

BL2021 July 6–9, 2021
Virtual meeting from Université Laval, Quebec, Canada
Overview of program

Tuesday July 06

- 8.30AM-9.20AM: Welcoming address
- 9.30AM-11.30AM: Morning sessions
Room 1: Symposium: Emerging golden era for tackling 50 fundamental research questions in bryology
Room 2: Lichen biology
- 11.30AM-1.30PM: Lunch break
- 1.30PM-3.30PM: Afternoon sessions
Room 1: Symposium: State of the art in Dicranidae systematics
Room 2: Workshop: Biodiversity data publication – from specimen and observation to open data
Room 3: Anatomy and morphology of bryophytes and vascular plants
- 3.30PM-4.00PM: Break
- 4.00PM-4.50PM: Plenary lecture: Jana Vamosi “Reversing extinction trends: new uses for (old) herbarium specimens to accelerate conservation of threatened species”

Wednesday July 07

- 8.30AM-9.20AM: Plenary lecture: Bryan Piatkowski “From genes to traits and ecosystems: reconstructing the evolution of extended phenotypes in *Sphagnum* (peat moss)”
- 9.30AM-11.30AM: Morning sessions
Room 1: Symposium: Genomic patterns and processes in the diversification of the Funariaceae
Room 2: Symposium: Impacts of climate change on bryophyte function and distribution
Room 3: Autoecology of bryophytes and vascular plants
- 11.30AM-1.30PM: Lunch break
CBA lunchtime section meetings
- 1.30PM-3.30PM: Afternoon sessions
Room 1: Symposium: The biology of *Sphagnum*
Room 2: Workshop: The Dicranidae Working Group: challenges and tasks
Room 3: Conservation of bryophytes and vascular plants
- 3.30PM-4.00PM: Break
- 4.00PM-6.00PM: Poster session
- 7.00PM Public talk: Nicole Fenton & Marc Favreau “Les bryophytes au Québec: une diversité à découvrir!”

Thursday July 08

- 8.30AM-9.20AM: Plenary lecture: Mélanie Jean “Disturbance, growth, succession and nitrogen fixation in the boreal forest: a bryophyte perspective”
- 9.30AM-11.30AM: Morning sessions
Room 1: Symposium: Understanding ecosystem restoration and ecological functioning through bryophytes and lichens
Room 2: Symposium: Hornworts: the Next Generation
Room 3: Systematics, taxonomy, and floristics
- 11.30AM-1.30PM: Lunch break
CBA lunchtime teaching section meeting or
IAB Spruce Talk: Matt Renner “Some unlikely extrapolations from the improbable architecture of *Herzogianthus vaginatus* (Herzogianthaceae)”
- 1.30PM-3.30PM: Afternoon sessions
Room 1: Symposium: Dimensions of biodiversity in a dryland moss: *Syntrichia* from genomes to ecosystems
Room 2: Workshop: Community science
Room 3: Community ecology of bryophytes, lichens, and vascular plants I
- 3.30PM-4.00PM: Break
- 4.00PM-6.00PM: Poster session

Friday July 09

- 8.30AM-9.20AM: Plenary lecture: Yoan Coudert “Off with their head! A tale of decapitation and auxin”
- 9.30AM-11.30AM: Morning sessions
Room 1: Symposium: Sex determination and UV sex chromosomes
Room 2: Evolutionary developmental biology of bryophytes and vascular plants
Room 3: Climate change and algae, bryophytes and vascular plants
- 11.30AM-1.30PM: Lunch break
- 1.30PM-3.30PM: Afternoon sessions
Room 1: Kindness workshop
Room 2: Symposium: Phylogenomics through targeted enrichment in bryophytes
Room 3: Community ecology of bryophytes, lichens, and vascular plants II
- 3.30PM-4.00PM: Break
- 4.00PM-6.00PM: All society awards ceremony

Detailed program

Tuesday July 06

8.30AM-9.20AM: Welcoming address

9.30AM-11.30AM: Morning sessions

Room1: Symposium: Emerging golden era for tackling 50 fundamental research questions in bryology (Patiño & Bisang)

OP 1: (214-LBYJ-166): Fenton. Where do they live? Discerning the unknown distributions of bryophytes.

OP 2: (214-QFN3-114): Bisang. What we want to know about bryophyte life history traits and how they relate to bryophyte sex ratios, dispersal ecology and extinction risks.

OP 3: (214-dFeh-94): Hedenäs. Bryophyte conservation in a biodiversity crisis.

OP 4: (214-Gfrh-114): Pressel et al. Bryophyte biotic interactions and productivity with a focus on mycorrhizal-like associations.

OP 5: (214-NDZN-124): Medina. Beyond the sphynxes: current (and renewed) challenges in bryophyte systematics and evolution.

Followed by discussion

Room 2: Lichen biology

OP 6: (214-L4X2-124) Vuong et al. Investigating the relationship between tree ecophysiology and hosted communities of epiphytic bryophytes and lichens

OP 7: (214-NjBR-124) Flores et al. Arboreal gastropod grazing in macro-lichen communities of western Newfoundland.

OP 8: (214-Q9Me-63) Bell-Doyon et al. Calicioid fungi and lichens from an unprotected intact forest ecosystem in Québec.

OP 9: (214-b456-74) Alonso-García & Villarreal. Microbial community associated to lichens in a post-fire succession.

OP 10: (214-ovr2-233) Darnajoux et al. Ecosystem scale evidence for the contribution of vanadium-based nitrogenase to biological nitrogen fixation.

OP 11: (214-D82J-124) McDonald. Toward the transportome of the lichen *Peltigera britannica*.

11.30AM-1.30PM: Lunch break

1.30PM-3.30PM: Afternoon sessions

Room1: Symposium: State of the art in Dicranidae systematics (Stech)

OP 12: (214-8kJi-124): Brinda & Atwood. The Backbone of Bryoinformatics: Compiling, maintaining, and disseminating a critical taxonomic resource.

OP 13: (214-L87Q-134): Bippus. The fossil record of haplolepidous mosses and its potential for time-calibrating phylogenies.

OP 14: (214-8B48-134): Bonfim Santos et al. Recent advances in Dicranidae phylogenetics.

- OP 15: (214-9stX-94): Ruche et al. Peristome anatomy and ontogeny studies advance the understanding of evolution within the haplolepideous mosses.
- OP 16: (214-aoFZ-184): Fedosov & Fedorova. Dicranidae in North Asia: cryptic species, clear species and higher level lineages unknown so far.
- OP 17: (214-DwKv-114): Escolástico-Ortiz et al. Elucidating the phylogeographic history and post-glacial demographic signatures of the moss *Racomitrium lanuginosum* Brid.

Room 2: Workshop: Biodiversity data publication – from specimen and observation to open data (Sinou)

Room 3: Anatomy and morphology of bryophytes and vascular plants

- OP 18: (214-aJv4-114) Lee et al. Narrow species concept and the unsupported subgeneric delimitations in the molecular phylogeny of *Lejeunea* (Lejeuneaceae).
- OP 19: (214-8KsE-104) Higgins. Liverwort oil bodies: often overlooked beautiful and distinct cell features.
- OP 20: (214-usRT-124) Duckett & Pressel. Why do bryophyte gametophytes lack stomata?
- OP 21: (214-V3Hv-64) Shimamura et al. Rotation angle of apical cell division plane controls spiral phyllotaxis in mosses.
- OP 22: (214-ro8G-94) von Aderkas. Somatic embryogenesis of weevil-resistant phenotypes of Sitka spruce.
- OP 23: (214-ZWFa-124) Tattree et al. Using computational models to investigate vein patterning and programmed cell death in lace plant (*Aponogeton madagascariensis*) leaves.

3.30PM-4.00PM: Break

4.00PM-4.50PM: **Plenary lecture**

OP 24: (214-aZfP-206) Jana Vamosi “Reversing extinction trends: new uses for (old) herbarium specimens to accelerate conservation of threatened species”

Wednesday July 07

8.30AM-9.20AM: **Plenary lecture**

OP 25: Bryan Piatkowski “From genes to traits and ecosystems: reconstructing the evolution of extended phenotypes in *Sphagnum* (peat moss)”

9.30AM-11.30AM: Morning sessions

Room1: Symposium: Genomic patterns and processes in the diversification of the Funariaceae (Patel & Johnson)

- OP 26: (214-1jvj-124): Kirbis et al. Genome evolution and sporophyte complexity in the moss family Funariaceae.
- OP 27: (214-tqb9-124): Hass & Rensing. The genomic history of *P. patens*.
- OP 28: (214-YXad-124): Patel et al. Whole genome duplication and reticulate evolution in the *Physcomitrium pyriforme* species complex.

- OP 29: (214-gYVQ-124): Williams et al. Testing for cryptic species in *Physcomitrium pyriforme* using target capture sequencing of 800 nuclear genes.
- OP 30: (214-SSfy-206): Rahmatpour et al. Apospory-induced whole genome duplication triggers immediate shifts gene expression in the moss *Funaria hygrometrica*
- Followed by discussion

Room 2: Symposium: Impacts of climate change on bryophyte function and distribution (Golinski and Doubt)

- OP 31: (214-A5my-253) Sim-Sim et al. Effects of elevation and disturbances on the diversity of bryophytes in laurel forests of Madeira island.
- OP 32: (214-JyLq-124) Indorf et al. Vegetation structure in boreal peatlands of North-western Québec.
- OP 33: (214-vq3A-124) Flagmeier et al. Dispersal and taxonomy in disjunct oceanic-montane liverworts.
- OP 34: (214-HTV8-124) Menchions et al. Can species distribution modelling improve climate threat assessments for bryophytes-at-risk in Canada?
- OP 35: (214-fqAp-134) Zanatta et al. Bryophytes are predicted to lag behind future climate change despite their high dispersal capacities.
- Followed by panel discussion

Room 3: Autoecology of bryophytes and vascular plants

- OP 36: (214-qWwo-124) NualKam & Sawangproh. Comparison of bryophyte cultivation in three different types of substrates.
- OP 37: (214-8r5F-124) Cheng et al. Intra- and interspecific interaction during early stages of moss development in vitro.
- OP 38: (214-oEiZ-124) Stanton et al. Predictors of epiphytic bryophyte and lichen biomass and hydrologic impact across a boreal-temperate ecotone.
- OP 39: (214-RdC4-124) Spiegelberg et al. The importance of moss shoot and colony traits on their desiccation dynamics.
- OP 40: (214-WuuZ-164) Peñaloza-Bojacá et al. Are hornworts delicate plants? Contrasting effects of desiccation on gametophytes and sporophytes of hornworts.
- OP 41: (214-ef3y-134) Bengtsson et al. The phenology of Bryophytes revisited after 150 years through eDNA.
- OP 42: (214-hWqY-24) Hagelstam-Renshaw et al. Biome evolution in subfamily Cercidoideae (Fabaceae).

Lunch break or CBA lunchtime section meetings

1.30PM-3.30PM: Afternoon sessions

Room 1: Symposium: The biology of *Sphagnum* (Piatkowski & Gauthier)

- OP 43: (214-44sp-134) Bengtsson. *Sphagnum* traits and growth in a changing world.
- OP 44: (214-jGCp-124) Lamkowski. Heterosis as a possible explanation of successful niche occupation in allodiploid *Sphagnum* species.

- OP 45: (214-R5Yv-174) Wieder et al. Nitrogen in bogs: it's complicated.
- OP 46: (214-7CeU-124) Carrell et al. *Sphagnum* peat moss thermotolerance is modulated by the microbiome.
- OP 47: (214-sQ6k-64) Imwattana & Shaw. Patterns of between species and within species gene flow and demographic history in *Sphagnum flexuosum* and *Sphagnum recurvum*.
- OP 48: (214-9FS6-224) Healey et al. Genomic diversity of keystone peat bog moss *Sphagnum*.

Room 2: Workshop: The Dicranidae Working Group: challenges and tasks (Price)

Room 3: Conservation of bryophytes and vascular plants

- OP 49: (214-ptA7-124) Budke et al. Building a Global Consortium of Bryophytes and Lichens: Keystones of Cryptobiotic Communities (GLOBAL).
- OP 50: (214-27gW-124) Wu et al. Detecting the phylogenetic signal of glacial refugia in a bryodiversity hotspot outside the Tropics.
- OP 51: (214-tU7S-164) Cerrejón et al. Small but visible: predicting the distribution and richness of rare bryophytes in boreal forests through remote sensing.
- OP 52: (214-dANb-114) Sierra et al. The plight of plants in light of deforestation in the Amazon: Insights from epiphyllous metacommunity dynamics.
- OP 53: (214-4JPG-54) Calleja et al. Rebuilding the transatlantic bridge of *Orthotrichum consimile* group (Orthotrichaceae, Bryophyta) and predicting its geographical suitability in Europe.
- OP 54: (214-Q6tM-124) Piché-Mongeon et al. The origins and conservation genetics of *Cirsium scariosum* in the Mingan Islands of Québec.
- OP 55: (214-8qk4-123) Robson. From Models to Mummies: Combating plant blindness through museum exhibits.

3.30PM-4.00PM: Break

4.00PM-6.00PM: **Poster session**

7.00PM: **Public talk**

OP 56: Nicole Fenton & Marc Favreau “Les bryophytes au Québec: une diversité à découvrir!”

Thursday July 08

8.30AM-9.20AM: **Plenary lecture**

OP 57: (214-Ef9g-206) Mélanie Jean “Disturbance, growth, succession and nitrogen fixation in the boreal forest: a bryophyte perspective”

9.30AM-11.30AM: Morning sessions

Room 1: Symposium: Understanding ecosystem restoration and ecological functioning through bryophytes and lichens (Caners)

OP 58: (214-ZAuy-124) Rochefort. The bryophyte friends of ecological restoration in northern climates.

- OP 59: (214-NGvZ-14) Wiersma et al. What do lichens tell us about landscapes?
- OP 60: (214-b1i7-64) Caners et al. Rich fens may be prone to retrogressive succession after in situ oil sands exploration disturbance without restoration measures.
- OP 61: (214-P1C4-24) Dabros et al. Bryophyte and lichen responses to environmental changes resulting from seismic line disturbance in boreal ecosystems of northwestern Alberta.
- OP 62: (214-eEX2-115) Strack. The role of bryophytes in carbon exchange in disturbed and restored peatlands in Canada.

Room 2: Symposium: Hornworts: the Next Generation (Li)

- OP 63: (214-7KGL-124) Renzaglia & Villarreal. Hornwort biology and a new era of possibilities.
- OP 64: (214-fekL-114) Shimamura. Cell biology of hornworts.
- OP 65: (214-7srD-124) Szövényi et al. Closing the gaps: Hornwort evolutionary developmental biology.
- OP 66: (214-pdc1-124) Frangedakis et al. The lab life of the model hornwort *Anthoceros agrestis*, from spores to transformation.
- OP 67: (214-L7K9-124) Li et al. Expanding the genomic and genetic toolkits for hornwort research.
- OP 68: (214-5iEJ-124) Chatterjee et al. Differential gene expression in the hornwort *Anthoceros punctatus* during establishment of its nitrogen-fixing symbiosis with the cyanobacterium *Nostoc punctiforme*.

Room 3: Systematics, taxonomy, and floristics

- OP 69: (214-WV6c-134) Phephu et al. Centres of bryophyte endemism in southern Africa.
- OP 70: (214-9EM2-263) San Román et al. Continental drift originated the E African - S Indian disjunction of *Lewinskya firma* (Orthotrichaceae, Bryopsida): fact or fiction?
- OP 71: (214-pAup-124) Starr et al. Targeted sequencing supports morphology and embryo features in resolving the classification of Cyperaceae tribe Fuireneae s.l.
- OP 72: (214-RLYH-184) Fedosov et al. Integrative taxonomic study disclosed a hidden diversity in hygrophilous species of the genus *Pseudohygrohypnum*.
- OP 73: (214-SYeZ-84) Carter et al. Spatial phylogenetics of the North American moss flora.
- OP 74: (214-Mm1i-54) Ibarra-Morales et al. Hornwort (Anthocerotophyta) diversity in Mexico.
- OP 75: (214-pQiT-114) Shaw et al. Systematics of the *Sphagnum magellanicum* complex: genomics, phylogeny, ecology, and taxonomy.

Lunch break or CBA lunchtime teaching section meeting

OP 76: (214-9BG1-66) IAB Spruce Talk: Matt Renner "Some unlikely extrapolations from the improbable architecture of *Herzogianthus vaginatus* (Herzogianthaceae)"

1.30PM-3.30PM: Afternoon sessions

Room 1: Symposium: Dimensions of biodiversity in a dryland moss: *Syntrichia* from genomes to ecosystems (Mishler)

- OP 77: (214-BaR9-124) Oliver et al. Genomes of *Syntrichia*: insights into traits, populations, ecology, and evolution.
- OP 78: (214-3b7W-124) Fisher et al. Population genetic structure in *Syntrichia caninervis*.
- OP 79: (214-bTHM-124) Ekwealor et al. A global phylogeny of the dryland moss genus *Syntrichia*.
- OP 80: (214-iD8m-124) Mishler et al. Phylogenetic systematics of *Syntrichia*: a tale of two Codes.
- OP 81: (214-6498-124) Coe et al. Physiological responses to rainfall in the desiccation tolerant moss *Syntrichia caninervis*: The role of acclimation and local adaptation.
- OP 82: (214-ePSE-124) Slate et al. Rehydration in dryland mosses: environmentally driven influences including prehydration.
- OP 83 (214-a2Cb-124) Rengifo Faiffer. Moss-dominated biocrusts show successional reversal and compositional resistance after persistent rainfall reduction

Room 2: Workshop: Community science (Super & von Aderkas)

Room 3: Community ecology of bryophytes, lichens, and vascular plants I

- OP 84: (214-BPb9-64) Crofts & Brown. An examination of pattern-process relationships at a model krummholz-island treeline in Newfoundland, Canada.
- OP 85: (214-Q8eQ-124) Rinas et al. Diversity and composition of arboreal bryophytes and lichens along a temperate to boreal elevation gradient at Mont Mégantic National Park, Québec.
- OP 86: (214-4kTa-283) Tucker & La Farge. Bryophyte Communities in *Quercus garryana* ecosystems on south east Vancouver Island: Preliminary mesohabitat assessment.
- OP 87: (214-atNg-303) Hernández-Rodríguez et al. Habitat fragmentation and its role on bryophyte diversity: a study in the boreal forest.
- OP 88: (214-6Ypm-84) Kowal et al. Heathland vegetation ecology relies on specific symbiotic fungi.
- OP 89: (214-rgsA-94) Lundholm et al. Vegetation classification and ecology of barrens and heathlands in Nova Scotia.
- OP 90: (214-RZG8-164) Casanova-Katny et al. Moss diversity in plant communities associated with a penguin rookery on Deception Island, Maritime Antarctica.

3.30PM-4.00PM: Break

4.00PM-6.00PM: Poster session

Friday July 09

8.30AM-9.20AM: **Plenary lecture**

OP 91: (214-Qkks-116) Yoan Coudert “Off with their head! A tale of decapitation and auxin”

9.30AM-11.30AM: Morning sessions

Room 1: Sex determination and UV sex chromosomes (Bowman)

- OP 92: (214-EY8d-154) Coelho. Evolution of sexual systems in the brown algae.
- OP 93: (214-31s1-84) Umen et al. A conserved genetic switch determines volvocine algal sex and mating-types.
- OP 94: (214-vCAV-166) Carey et al. Ancient, gene-rich sex chromosomes in *Ceratodon* harbor conserved regulators of sexual development
- OP 95: (214-MsWb-124) Kohchi et al. Sex determination system in the liverwort *Marchantia polymorpha*.
- OP 96: (214-sYUE-64) Bowman & Singh. Whither the sex chromosome during the evolution of monoicy from ancestral dioicy.

Room 2: Evolutionary developmental biology of bryophytes and vascular plants

- OP 97: (214-XCXe-164) Li et al. Clade III TGACG-motif binding basic leucine zipper transcription factors mediate BLADE-ON-PETIOLE dependent regulation of plant development.
- OP 98: (214-6hu1-224) Kapoor et al. Discerning biological function of the cytosine methyltransferase DNMT2 in the moss *Physcomitrium patens*.
- OP 99: (214-xhTP-124) Walker et al. Extensive N4 cytosine methylation is essential for *Marchantia* sperm function.
- OP 100: (214-RaTh-44) Yaari et al. Novel de novo DNA methylation by CMT and DNMT3 orthologs in *Physcomitrella patens* and their role in genome regulation.
- OP 101: (214-Ldh3-74) Althoff & Zachgo. *Riccia fluitans*, an informative amphibious liverwort to study plant terrestrialization.
- OP 102: (214-5qc9-124) Li et al. Role of Phytochelatin Synthase in heavy metal detoxification in the early land plant *Marchantia polymorpha*.
- OP 103: (214-BAsn-124) Gunadi et al. Finetuning the in vitro growth of the model hornwort *Anthoceros agrestis*

Room 3: Climate change and algae, bryophytes and vascular plants

- OP 104: (214-WjSj-164) Garbary et al. Climate change and a new dominant seaweed on the Atlantic coast of Nova Scotia.
- OP 105: (214-Le7A-273) Sampson et al. Evaluating salt marsh rhizosphere carbon stocks and arbuscular mycorrhizal colonization across a chronosequence in the Bay of Fundy, Nova Scotia.
- OP 106: (214-Mxth-164) Hill & Garbary. Implications of warming for conservation of endangered plants: a Nova Scotian case study.
- OP 107: (214-kbo8-44) Léger-Beaulieu et al. Experimental warming and drying reveals high stress resistance in jack pine versus reduced carbon uptake and growth in black and white spruce.
- OP 108: (214-q2u3-104) Super et al. Exploring phytobiomes and bulk soils across biogeoclimatic zones in the coast, interior, and northern British Columbia.
- OP 109: (214-X8q7-104) Martínéz-Abaigar et al. The question remains: are bryophytes tolerant to ultraviolet-B radiation?

OP 110: (214-jVtT-214) Kumar Saxena & Saxena. Mosses as biomonitors: atmospheric metal load of pre- and post pandemic periods.

Lunch break

1.30PM-3.30PM: Afternoon sessions

Room 1: Kindness workshop (von Aderkas)

Room 2: Symposium: Phylogenomics through targeted enrichment in bryophytes (Burleigh)

OP 111: (214-39j3-114) Bechteler et al. New insights into the liverwort and moss backbone phylogeny using the GoFlag probe kit.

OP 112: (214-nsxm-124) Wickett et al. Applying an 802-gene probe set to moss phylogenetics, with an emphasis on the pleurocarp lineage.

OP 113: (214-6RBk-144) Budke et al. Exploring systematic relationships and morphological evolution in the moss genus *Fissidens* using data generated from herbarium specimens.

OP 114: (214-Msoo-114) Villarreal et al. A 400-locus phylogeny of the hornworts unveils new relationships and new insights on character evolution and diversification.

OP 115: (214-LhRb-124) Jauregui et al. Trait evolution and biogeography of *Syntrichia* Brid.

OP 116: (214-SB9m-263) Draper et al. Phylogeny of Orthotricheae (Orthotrichaceae, Bryophyta) under the light of the GoFlag data.

Room 3: Community ecology of bryophytes, lichens, and vascular plants II

OP 117: (214-wgMk-15) Medina et al. Epiphytic bryophyte diversity in *Juglans neotropica* plantations of Ecuador.

OP 118: (214-RyWG-104) Rodríguez-Rodríguez et al. Tree-forest composition drives bacterial associations with feather-mosses.

OP 119: (214-XkwQ-44) Yin et al. Off-site impacts of mines on understory plants and moss phyllosphere bacteria in boreal ecosystems: integrating mine stages and habitats.

OP 120: (214-74QB-124) McDonald et al. Revegetation of disturbed lands: establishing native plant communities on borrow pits in northern Manitoba.

OP 121: (214-1xKP-94) Bishop et al. The impacts of rock climbing on lichen and bryophyte cliff communities in northwestern North America.

OP 122: (214-fVAV-154) Zgurzynski & Vasseur. Native plant and insect communities along perimeter plantings and interiors of vineyards.

OP 123: (214-FEog-283) Garand et al. How does larch influence the composition of herbaceous and bryophyte species in the understory?

3.30PM-4.00PM: Break

4.00PM-6.00PM: All society awards ceremony

Poster abstracts

- PP 1: (214-3XnE-124) Alisha et al. Evolutionary and functional analysis of SQUAMOSA-PROMOTER BINDING PROTEIN-LIKE (SPL) gene family in *Marchantia polymorpha*, an emerging model plant system.
- PP 2: (214-p4Zv-124) Asadboland et al. Growth inhibition effects of some mosses on the phytopathogenic fungus "*Bipolaris sorokiniana*".
- PP 3: (214-oMe9-134) Baines & Arsenault. Observations and experiments on lichen grazing in Atlantic Canada.
- PP 4: (214-Lg5A-74) Belhacini. Contribution to the study of the lichen diversity in the Remchi region (Tlemcen western Algeria).
- PP 5: (214-SM3d-64) Burt et al. Systematic revision of *Cuscuta* L. section *Indecorae*: a combined ecological, morphometric, and phylogenetic approach.
- PP 6: (214-hytw-213) Cameron. Protected areas become increasingly important for lichen conservation with a changing climate in Nova Scotia, Canada.
- PP 7: (214-9u6R-114) Cox et al. Floristics and Barcoding of Low Arctic Bryophytes.
- PP 8: (214-is9D-94) Diop et al. Chromosomal-scale assembly of *Marchantia paleacea*.
- PP 9: (214-Ztf8-124) Duckett et al. New insights on post fire bryophyte succession.
- PP 10: (214-9xt8-94) Fujimoto et al. Green pigmented cell clusters induced by Fipexide on *Sphagnum capilliforium*.
- PP 11: (214-qn4F-114) Glofcheskie et al. Diversity and Evolution of Inflorescence in *Cuscuta*.
- PP 12: (214-qPvs-54) Ibarra-Morales & Valencia-Avalos. On *Paraphymatoceros* sp. (Anthocerotophyta) from Mexico.
- PP 13: (214-Pg3G-124) Indorf et al. A review of the current situation of three *Sphagnum* spp. in Québec, Canada: *S. divinum* Flatberg & Hassel, *S. medium* Limpr., and *S. venustum* Flatberg.
- PP 14: (214-yqLg-104) Inoue & Aung. *Hymenostyliella llanosii* (Pottiaceae) new to Myanmar and its phylogenetic position.
- PP 15: (214-drFy-124) Khan & Gilani. A contribution to the Bryophyte flora of Pakistan: Some recent developments in Bryology.
- PP 16: (214-dHJU-74) Katagiri & Shinden. Discovery of a simple thalloid liverwort *Metzgeriites kujiensis* from Late Cretaceous Japanese amber.
- PP 17: (214-Vd6S-124) Lemieux et al. The North American moss, *Physcomitrium immersum*, is a hybrid species of yet unresolved progenitors.
- PP 18: (214-m9Bn-114) Liébana et al. Effects of copper-polluted soil on the moss *Tortella squarrosa* in culture: damages observed in moss tissues and amelioration by two soil amendments.
- PP 19: (214-6fk9-114) López Fernández et al. Effects of lead-polluted soils on the establishment of vegetative moss propagules.
- PP 20: (214-tTdA-124) Martínez et al. Challenging the morphological characters that determine a species. The case of *Aloina obliquifolia* (Müll. Hal.) Broth.
- PP 21: (214-V2ru-164) Montoya et al. Abscission in plants: Structural, chemical and transcriptomic analysis of protective surface layers.
- PP 22: (214-o8D9-94) Morales Sánchez et al. A custom-made system for real-time monitoring of cryptogam physiological activity during desiccation-rehydration cycles.

- PP 23: (214-DdKK-114) Muscavitch et al. Patterns in the diversity and specificity between the lichenized fungus *Niebla* and its green algal symbiont *Trebouxia*.
- PP 24: (214-P5Zg-104) Nair Manju et al. Conservation of Bryophytes of Western Ghats of India: A look into the problems and prospects in the context of *Riccia sahyadrica* and *Micromitrium vazhanicum*.
- PP 25: (214-uwnC-104) Nair Manju et al. Bryophyte diversity of Anamudi Shola National Park, a Sky Island in the Western Ghats of Southern India.
- PP 26: (214-T5wa-114) Nelson & Calderon. Diverse outcomes of interactions between pairs of fungal endophytes in the liverwort *Marchantia polymorpha*.
- PP 27: (214-WZfi-94) Phillips & Fulton. Rate of outer layer bark loss is predicted by species of tree.
- PP 28: (214-TwNP-124) Pruthi et al. Development of genomic tools for *Bryum argenteum*: Genome assembly and annotation using long and short reads.
- PP 29: (214-YRG8-164) Rice et al. Staminode macro- and micro-morphology and function in flowers of the Plains Prickly Pear Cactus *Opuntia polyacantha* (Cactaceae).
- PP 30: (214-84Yj-124) Riquelme-del Río et al. Short-term metabolic response of *Polytrichum strictum* to UV-B radiation in a subantarctic peatland.
- PP 31: (214-ijBm-124) Singh. Undergraduate research experience in upper-level Plant Physiology laboratory courses during the COVID-19 pandemic.
- PP 32: (214-iGEr-24) Širka et al. Bryophyte species composition reflects management treatment in oligotrophic grasslands: results from a 10-year manipulative experiment in central Slovakia (Western Carpathians).
- PP 33: (214-aiDK-114) Vuruputoor et al. Assembly of the first allopolyploid moss genome based on *Physcomitrium* sp. from North America.
- PP 34: (214-QiYy-124) Wagner & Carter. Mapping unprotected phylogenetic diversity of Bryophytes.
- PP 35: (214-98y3-44) Xiao & Shimamura. Behavior of apical cells in gemmarling and early bifurcation of *Marchantia polymorpha*.
- PP 36: (214-KTcc-124) Yin et al. *Riccardia vitrea* (Aneuraceae, Marchantiophyta), a liverworts species new to Canada and North America.
- PP 37: (214-YTm9-293) Yue et al. How hornworts attract their cyanobacterial symbionts: searching for the hormogonium inducing factor.
- PP 38: (214-EhGe-124). Zhaohui et al. Floristic Characteristics of Bryophytes and their biomonitoring of heavy metal pollution from Carbonate-type manganese ores in the southern China.
- PP 39: (214-i92n-124) Zhaohui et al. Aquatic bryophyte communities as biomonitoring indicators for heavy metal pollution from "Manganese Ores Mining Triangle Area "in rivers in China.
- PP 40: (214-sPHV-74) Zheng & Shimamura. Recent taxonomic progress on genus *Marchantia* L. in Japan.
- PP 41: (214-aCeE-124) Zhihui et al. An experimental study on the hygroscopic movement with the Arthrodonatae peristome of *Ulota crispa* (Orthotrichaceae, Bryophyta).
- PP 42: (214-tpRL-124) Zhihui et al. Notes on the hygroscopic movement of Nematodontae peristome: *Polytrichum commune* Hedw. var. *commune* (Polytrichaceae, Musci).