

## LIVERWORT SPECIES ACTION PLAN

### SPECIES PROFILE

**Common Names:** Stabler's rustwort, western featherwort, western frostwort and pale scalewort.

**Scientific Names:** *Marsupella stableri*, *Plagiochila atlantica*, *Gymnomitrium crenulatum*, *Radula voluta*.

**UK Biodiversity Status:** Priority (*M.stableri*) and the others Conservation Concern.

**Relevant Priority Habitats:** Montane, Inland rock, Upland Oakwood, Upland Ashwood.

**Statutory Protection:** All the above species are protected in a general sense (see Section 13) by the Wildlife and Countryside Act (1981).

### BIODIVERSITY CONTEXT

#### *Marsupella stableri* (Stabler's rustwort).

Because of taxonomic confusion with *Marsupella boeckii*, the range of Stabler's rustwort outside Britain is not well understood, although it has been reported from western Norway and Canada (British Columbia). In Britain it has numerous localities in Scotland, several in the Lake District and two in North Wales.

There is a species statement for this in the UK BAP. Its Objective is:

- Maintaining viable populations throughout the present British range of the species.

### OBJECTIVES

**Objective 1** Have as full as possible knowledge of the distribution and status of the Priority and Conservation Concern liverworts in the Stirling Council Area.

Target By 2005, survey all known areas containing Priority and Conservation Concern species.

Target By 2010, institute regular monitoring of all known sites containing Priority and Conservation Concern species.

**Objective 2** Maintain the existing populations of the Priority and Conservation Concern liverworts in the Stirling Council Area.

Target Identify local threats to these liverworts and take measures to remove or reduce these threats.

### CURRENT STATUS AND DISTRIBUTION

#### *Marsupella stableri* (Stabler's rustwort)

#### Priority species.

This small leafy liverwort forms reddish-purple to brownish mats on rock faces, boulders and gravelly soil in mountains at 300-1160 metres. It grows mainly on acidic

substrates in places that are periodically flushed with water, often in gullies and other areas with late lying snow. It has a stronghold in the Breadalbane hills.

There is no evidence of any widespread or substantial loss of its British populations over the past century, although localised losses have occurred. In Great Britain this species is classified as Nationally Scarce, meaning it is found in 16 to 100 ten-kilometer squares.

***Plagiochila atlantica***

**Conservation concern.**

This species has a strongly western, oceanic distribution in Europe and it requires a combination of high humidity, shelter and equable temperatures. It can be found in Glen Falloch 3020/3120/3220) and at Pulpit Rock (NN3213) and Inverbeg (NS3397/3497). It grows mainly on well drained, lightly shaded rock faces and the lower trunks of oak *Quercus sp.* and birch *Betula sp.* All Scottish records are from deciduous woodland.

***Gymnomitrium crenulatum***

**Conservation concern.**

This species has a strongly western, oceanic distribution in Europe and it requires a combination of high humidity, shelter and equable temperatures. It can be found to the north of Ardlui (NN3116) and prefers hard siliceous rocks within low-lying woodlands and upon high mountain slopes.

***Radula voluta***

**Conservation concern.**

This species has a strongly western, oceanic distribution in Europe and it requires a combination of high humidity, shelter and equable temperatures. Its typical habitat is slightly shaded rocks with regular water seepage, but at Craigrostan (NN3406) it has been found on the side of a boulder at the edge of Loch Lomond. It appears to be intolerant of very cold temperatures and, in Scotland, has been found only at very low altitudes.

**All the above species have over 20% of their global population found in the UK.**

**Other important liverworts found in the Stirling Council Area.**

Name	Habitat
<i>Marsupella boeckii</i> var. <i>boeckii</i> ( <i>Marsupella boeckii</i> ) Boeck's rustwort	Wet acidic rock in areas of late snow lie.
<i>Riccia canaliculata</i> Channelled crystalwort	Calcifuge ephemeral on mud at edge of water.
<i>Scapania parvifolia</i> Obscure earwort	Bare soil on exposed mountain ridges and summits.
<i>Adelanthus decipiens</i> Deceptive featherwort	Acidic rocks in woodland.
<i>Aphanolejeunea microscopica</i> Long-leaved pouncewort	Rocks in sheltered humid woodland.
<i>Drepanolejeunea hamatifolia</i> Toothed pouncewort	Rocks and trees in sheltered humid woodland.
<i>Harpalejeunea ovata</i>	Rocks and trees in sheltered humid woodland.
<i>Jamesoniella autumnalis</i> Autumn flapwort	Acidic rock and bark in woodland.
<i>Leptoscyphus cuneifolius</i>	Birch and oak trunks and, less commonly, rocks and

<i>Wedged flapwort</i>	other tree spp.
<i>Plagiobhila exigua</i> Petty featherwort	Hazel, ash and rocks in sheltered humid woodland.
<i>Radula aquilegia</i> Brown scalewort	Moist rocks in sheltered humid woods and hillsides.
<i>Herbertus aduncus</i> Juniper prongwort	Moist humus in cool, humid, usually North facing, acidic woodland and heathland.
<i>Lophocolea fragrans</i> Fragrant crestwort	No information.

## ETYMOLOGY, CULTURE AND FOLKLORE

Bryophyte comes from the Greek *bruon* meaning moss and the Latin *phyta* meaning plant.

Liverwort comes from the Old English *lifernmyrt*, *lifer* meaning liver and *myrt* referring to a plant, especially that used to treat diseases.

## ECOLOGY AND MANAGEMENT

The higher plants, making up the major part of land vegetation, have elaborate vascular systems, leafy shoots and roots, which anchor them to the soil. Such plants are known as Cormophytes. Plants of simple structure, lacking leaves, stems or roots are called Thallophtes.

Bryophytes are in many ways intermediate between Thallophtes and Cormophytes. Mosses have leafy stems but the fine, hair-like structures anchoring them to the soil are not true roots, as microscopic study shows. Some liverworts have a simple, ribbon-like form, without stems or leaves and are clearly Thallophtic in character. At one time the thallose forms were called “liverworts” and the leafy forms “mosses”.

However this situation was further complicated when improved methods of study revealed that some of the leafy forms were clearly more akin to liverworts than mosses in their anatomy and mode of reproduction and these were therefore classified as “leafy liverworts”

In very broad terms bryophytes are divided into the large groups, mosses, liverworts and the thallose “hornworts”. Bryophytes are an exceedingly old group and its main divisions are now held to be the separate products of different lines of evolution from an unknown but very ancient ancestor dating from the Devonian period (350-400 million years ago).

Bryophytes reproduce by producing male and female gametes, these may be produced on the same or different plants. The male gametes need a thin film of water to travel to the female reproductive organs (the archegonium). The gametes fuse to form a fertilised cell (or zygote). This goes on to form a sporophyte that produces spores that give rise to a new bryophytes.

Although water is essential for their sexual reproduction, bryophytes are land plants and only a few species have secondarily adapted to aquatic environments. Only rarely is a thin

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cuticle developed and most species dry out readily. Therefore the majority of bryophytes are characteristic of moist or shady habitats. On the whole bryophytes thrive in lower light-intensities than lichens and most higher plants. They become the dominant plant forms in forests and caves.

## CURRENT FACTORS CAUSING LOSS OR DECLINE AND FUTURE THREATS

### Global.

- Global warming.
- Air pollution.

### International.

- Rock fall.
- Lack of suitable habitat.
- Lack of knowledge of the distribution and abundance of various species.
- Botanical collection.

## OPPORTUNITIES AND CURRENT ACTION

- Existing actions arising from National Biodiversity Action Plans.
- Loch Lomond and The Trossachs National Park, could commission further study on the distribution of these species, most of which are found within their boundary.

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