

Issues in bryophyte conservation and research

Paula Warren
Head Office
Department of Conservation
Wellington

Craig Miller
West Coast Conservancy
Department of Conservation
Hokitika

Published by
Department of Conservation
Head Office, PO Box 10-420
Wellington, New Zealand

This report was commissioned by Science & Research Division

ISSN 1171-9834

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Reference to material in this report should be cited thus:

Warren, P. and Miller, C., 1998

Issues in bryophyte conservation and research. *Conservation Advisory Science Notes No. 207*,
Department of Conservation, Wellington.

Keywords: bryophyte conservation, mosses, liverworts, rare species, public awareness

1. Introduction

The following issues and needs for the conservation of bryophytes (mosses and liverworts) were identified at the 11th John Child Bryophyte Workshop, held at Lake Kaniere, West Coast, in November 1995. Mosses and liverworts probably rank below invertebrates, and way below vascular plants and warm fuzzies when it comes to developing conservation or research strategies. Yet they are a significant component of New Zealand's biodiversity and thereby deserve recognition.

2. Protection of sites containing rare species

Few definitely rare bryophytes have been identified to date, but many more species are known from only one or a few collections, and many species are yet to be identified. New Zealand does have a number of endemic taxa (e.g. dendroid bryophytes, Frey & Beaver 1995).

Conservation work for rare species needs to encompass:

- a) taxonomic study of the NZ bryophyte flora;
- b) research to clarify the status of potentially rare or distinctive NZ bryophytes;
- c) legal protection of the habitats of rare bryophytes;
- d) work to restore (if necessary) and maintain the habitats of rare bryophytes.

3. Maintaining bryophyte diversity

The major thrust of bryophyte conservation must be maintaining biodiversity by protecting a representative range of habitats within the conservation estate and other protected areas. For example, the survival of the archaic dendroid bryophyte communities of the genera *Symphyogyna*, *Hymenophyton*, *Dendroligotrichum*, *Hypnodendron*, and *Hypoterygium* (thought to be remnants of the Gondwanan flora) depends on the protection of the remaining conifer/broad-leaved and beech forests of New Zealand (Frey & Beaver 1995).

To achieve this, two actions must be taken:

1. Ensuring that the conservation estate is representative in terms of bryophyte diversity. Two areas in particular lend themselves to assessment in the short term:
 - Determining whether the current South Island high country tenure review process is adequately assessing bryophyte values.
 - Determining whether there are some ecosystems that have been excluded from the conservation estate because they were considered to have low conservation value, e.g. due to modification of forest cover, but which have conservation value because of their bryophyte communities.

It is proposed that Science and Research Division and the Otago Conservancy consider carrying out or commissioning a study of one pastoral tenure case to see whether the current criteria and processes are producing a satisfactory outcome in terms of bryophyte conservation.

It is important to note that sites which may be rich in vascular species are not necessarily rich in bryophyte species or communities.
2. Ensuring that EIA processes for activities on the estate adequately consider bryophyte issues, given that bryophyte importance and vulnerability may be quite different from that of other ecosystem components.

4. Working with other agencies

Work with other agencies (e.g. Local Government Association and Transit NZ) to develop guidelines for maintenance of areas which have high bryophyte diversity (e.g. roadsides) and offer the public easy access to, and interpretation of, bryophytes.

5. Public awareness

Work to increase public awareness and appreciation of bryophytes, e.g. through publications, displays, interpretation talks and field trips.

6. Increase the availability and quality of information

- a) Provide information on the identification by bryophytes and in particular promote the production of comprehensive and user-friendly liverwort and moss flora guides.
- b) Conduct research into bryophyte ecology, particularly information on their sensitivity to environmental changes.

7. Reference

Frey, W. and Beaver J E. 1995. Dendroid bryophyte communities. *Nova Hedwigia* 61: 323-354.