



## A special issue of *Phytotaxa* dedicated to Bryophytes: The closest living relatives of early land plants

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The current issue of *Phytotaxa* is dedicated to a group of green land plants commonly referred to as bryophytes. A broad consensus confirms that bryophytes may not be monophyletic, but rather represent three paraphyletic lines, i.e., Marchantiophyta (liverworts, e.g., Fig. 1), Anthocerotophyta (hornworts, e.g., Fig. 2), and Bryophyta (mosses, e.g., Fig 3) (e.g., Mishler & Churchill 1984, Kenrick & Crane 1997, Buck & Goffinet 2000, Crandall-Stotler & Stotler 2000, Shaw & Renzaglia 2004). Together, bryophytes are the second largest group of land plants after flowering plants, and are pivotal in our understanding of early land plant evolution (Garbary *et al.* 1993, Kenrick & Crane 1991, 1997, Shaw & Renzaglia 2004). A growing body of evidence is now supporting liverworts as the earliest diverging lineage of embryophytes, i.e., sister to all other groups of land plants (e.g., Mishler *et al.* 1994, Wellman *et al.* 2003, Qiu *et al.* 2006).

Bryophytes are important components of the vegetation in many regions of the world, constituting a major part of the biodiversity in moist forest, wetland, mountain and tundra ecosystems (Hallingbäck & Hodgetts 2000). Together, the three lineages, play a significant role in the global carbon budget (O'Neill 2000) and CO<sub>2</sub> exchange (De Lucia *et al.* 2003), plant succession (Cremer & Mount 1965), production and phytomass (Frahm 1990), nutrient cycling (Coxson *et al.* 1992) and water retention (Pócs 1980, Gradstein *et al.* 2001). Bryophyte communities offer microhabitats that are critical to the survival of a tremendous diversity of organisms such as single-celled eukaryotes, protozoa and numerous groups of invertebrates (Gerson 1980). These groups of plants are also important environmental indicators (Rao 1980, Gradstein *et al.* 2001, Pitcairn *et al.* 1995, Giordano *et al.* 2004) and have been used as predictors of past climate change, to validate climate models and as potential indicators of global warming (Gignac 2001).

The compilation of this volume can be attributed to a community effort and the high quality of papers is the product of all those who participated as reviewers, contributors and editorial support. In preparing for the volume, it became evident that the study of liverworts, hornworts, and mosses remains strong and has a healthy future as evidenced by contributions from senior scientists, post-doctoral researchers and doctoral students. We include 13 scientific papers from 35 authors. We hope the broad scope of papers will draw wide appeal and interest beyond the study of bryophytes. The papers include a broad array of disciplines and subjects, including biogeography, checklists and distribution, conservation, delimitation of species, fungal symbioses in bryophytes, molecular phylogenetics, species richness and systematics.

In this issue, we provide a rare collection of publications in a broad-based botanical journal that are solely dedicated to these remarkable plants. The first paper forges a new partnership between the Early Land Plants Today (ELPT) project and *Phytotaxa*. The ELPT project is a community-driven effort attempting to address the critical need to synthesize the vast nomenclatural, taxonomical and global distributional data for liverworts and hornworts. This effort is fundamental toward the development of a working list of all known plant species under the auspices of the Convention on Biological Diversity (CBD) and the Global Strategy for