

Flora Protection Order - bryophytes

Ditrichum cornubicum

Status: Critically Endangered; listed on the Flora Protection Order

Location: Allihies, Co. Cork

Species Records

Taxon	Vice County number	Taxon Site	Locality / habitat	Grid Reference	Date	Recorder	Protected site
<i>Ditrichum cornubicum</i>	03	01	Allihies: damp unshaded hollow in surface of old gravelly track near disused copper mines; ca 145 m alt.	V58924587	2006.05.31	Holyoak, D.T.	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine):	V5892045864	2008.04.30	Holyoak, D.T.	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine):	V5892845863	2008.04.30	Holyoak, D.T.	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5891945860	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892045868	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892045872	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892245862	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892245874	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892445858	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892645860	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892745874	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158
<i>Ditrichum cornubicum</i>	03	01	Allihies (Mountain Mine)	V5892745878	2009.04.22	Holyoak, D.T., Campbell, C., Lockhart ,N.,	SAC002158

This is the only site in Ireland for this species, which is endemic to the British Isles. A search for the plant in November 2010 by Christina Campbell was unsuccessful and a detailed search by Des Callaghan in February 2013 also failed to find the plant. Despite the lack of above-ground plants, viable tubers of the species will be present in the soil diaspore bank and it seems likely that the species will reappear at some point.

Location (1:50,000 Discovery map)



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Location (6" map)

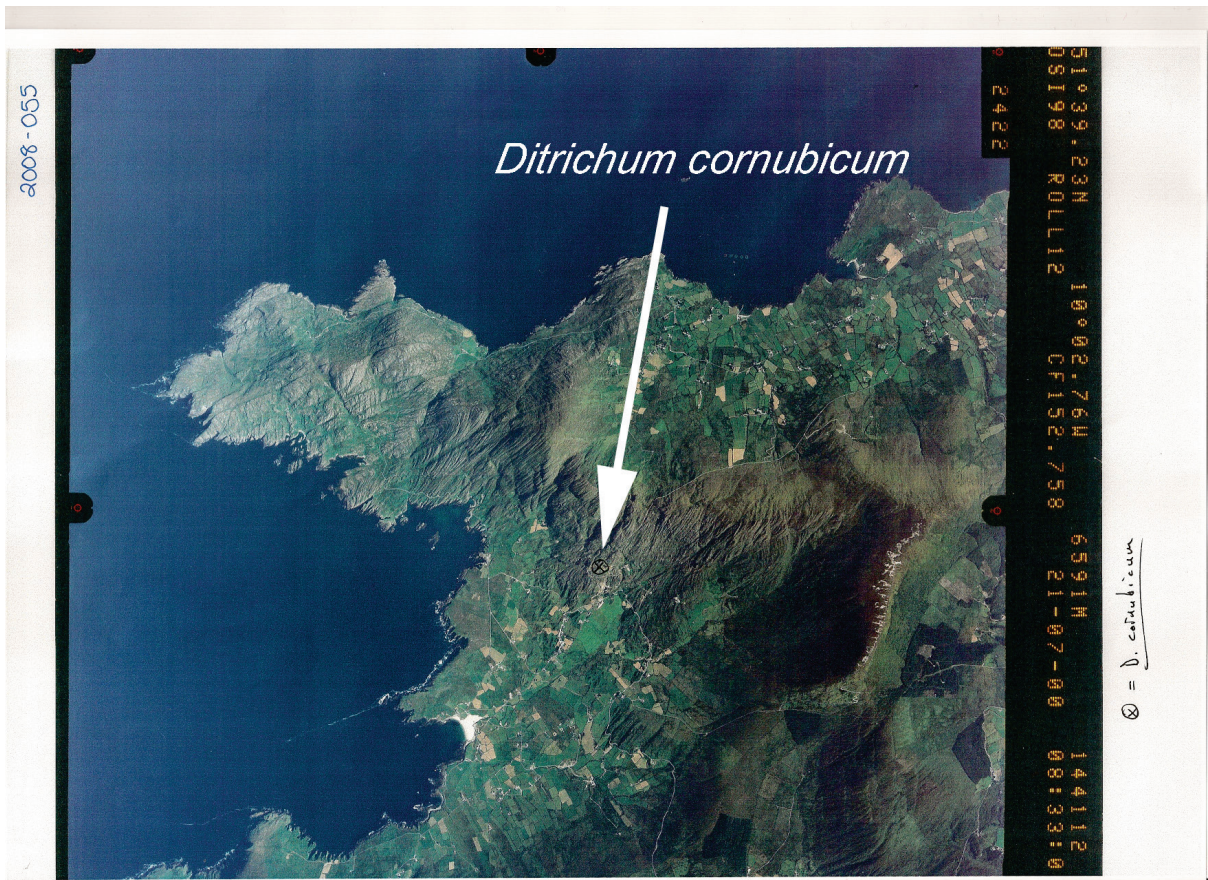
No map available.

Field Data Sheet - Rare and Threatened Bryophyte Survey 2008

2008-055

Species <u>Ditrichum cornubicum</u>		Vice-county number H 3	Vice-county W. Cork
Locality <u>Allihies (Mountain Mine)</u>		Land Owner/Occupier	cSAC/pNHA? no.
Grid Ref. <u>V 589 458</u>	GPS? <input checked="" type="checkbox"/>	alt. (m)	Date d/m/y <u>30 Apr. 2008</u>
Recorder <u>D.T. Holyoak</u>			
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 <u>Q43 V 58928/45863 - small plants</u> <u>sparcey in 8 x 3 cm strip</u> <u>Q44 V 58920/45864 - small plants</u> <u>in small amount in 6 x 2 cm area</u> found also in small quantity nearby at sites C and D on sketch map	
Size of Population ← small populations - see above		Sporophytes present (stage) <u>none</u>	
Locality Map (1:50 000 if possible) [or copy of part of 1:50 000 sheet no. <u>84</u> attached to this page]		Associated Species <u>see data for relevés</u> <u>Q43 and Q44</u>	
Photographs <u>see photos for</u> <u>Q43 and Q44</u>		Threats and proposed Conservation Measures Site immediately threatened: <u>yes</u> / no	
New record at this site / older record refound <u>Discovered here in 2006</u>			
Voucher specimen no. <u>(collected in 2006 from</u> <u>same area) - DTH 06-106</u>			

Aerial photograph - Rare and Threatened Bryophyte Survey 2008



Site photographs – Rare and Threatened Bryophyte Survey 2008



06-
053



06-
054

Management & Conservation

General

- Potentially vulnerable to accidental damage from vehicles, tipping, thoughtless collection of specimens or disturbance by sheep
- In Cornwall, patches often disappear as taller vegetation cover develops
- Eutrophication from dung of sheep resting on tracks a threat in Cornwall, where the problem has been solved with fencing and periodic scarification of the soil surface

Potential site-specific threats/issues

- See above

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

Mosses

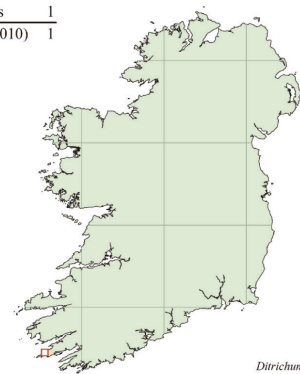
Ditrichum cornubicum Paton

Cornish Path-moss

Status in Ireland: Critically Endangered (D); **Status in Europe:** Endangered



Number of Hectads	1
Recent (1970–2010)	1



Ditrichum cornubicum

Identification

A tiny dull green or dark green acrocarpous moss that grows as scattered stems or small tufts, 1–4 mm high (in Cornwall, occasionally forming low turfs with stems up to 10 mm). The leaves are 0.4–0.9 mm long, erectopate, lanceolate, concave, with a strong costa ending just below the apex and plane margin that is entire or with slight denticulation near the apex. Leaf cells are rectangular and mainly 7–10 μm wide, narrower near the costa and at margin. The rhizoidal gemmae provide the most important distinction from small plants of *D. lineare*, these being spherical to ovoid, 80–160 μm long (rather than uniseriate). Only male plants are known.

Distribution in Ireland

Known only from one small population at Allihies, W. Cork, where it was discovered in 2006 and still present in 2009. There is a strong likelihood that the plants were accidentally introduced from Cornwall to W. Cork. This might have occurred with a well-documented immigration of Cornish miners and their equipment in the 19th century. However, it is more likely to have been during 2002–2003, when specialist stonemasons from

Cornwall repaired the closely adjacent mine engine-house at Allihies after working at Cornish sites where *D. cornubicum* occurs (Holyoak & Lockhart 2009a).

Ecology and biology

Restricted to one small area of an old gravelly track at a disused copper mine at c. 145 m altitude. It grows there in small amounts in a few damp, unshaded hollows, close to very sparse *Cephaloziella stellulifera*, *Solenostoma gracillimum*, *Pohlia andalusica* and *Agrostis capillaris*. In Cornwall, it is also known only from sites with spoil from old copper mines, in places which have sparse open vegetation comprised mainly of acidophilous, copper-tolerant plants (Holyoak *et al.* 2000). Chemical analyses of its substrata there show it consistently tolerates high levels of available copper (151–3220 $\mu\text{g/g}$ dry weight), whereas levels of lead and zinc were low to rather high (Holyoak *et al.* 2000, Walsh 2001).

In Cornwall, its patches persist in the same places year after year, so long as open, unshaded substrata remain available. The leafy shoots die down or are very inconspicuous in summer, becoming most obvious after mild, damp weather in late winter or spring. Only male

RARE AND THREATENED BRYOPHYTES OF IRELAND

plants are known. Vegetative dispersal is likely to occur from protonemal gemmae (described by Arts 1994), rhizoidal tubers, as well as from stem and leaf fragments.

World distribution

Known elsewhere only from Cornwall, and listed as *Endangered* in Britain. It was discovered at Lanner in W. Cornwall on a roadside lay-by from which it soon disappeared, then re-found near Minions in E. Cornwall (Paton 1976, Holyoak *et al.* 2000). Over the past decade, two groups of populations have been closely monitored by English Nature/Natural England, protected respectively by the Phoenix United Mine SSSI and Crow's Nest SSSI. Endemic in Europe.

Threats

The tiny population at Allihies is potentially vulnerable to accidental damage from vehicles, tipping, thoughtless

collection of specimens, or disturbance by sheep. In Cornwall, its patches often disappear as taller vegetation cover develops. Eutrophication of its sites from dung of sheep that rest on tracks has been a problem at Phoenix United Mine SSSI, now resolved by fenced enclosures excluding the sheep along with periodic scarification of the soil surface.

Conservation

The site at Allihies is on protected land. Cultures of Cornish plants are cryopreserved at the Royal Botanic Gardens at Kew. Living cultures of the Irish plants are held at DBN.

Protected sites with recent records: Kenmare River SAC; **Unprotected sites with recent records:** none.