Campylopus introflexus

Taxon	Family / Order / Phylum
Campylopus introflexus (Hedw.) Brid.	Dicranaceae / Dicranales / Plantae

COMMON NAMES (English only)
Heath star moss

SYNONYMS
Dicranum introflexum Hedw.
Campylopus introflexus auct. Amer., non (Hedw.) Brid

SHORT DESCRIPTION
A moss with leaves tapering to a long, whitish hair-point. When plants dry the leaves become crisp, twisting slightly round the stem (5 cm long), with the hair-points bent at right angles, horizontally outwards. The capsules are produced in spring, on the end of long, flexuous seta and covered by a beaked calyptra which is soon shed. Prior to maturity, the setum grows bent double, so that the capsule remains buried in the upper leaves.

Close-up of *Campylopus introflexus* showing reflexed hair-points

Photo: Ron Porley

BIOLOGY/ECOLOGY

Dispersal mechanisms
Spores disperse with wind. Vegetative fragments are thought to be important in short-distance colonization.

Reproduction
Capsules are sometimes rare in drier localities, but plants can regenerate vegetatively from fragments of leaf.

Known predators/herbivores
May be grazed by typical moss herbivores such as slugs or pill beetles (Bhyrridae).

Resistant stages (seeds, spores etc.)
The leaf fragments can persist for up to a year.

HABITAT

Native (EUNIS code)
Probably similar to European habitats.

Habitat occupied in invaded range (EUNIS code)
Blanket bog and on bare, sandy or gravely ground. It also occurs sporadically in a wider range of habitats, including on decaying logs, mineral spoil heaps, acid rocks and roof tiles. B1: Coastal dune and sand habitats, D1: Raised and blanket bogs, F4: Temperate shrub heathland, H3: Inland cliffs, rock pavements and outcrops, J1: Buildings of cities, towns and villages, J2: Low density buildings, J6: Waste deposits.

Habitat requirements
A very successful pioneer species, often amongst the first to colonise recently burned or disturbed areas, especially in forests and on heathland. It thrives best in acid conditions with moderately high nutrient levels (e.g. areas which suffer from atmospheric pollution). Positive effects of nitrate deposition have been suggested but are yet to be proven.

DISTRIBUTION

Native Range

It almost certainly originated in the southern hemisphere, possibly in South America where it is abundant on north-western savannahs. It may also be native to some Pacific islands.

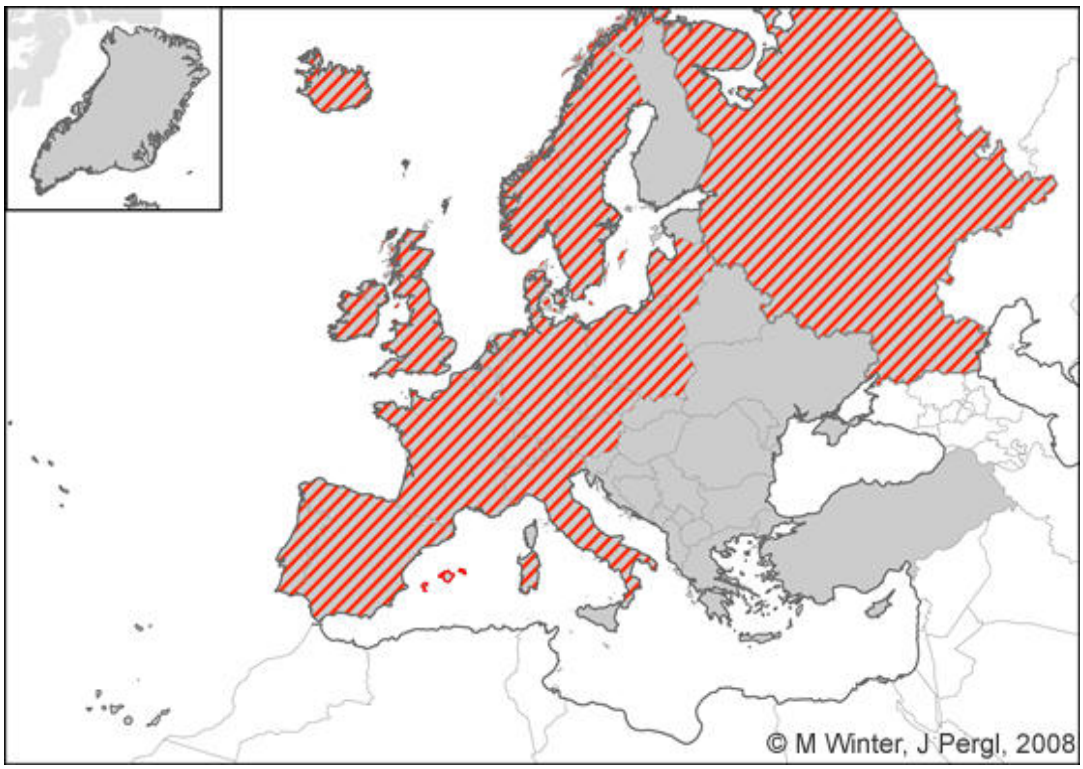
Known Introduced Range

The first European observations were from England and western France in 1941. It was found throughout the U.K. and Ireland by the 1960s, and had become problematic in the Netherlands and Germany by the 1970s. Most common in north-western oceanic parts of Europe, including islands as remote as Iceland, and especially abundant on North Sea and German Baltic coasts. Sporadic records exist from Guatemala southwards, over much of South America and Oceania, and on various islands from the tropics to the subantarctic. Found in California in 1975.

Trend

In Europe it is spreading rapidly eastwards, where it has reached Lithuania and Russia, and southwards, to northern Spain and Menorca. It has recently penetrated to Switzerland, northern Italy and the Czech Republic. Similar expansion is occurring in south-western North America.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in sea

INTRODUCTION PATHWAY

The arrival to Europe was possibly by ship. Local dispersal may be facilitated by the hooves of grazing animals or vehicles.

IMPACT

Ecosystem Impact

Studies from dune heath have shown that it can replace much of the ephemeral cover of specialist lichens, which are relatively common growing on trees elsewhere, but localised to dunes in exposed places. In north-central Europe, it has become problematic on sandy heaths dominated by Cladonia lichens and grey hair grass (*Corynephorus canescens*). However, invasions do not slow the rate of succession, and although heather seedlings germinate less well than on bare ground, they grow better once established.

Health and Social Impact

None.

Economic Impact

None.

MANAGEMENT

Mechanical

Burning or mechanical removal may sometimes be practical, although trials using livestock to trample and fragment the mats have been largely unsuccessful because they merely disperse vegetative propagules more efficiently. Heavy liming to reduce the acidity of the soil is another option, but the effectiveness of this measure is unproven and the risk of environmental damage may often be prohibitive.

Chemical and Biological

No effective control strategy has yet been found, mainly because native species occurring in sensitive habitats would be at greater risk from chemical treatments than the invader.

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