



50th anniversary of IAB

MICHAEL STECH, MATT VON KONRAT, PAULO E.A.S. CÂMARA, RAFAEL MEDINA, JESÚS MUÑOZ & DIETMAR QUANDT (Eds.)

Editorial

5. **Special issue of Bryophyte Diversity & Evolution: 50th anniversary of IAB**
BERNARD GOFFINET
6. **Advances and challenges in bryophyte biology after 50 years of International Association of Bryologists**
MICHAEL STECH, PAULO E.A.S. CÂMARA, RAFAEL MEDINA & JESÚS MUÑOZ

Articles

10. **50 years of the International Association of Bryologists**
S. ROBBERT GRADSTEIN
14. **Checklist of fossil liverworts suitable for calibrating phylogenetic reconstructions**
KATHRIN FELDBERG, S. ROBBERT GRADSTEIN, CARSTEN GRÖHN, JOCHEN HEINRICHS†, MATT VON KONRAT, YURIY S. MAMONTOV, MATT A. M. RENNER, MADITA ROTH, ALFONS SCHÄFER-VERWIMP, PHIANGPHAK SUKKHARAK & ALEXANDER R. SCHMIDT
72. **Fossil mosses: What do they tell us about moss evolution?**
MICHAEL S. IGNATOV & ELENA V. MASLOVA
98. **The diversity of the Polytrichopsida—a review**
NEIL BELL, ISURU KARIYAWASAM, JORGE FLORES & JAAKKO HYVÖNEN
112. **The mitochondrial genomes of bryophytes**
SHANSHAN DONG & YANG LIU
127. **An illustrated step-by-step protocol for investigating liverwort chromosomes**
ARETUZA SOUSA & SUSANNE S. RENNER
133. **Does degeneration or genetic conflict shape gene content on UV sex chromosomes?**
SARAH B. CAREY, LESLIE M. KOLLAR & STUART F. MCDANIEL
150. **Karyotypic diversity and cryptic speciation: Have we vastly underestimated moss species diversity?**
NIKISHA PATEL, RAFAEL MEDINA, MATTHEW JOHNSON & BERNARD GOFFINET
164. **Polyploidization within the Funariaceae—a key principle behind speciation, sporophyte reduction and the high variance of spore diameters?**
ANNA K. OSTENDORF, NICO VAN GESSEL, YARON MALKOWSKY, MARKO S. SABOVLJEVIC, STEFAN A. RENSING, ANITA ROTH-NEBELSICK & RALF RESKI

180. **Evidence for interspecific hybridization in bryophytes during pre-molecular and molecular eras**
WEERACHON SAWANGPROH & NILS CRONBERG
206. **Island biogeography: an avenue for research in bryology**
JAIRO PATIÑO & ALAIN VANDERPOORTEN
221. **Antarctic bryophyte research—current state and future directions**
PAULO E.A.S. CÂMARA, MICHELINE CARVALHO-SILVA & MICHAEL STECH
234. **500 million years of charted territory: functional ecological traits in bryophytes**
DANIEL E. STANTON & KIRSTEN K. COE
253. **Bryophytes as key indicators of ecosystem function and structure of northern peatlands**
DALE H. VITT & MELISSA HOUSE
265. **Cell wall polymers in the *Phaeoceros* placenta reflect developmental and functional differences across generations**
JASON S. HENRY, ROBERTO LIGRONE, KEVIN C. VAUGHN, RENEE A. LOPEZ
& KAREN S. RENZAGLIA
284. **Advances in understanding of mycorrhizal-like associations in bryophytes**
SILVIA PRESSEL, MARTIN I. BIDARTONDO, KATIE J. FIELD & JEFFREY G. DUCKETT