



CASE STUDIES - ESPC Target 8

60% of threatened plant species in accessible ex situ collections, preferably in the country of origin, and 10% of them included in recovery and restoration programmes

Conservation of Bryophytes ex-situ

GSPC Target 8 (ESPC targets 1.9, 2.4-6, 2.11)

ESPC target 2.6: At least 12 priority species of bryophyte brought into ex-situ conservation and methodology promoted internationally

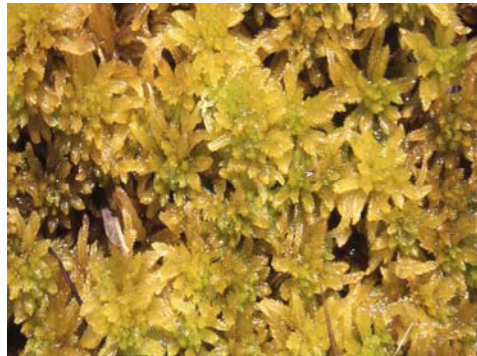
Relevant species or habitats

The endangered bryophytes in the programme are: *Aplodon wormskjoldii* (Hornem.) Kindb.; *Bartramia stricta* Brid.; *Cyclodictyon laetevirens* Mitt.; *Ditrichum cornubicum* Paton; *Ditrichum plumbicola* Crundw.; *Jamesoniella undulifolia* (Nees) Müll. Frib.; *Leptodontium gemmascens* (Mitt. Ex Hunt) Braithw.; *Micromitrium tenerum* (Bruch & Schimp.) Crosby; *Orthodontium gracile* Schwägr. ex Bruch, Schimp. & W. Gümbel; *Orthotrichum obtusifolium* Brid.; *Orthotrichum pallens* Bruch ex Brid.; *Rhynchostegium rotundifolium* (Brid.) Bruch, Schimp. & W. Gümbel; *Seligeria carnicolica* (Breidl. & Beck) Nyholm; *Tortula cernua* (Huebener) Lindb. *Weissia multicapsularis* (Sm.) Mitt.; *Weissia rostellata* (Brid.) Lindb; *Zygodon forsteri* (Dicks.) Mitt.; *Zygodon gracilis* Wilson

Project coordinators Royal Botanic Garden, Kew (UK)

Partner organisations Countryside Council for Wales, Natural England, Scottish Natural Heritage

Funding mechanisms



Weissia sp. - Sphagnaceae - *Schistostegia pennata* (British Bryological Society website)

Description

Since 2000 the Royal Botanic Gardens Kew have been developing a programme to standardise methods for the collection, sterilisation, tissue culture production and cryopreservation of bryophytic material. The current focus of the work is to expand the living and cryopreserved bryophyte collection, and to develop methods for introducing specific species into their natural environment. There is an emphasis on developing *ex situ* techniques as a complement to, and not a replacement for, *in situ* conservation efforts.

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Conservation of Bryophytes ex-situ

Description (II)

Collection: Three protocols have been produced and circulated for the collection of a) desiccation tolerant mosses, b) desiccation intolerant mosses and leafy liverworts and c) thalloid liverworts and hornworts. The protocols emphasise the importance of limiting detrimental effects to the *in situ* populations and collecting representative genetic samples.

Propagation: Bryophytes are grown in axenic culture (without fungal, algal and bacterial contaminants) in the *ex situ* collection. Although artificial, axenic culture provides a more uniform and secure method of maintaining plants in a tissue culture collection, which can prevent material being overwhelmed by contaminants during recovery from cryopreservation, and allows them to be transported across international borders.

Storage: Cryopreservation is the storage of living material at -196 oC in liquid nitrogen and has been used successfully for the long-term storage of many different plants. A standard protocol has been developed for the cryopreservation and recovery of protonemal material and protocols are under development for leafy gametophores.

Date of case study

Citations and Publications

Contacts micropropagation@kew.org

Website www.rbg-web2.rbge.org.uk/bbs/Learning/exsitu/exsitu.htm

