

Flora Protection Order - bryophytes

Molendoa warburgii

Status: Vulnerable; listed on the Flora Protection Order

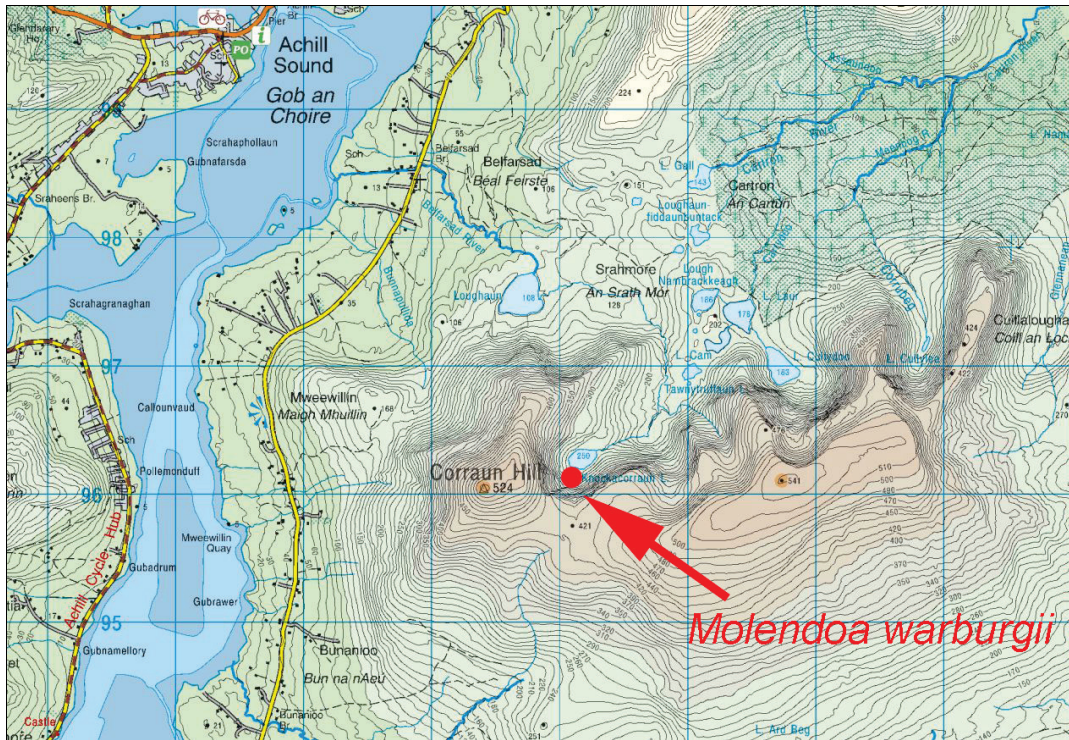
Location: Corraun Hill, Co. Mayo

Species Records

| Taxon | Vice County number | Taxon Site | Locality / habitat | Grid Reference | Date | Recorder | Protected site |
|---------------------------|--------------------|------------|--|----------------|------------|---------------|----------------|
| <i>Molendoa warburgii</i> | 27 | 01 | above L. Knockacorraun, on E side of Corraun Hill, Corraun Peninsula, on soft damp N-facing schist, 370 m alt. | L7696 | 1982. | Synnott, D.M. | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Lough Cullydoo+corrie to E | L79 | 1982. | Synnott, D.M. | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | S of Knockacorraun Lough on E side of Corraun Hill: on thin soil over steep damp schist at base of N-facing crag, almost unshaded; ca 290 m alt. | L76099607 | 2003.07.07 | Holyoak, D.T. | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7609396076 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7608196079 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7606596063 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7606496071 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7604896075 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7604196062 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7603096050 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7601996047 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7599196033 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7598096040 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7597796033 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7597296024 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7596696033 | 2016.11.05 | Rory Hodd | SAC000485 |
| <i>Molendoa warburgii</i> | 27 | 01 | Above Lough Knockacorraun, Corraun | L7595896034 | 2016.11.05 | Rory Hodd | SAC000485 |

It appears that the second 1982 record is from one or more of the other corries on Corraun Hill, but there is a chance that it is just a duplicate. It was refound only in the Lough Knockacorraun corrie during fieldwork in 2003.

Location (1:50,000 Discovery map)



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Field Data Sheet - Rare and Threatened Bryophyte Survey 2003

2003-322

| | | | |
|--|--|--|---|
| Species <u>Molendoa warburgii</u> | | Vice-county number H 27 | Vice-county West Mayo |
| Locality S. of Knockacurraun Lough (E. side of Corraun Hill) | | Land Owner/Occupier Commonage | cSAC/pNHA? <input checked="" type="checkbox"/> no. 485 |
| Grid Ref. L 7609/9607 to L 7603/9609 | GPS? <input checked="" type="checkbox"/> | alt. (m) ca 290 - ca 340 | Date d/m/y 7/7/03 Recorder D.T. Holyoak |
| Sketch Map of Site showing Location of Species: indicate North (arrow) and scale | | Describe substrate(s), e.g. rock/ soil/ tree type; wet/moist/dry, sunny/shaded habitat features e.g. aspect, slope, vegetation cover/height On thin soil and crumbling rock over steep to vertical damp schist low on N.-facing crags, almost unshaded, with sparse low bryophyte cover | |
| Size of Population Occurs in small patches and as scattered plants over Sporophytes present (stage) none tens of square metres of rock | | | |
| Locality Map (1:50 000 if possible) [or copy of part of 1:50 000 sheet no. 30 attached to this page] | | Associated Species With <u>Anomobryum julaceum</u> , <u>Blindia acuta</u> , <u>Entosthodon attenuatus</u> , <u>Amphidium mougeotii</u> , <u>Scapania undulata</u> , <u>Preissia quadrata</u> , <u>Pellia</u> sp., lichens; near sparse <u>Festuca ovina</u> , <u>Calluna</u> <u>vulgaris</u> , <u>Bellis perennis</u> , <u>Oxalis acetosella</u> , <u>Saxifraga oppositifolia</u> , etc. | |
| Photographs <u>S/24-26</u> | | Threats and proposed Conservation Measures Site immediately threatened: <u>yes</u> / no | |
| New record at this site / older record refound | | Little risk with such extensive population, but slight potential risk if grazing by sheep were to cease (leading to taller vascular plants on rocks and more shade) or if area were afforested | |
| Voucher specimen no. <u>DTH 03-313</u> | | | |

Site photographs - Rare and Threatened Bryophyte Survey 2003



Field Data Sheet – Survey of FPO Bryophytes 2016

| | | | |
|---|--|--|----------------------------|
| Species <i>Molendoa warburgii</i> | County Mayo | 6" Map ma065b | Discovery Map 30 |
| Locality/ Site name Above Lough Knockacorraun, Corraun | Vice-county (No.) H27 | SAC/NHA 000485 Corraun Plateau SAC | |
| Grid ref (GPS, National Grid) (i) L7609396076(±5) | 2005 Aerial Photo 1835-D, 1836-C | Recorder(s) R.L. Hodd | |
| Elevation (m) 285 | Solid geology White quartzites, psammitic schists | Survey date 05/11/2016 | |
| Site description | Line of broken schistose crags, running diagonally up backwall of corrie above lake. | | |
| Population description | Large population present, consisting of 1000's of shoots along a long distance of rockface, on damp ribs and faces of schistose rock. | | |
| Associated species | Associates include <i>Blindia acuta</i> , <i>Enthostodon attenuatus</i> , <i>Anomobryum julaceum</i> , <i>Fissidens taxifolius</i> , <i>Saxifraga oppositifolia</i> , <i>Festuca rubra</i> , <i>Agrostis capillaris</i> , <i>Calluna vulgaris</i> and <i>Epilobium brunnescens</i> . | | |
| Vegetation | ER2 Exposed calcareous rock | | |
| Current management | These slopes are heavily grazed. | | |
| Threats | Overgrazing and associated erosion, although the rockface is not directly impacted by grazing. | | |
| Conservation measures | Ensure that stocking levels do not become too high. | | |
| Ownership | Commonage | | |
| Access | A turf cutting track can be followed from Belfarsad Bridge onto a broad area of bog at the foot of the mountain, from where the corrie can be reached across rough ground. | | |
| Other remarks | | | |

GPS readings for the species

| National Grid Letter | Easting | Northing | Comments |
|----------------------|---------|----------|-----------------------|
| L | 76081 | 96079 | (±8) (ii) 290m alt. |
| L | 76065 | 96063 | (±8) (iii) 310m alt. |
| L | 76064 | 96071 | (±8) (iv) 310m alt. |
| L | 76048 | 96075 | (±9) (v) 320m alt. |
| L | 76041 | 96062 | (±7) (vi) 325m alt. |
| L | 76030 | 96050 | (±6) (vii) 320m alt. |
| L | 76019 | 96047 | (±8) (viii) 325m alt. |
| L | 75991 | 96033 | (±7) (ix) 340m alt. |
| L | 75980 | 96040 | (±6) (x) 355m alt. |
| L | 75977 | 96033 | (±8) (xi) 360m alt. |
| L | 75972 | 96024 | (±5) (xii) 365m alt. |
| L | 75966 | 96033 | (±7) (xiii) 370m alt. |
| L | 75958 | 96034 | (±3) (xiv) 385m alt. |

Synonymous habitat/vegetation types :

First record and other comments:

Initially recorded here by D.M. Synnott in 1982, and by D.T. Holyoak in 2003.

References:

Hodd, R.L. 2016. *Survey of Flora Protection Order Bryophytes 2016*. Unpublished report to National Parks and Wildlife Service. Dublin.

Holyoak, D.T. 2003. *Survey of Rare and Threatened Bryophytes in Co. Mayo*. Unpublished report to National Parks and Wildlife Service, Dublin.

Photographs:



Photograph 1: The corrie of Lough Knockacorraun viewed from below, location of *M. warburgii* indicated by red arrow.



Photograph 2: View of site for *M. warburgii* from ridge above, indicated by red arrow.



Photograph 3: Line of crags along which populations of *M. warburgii* are scattered.



Photograph 4: Schistose rocky outcrop on which numerous shoots of *M. warburgii* grow.



Photograph 5: Close-up of *M. warburgii* on rock outcrop in Photograph 4.

Maps and Aerial Photographs:

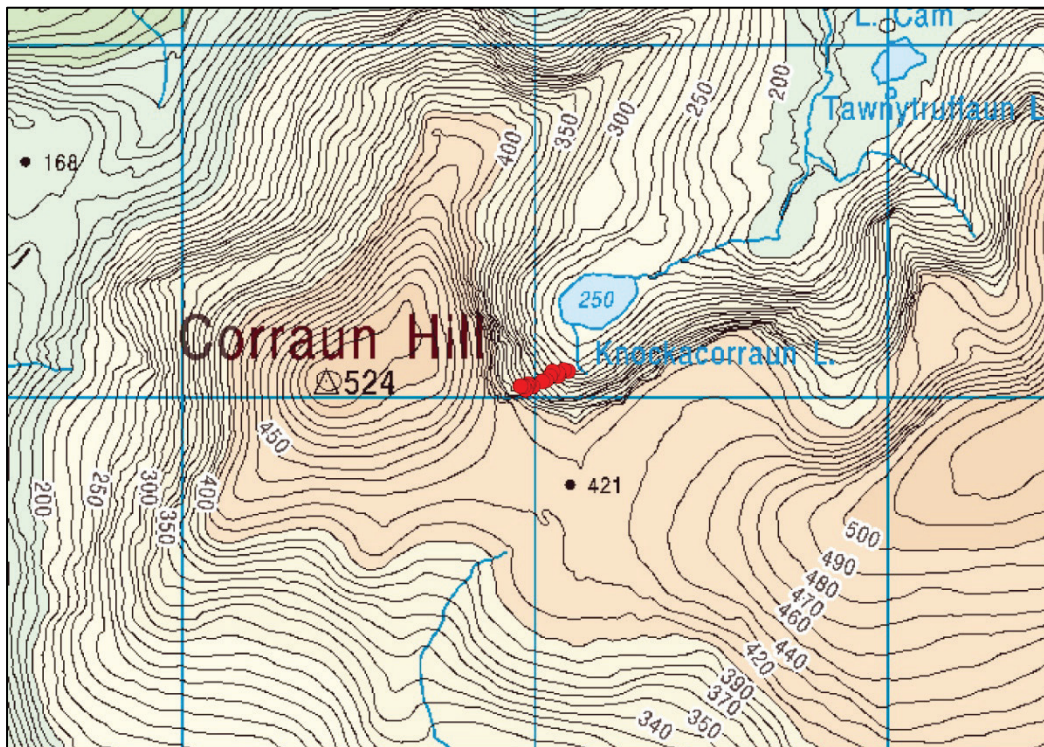


Figure 1: OSI Discovery Series map showing the locations of *M. warburgii* (marked by red dots) on Corraun Hill (Ordnance Survey Ireland Licence No EN 0059214 © Ordnance Survey Ireland/Government of Ireland).

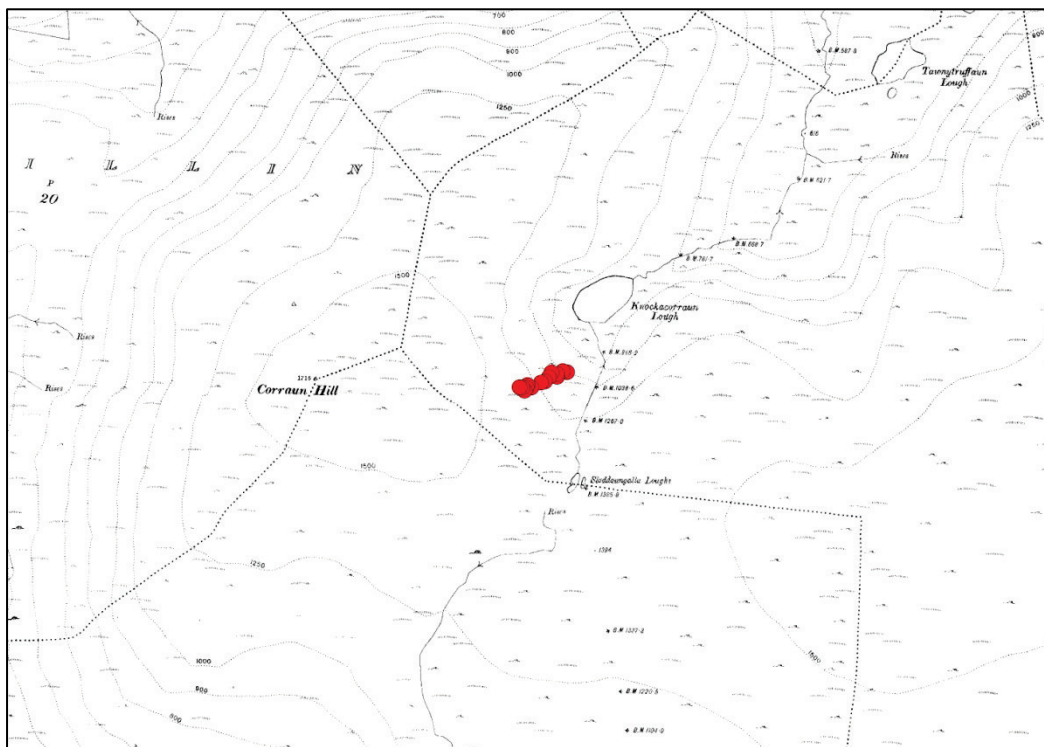


Figure 2: 6-inch map showing the locations of *M. warburgii* (marked by red dots) on Corraun Hill (Ordnance Survey Ireland Licence No EN 0059214 © Ordnance Survey Ireland/Government of Ireland).



Figure 3: 1:5,000 map showing the locations of *M. warburgii* (marked by red dots) on Corraun Hill (Ordnance Survey Ireland Licence No EN 0059214 © Ordnance Survey Ireland/Government of Ireland).

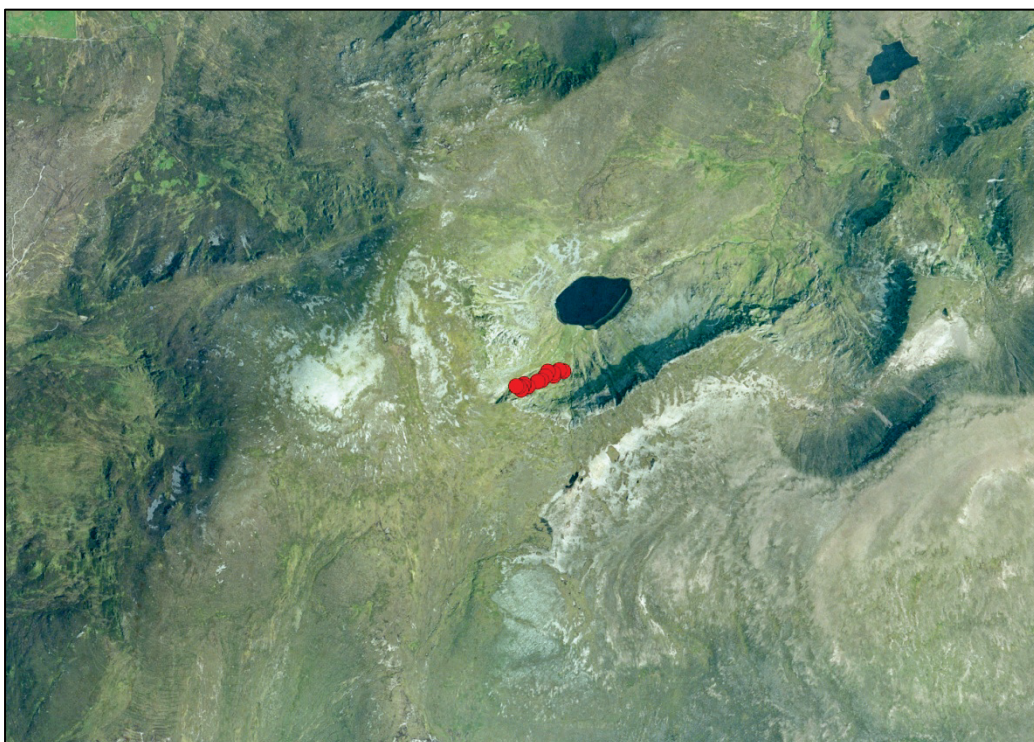


Figure 4: 2005 aerial photo showing the locations of *M. warburgii* (marked by red dots) on Corraun Hill (Ordnance Survey Ireland Licence No EN 0059214 © Ordnance Survey Ireland/Government of Ireland).



Figure 5: Satellite image showing the locations of *M. warburgii* (marked by red dots) on Corraun Hill (Basemap source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community).

Management & Conservation

General

- Extreme over- or under-grazing or afforestation are potential threats

Potential site-specific threats/issues

- A large population with few immediate threats apparent, but afforestation, or cessation of grazing leading to overgrowth by coarse vegetation, are potential threats

Excerpt from:

Lockhart, N., Hodgetts, N. & Holyoak, D. (2012). *Rare and Threatened Bryophytes of Ireland*. Belfast: National Museums Northern Ireland Publication No. 028.

RARE AND THREATENED BRYOPHYTES OF IRELAND

Molendoa warburgii (Crundw. & M.O.Hill) R.H.Zander

Warburg's Moss

syn. *Anoetangium warburgii* Crundw. & M.O.Hill

Status in Ireland: Vulnerable (D2); **Status in Europe:** Rare

Identification

A very small and slender acrocarpous moss that grows as scattered stems, loose tufts or yellowish-green patches,

with stems up to 10 mm high. Upper leaves are erecto-patent to patent, ovate to lanceolate, with a rounded apex. The leaf margins are plane and papillose-crenulate, the



costa strong but ending well below the leaf apex. Cells in the upper part of the leaf are quadrate or subquadrate, about 8 μm wide and obscure with papillae; the extreme base of the leaf has shortly-rectangular cells; lamina cells extend over the ventral surface of the costa in the upper part of the leaf. Capsules (unknown in Ireland) are ovoid, gymnostomous, erect, exerted on a seta that arises laterally from the stem. This species was confused with *Gymnostomum calcareum* for many years, but that species forms denser bright green tufts, has less strongly papillose leaves, with markedly longer basal cells and it grows in drier places (Crundwell & Hill 1977).

Distribution in Ireland

M. warburgii is known only from two adjacent corries on the N. side of Corraun Hill in W. Mayo (S. of Knockacorraun Lough, 1982–2003; corrie to east of Lough Cullydoo, 1982) (Synnott 1983a).

Ecology and biology

The habitat in W. Mayo is on steep, soft, damp schist and thin soil overlying it on the almost unshaded bases of N.-facing crags, at 290–370 m altitude. In Britain, it is mainly a montane species, recorded at 0–1070 m altitude, growing on wet rocks that are usually base-rich, including mica schist, limestone, basalt and volcanic tuff, extending onto base-poor rock where there is basic flushing. Most sites are in natural habitats near streams and waterfalls or where rocks are kept moist by seepage but it is also known in a highland quarry.

The plants are perennial. It is a dioicous species in which capsules are very rare in Britain (not recorded in Ireland), maturing in spring and early summer; most Scottish plants are female but the Welsh population is

Number of Hectads $\frac{1}{1}$
 Recent (1970–2010) 1



Molendoa warburgii

entirely male (T.L. Blockeel in Hill *et al.* 1992). Gemmae occur frequently in the axils of lower leaves and these presumably function as vegetative propagules; bulbils and tubers are absent.

World distribution

It is widespread in Scotland (from Arran north to Sutherland), local in W. Ireland and N. Wales (Snowdonia), S. Iceland, Faeroes and SW Norway (Söderström 1996) (*Endangered*). The species is assigned to an Oceanic Boreal-montane floristic element in Europe, where it is endemic.

Threats

No immediate threats were apparent at the Corraun Hill localities in 2003.

Conservation

Both of the localities are on protected land.

Protected sites with recent records: Corraun Plateau SAC; **Unprotected sites with recent records:** none.



Molendoa warburgii, south of Knockacorraun Lough, Co. Mayo.