil Armeria maritima - thrift Thymus polytrichus - wild thyme Fern sp.



Birds foot trefoil (Lotus corniculatus)



Colonisation of ivy (Hedera helix) smothering the lichen community.



Crowberry (Epetrum nigrum)



Community of lichen

## Grazing

A boundary fence has been put up to stop cattle from entering the site and damaging the walls. The fence has gaps to allow people and smaller animals access.

The grassland has been long and tussocky for at least the last 25 years and I think that during that time the grazing has been minimal. A Victorian plan of the castle showed where doors etc were. I wonder if further structure of the castle would be revealed if the grass was shorter. A larger number of flowering plants would be able to grow. At present they would be choked by the tussocky grass. Increased grazing, possibly by goats could considerably enrich the number of species flourishing and would probably encourage the growth of orchids.

### Lichens

These are produced by a symbiotic relationship between an algae and a fungus.

They generally grow on rocks and are a feature of old stone walls and gravestones. Although they are also to be found growing on trees and bushes and also in short turf.

Lichens are often used as an indicator of the lack of pollution. They are only to be found in clean air.

Although an expert in lichens would be needed to identify the species of lichen I think it is unlikely that there are any species rare to the area. The castle is built of local stone. Often it is in graveyards where non local stone has been used that species rare to the area are found. The species of lichen tends to depend on the substrate.

However where the walls are not shaded or covered by ivy, the stones are covered by a mass of lichen which gives the stone walls much of their character. Lichen is slow growing and there is little that can be done to help colonisation. The use of yogurt or sour milk does not seem to increased the rate of colonisation although it was long thought to do so. However with such a thriving local colony of lichens, and weathered rocks providing the perfect substrate I would hope that recolonisation would quickly occur. The use of natural products in any restoration or consolidation of the walls - such as lime mortar - will not inhibit the recolonisation of the wall with lichen.

Lichens like sunlight - mosses tend to grow in the damper and shadier parts of the wall.

Where the walls are covered by ivy, lichens will be unable to grow. Ivy in itself tends to be destructive of old walls. If it is controlled it needs to be cut at the roots so it will die back naturally. Pulling it away from the wall will lead to increased damage of the walls.

### Conclusions

The area appears to have no rare species.

However coastal heathland is a very rare ecosystem globally and needs to be protected and managed. The promontory is bright with flowers in the late spring - in particular Armeria maritima (thrift) and Lotus corniculatus (birds foot trefoil). Cliff ledges are used for nesting by large numbers of sea birds.

The area would benefit from more active management.

The lichen ecosystems are probably the most fragile.

### Recommendations

- 1. The introduction of animals which would graze in a way that wouldn't be destructive towards the castle walls. This would probably encourage a more diverse grassland flora and may reveal some archaeology.
- 2. The removal of the ivy on the outer seaward walls ( if this is not felt to destroy the character of the castle). The prevention of further colonisation by ivy on the inner walls. The ivy should be cut at the base and left to die back to avoid any damage to the walls. The removal of ivy will encourage the growth of lichens.
- 3. A working party in the spring to hand weed plants like stinging nettles, brambles and thistles so they don't choke out other species.
- 4. The use of a lime mortar in any consolidation of the castle walls. This is lichen friendly and should encourage the recolonisation of the walls by lichen.
- 5. The construction of a more aesthetically pleasing but still stock proof boundary. Perhaps a dry stone wall with kissing gate?

### Acknowledgements

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