Juan Carlos VILLARREAL A., PhD

1.GENERAL INFORMATION

Citizenships: Panamanian, Canadian, French
Languages: Spanish (native), English (C1-C2), French (C1), German (A1)

Professional address
Université Laval, Biology Department
1030 Ave. de la Médecine,
G1V0A6, Québec, Canada
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2.ACADEMIC QUALIFICATIONS

- **Ph.D. in Ecology and Evolution, University of Connecticut (2011), United States**
  Advisor: Bernard Goffinet
  Thesis: *Genetic and evolutionary consequences of a shift to asexuality in bryophytes: Insights from the Southern Appalachian hornwort Nothoceros aenigmaticus.*

- **M.Sc. in Plant Biology, Southern Illinois University (SIUC) (2005), United States**
  Advisor: Karen Renzaglia
  Thesis: *A comparative anatomical and ultrastructural study of two phylogenetically important hornworts.*

- **B.Sc. in Botany, University of Panamá (2003), Panamá**
  Supervisor: Noris Salazar Allen
  Thesis: Estudio morfológico y anatómico del género *Megaceros* en Panamá
  Undergraduate experience in angiosperm identification and plot census

3. SCIENTIFIC CAREER

- **Associate Professor (agrégé)**, Université Laval (2020–CURRENT)
- **Curator – Louis–Marie Herbarium,** Université Laval (2018–CURRENT)
- **Canada Research Chair (Junior),** Canada Government (2019– CURRENT)
- **Research Associate**, Smithsonian Tropical Research Institute (STRI) (2020–CURRENT)
- **Research Associate,** Royal Botanic Garden, Edinburgh, Scotland (2015–CURRENT)
- **Adjunct Professor**, Université Laval (NOV. 2015–JUNE 2019)
- **Postdoctoral researcher,** STRI (Panamá) (JULY 2015–NOV. 2015)
- **Postdoctoral researcher,** Royal Botanic Garden Edinburgh. (JAN 2015–JULY 2015)
- **Postdoctoral researcher,** Botanischer Garten, München, LMU (2012–2014)

4.TEACHING CAREER

4.1 University teaching

1. *Conservation and exotic diversity* (in planning). Winter (theory) and summer 2026 (in French, Panama and Costa Rica). An advanced class on Neotropical environments, terrestrial and aquatic diversity and conservation. 15 students (3hrs/week lecture + 1 month abroad). **Laval University.**

2. *Biodiversity I: Algal and plant ecology and evolution*. Every fall since 2016, **except 2024** (in French). An introductory class on evolution, biology and systematics of plant and algae. 110-140 students (3hrs/week lecture + 3-4 laboratories). **Laval University.**

3. *Microbial Ecology.* 2021,2023 (in English and French). Graduate course. 3hrs/week. **Laval University.**
4. *Bryology.* 2014, 2015 (in English). Section of a master's program on Biodiversity and Taxonomy of Plants. https://www.rbge.org.uk/learn/diploma-and-degree-courses/msc-degree-and-postgraduate-diploma/. **Royal Botanic Garden, Edinburgh and the University of Edinburgh.**
5. *Bryology and Lichenology*. 2009 (in English). Teaching assistant in a graduate course taught by Bernard Goffinet, helped developing the course. **University of Connecticut.**
6. *Evolution of Land Plants*. 2010 (in English). Teaching assistant in a graduate course taught by Bernard Goffinet and Louise Lewis. **University of Connecticut.**
7. *Introduction to Botany*. 2006-2011 (in English). Teaching assistant in an undergraduate course taught by Bernard Goffinet or Paul Lewis. **University of Connecticut.**
8. *Neotropical environments.* 2000 (in English). Teaching assistant and field coordinator of the Panama Field Semester course taught by Catherine Potvin. **McGill University.**

4.2 Non-university teaching
1. *Hornwort biology and systematics*. 2021, 2022 (English, on-line). 20-22 students (including amateurs and retired people), 2hrs/week for 5 weeks. **Eagle Hill Institute, Maine, USA.**
2. *Taxonomy and Biology of Tropical Bryophytes (especially on mangroves)*. 2017 (English, field course). 12 students, 40 hrs. **Smithsonian Tropical Research Institute, Panama.**
3. *Symbiosis and Bryophyte Diversity*. 2016 (English, field graduate course). 10 students, 40 hrs. **Smithsonian Tropical Research Institute, Panama.**

4.3.2nd and 3rd cycle graduate work (direction, supervision, ...).
In addition to the graduate students, at Laval I have trained 25 undergraduates, five of them have been to Panama for fieldwork and four of them have published articles of their work. I have been the jury of 5 doctoral and 3 master theses.

- **Ariane Fortin**, Université Laval: master's student, 2025–2027.
  - *Characterization and function of biological soil crusts in Quebec's tundras.*
- **Adriel Sierra**, Université Laval: Doctoral student, 2019–2025.
  - *Influence of forest fragmentation on the population genomic and nitrogen–fixing bacteria associated with epiphylls in Amazonia.*
- **Philip Bell–Doyon,** Université Laval: Doctoral student, 2020–2025.
  - *Bryophyte and lichen diversity and conservation of old–growth forests and lichen metabolomics.*
- **Dennis Escolástico,** Université Laval: Doctoral student, 2018 –2024.
  - *Population genomics, clonality and microbiome of the tundra moss Racomitrium lanuginosum.*
- **Enrique Hernández–Rodríguez**, Université de Québec en Abitibi–Témiscamingue (UQAT, Canada): Doctoral student, 2018– 2025. Co-supervision.
  - *Determining critical thresholds of landscape disturbance in boreal and mixed coniferous forests in eastern Canada.*
- **Anthony Piot,** Université Laval: Doctoral student 2017–2022. Co-supervision.
  - *Genomic sequence variants in poplar.*

•**Quentin Dejonghe,** Museum of Natural History, Paris: Doctoral student 2022–2025. External advisor.
- *Biodiversité et biogéographie des anthocérotes d'Afrique, taxon clé pour comprendre l'évolution des plantes terrestres.*

•**Lilisbeth Rodríguez,** Universidad de Panamá: master's tesis, 2022–2024. Co-supervision.
- *Phyllosphere functional microbiome of an epiphytic tropical gymnosperm.*

•**Laura Hjartarson**, Université Laval: master's student, 2020–2024.
- *Characterization and function of biological soil crusts (bacteria, lichens, and bryophytes) post- disturbance in Quebec's boreal forest.*

•**Sandrine Toupin**, Université Laval: Master's student. 2019–2021.
- *Functional transcriptomics of the symbiosis between cycads and cyanobacteria.*

•**Loïc Soumila,** Université Laval: Master's student. 2019–2022
- *Leaf metabolome of gymnosperms.*

•**Philip Bell–Doyon,** Université Laval: master's student, 2019–2020
- *Impact of natural and made-man perturbation on soil microbiome in boreal forest from Québec.*

•**Catherine Chagnon,** Université Laval: master's student. 2018–2020. Co-supervision.
- *Lichen diversity and impact of shrubification in the Arctic tundra.*

•**Adriel Sierra**, Instituto Nacional de Pesquisas da Amazonia, Brasil: master's thesis, 2017–2018. External judge.
- *Ecology of epiphyllous liverworts in the* Biological Dynamics of Forest Fragments Project*, Manaos, Brazil.*

Postdoctoral researchers

• **Dr. Gabriel Peñaloza-Bojacá,** Université Laval (Canada). Financed by the FRQNT. 2024–.
- *Phyllosphere microbiome and conservation of tropical rainforests.*

• **Dr. Marta Alonso García,** Université Laval (Canada). Financed by the SENECA foundation, Murcia, and Sentinel North. 2018–2022. Currently, Dr. Alonso works as professor of Botany in the University of Murcia, Spain.
- *Lichen population genomics, microbiome, metatranscriptomics.*

• **Dr. Chinedou Obieze,** Université Laval (Canada). 2022-2025. Co-supervsion.
- *Microbial ecology in northern ecosystems.*

• **Dr. Karen Gonçalves,** Université Laval (Canada). 2020-2021. Co-supervsion.
- *Microbial ecology in northern ecosystems.*

5.PUBLICATIONS AND SCIENTIFIC ACTIVITIES

5.1 List of publications

A total of 93 peer-reviewed articles, 3 correspondences, 4 book chapters, 2 edited volumes, 6 popular publications. *Undergraduates **Graduates ***Postdoctoral researchers. Google scholar, 88831 citations (on May 10, 2025); h–index=39; i10–index= 60)
https://scholar.google.ca/citations?hl=en&user=R4DpS5oAAAAJ

5.1.a. Commentaries and correspondences (reviewed by editors)

1. Rousk, K. & **J.C. Villarreal A. 2025**. Time to stop vascular plant chauvinism. *Nature Plants* 11:3. ***Citations=2***

2. **Villarreal, J.C.**, N.B. Villarreal & L.F. De León. **2024**. Panama says no to more mining. *Nature* 625: 40.
3. Gutierrez-Ortega, José Said & **J.C. Villarreal**. **2024**. A possible case of adaptive radiation in cycads: A commentary on *Zamia* phylogeny and biogeography. *Annals of Botany*. 134(5): i–ii

5.1.c. Peer-reviewed papers (including reviews)

4. Salzman, S., E. Daniel Bustos-Díaz, M.L.R. Whitakker, A. Cibrián-Jaramillo, F. Barona, A. Sierra**, **J.C. Villarreal. 2025**. Chemical ecology of cycads, an ancient plant lineage. *New Phytologist*. https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.70109
5. Schafran, P.; D.A. Hauser; J.M. Nelson; X. Xu; L.A. Mueller; S. Kulshrestha; I. Smalley; S. de Vries; I. Irisarri; J. de Vries; K. Davies; J.C. Villarreal & F.-W. Li. Pan-phylum genomes of hornworts revealed conserved autosomes but dynamic accessory and sex chromosomes. **2025**. *Nature Plants* 11: 49–62. ***Citations=6***
6. Robison, T.A.; Z.G. Oh; D. Lafferty; X. Xu; J.C. Villarreal; L.H. Gunn & F.-W. Li. Hornworts reveal a spatial model for pyrenoid-based CO2-concentrating mechanisms in land plants. **2025**. *Nature Plants* 11: 63–73. ***Citations=5***
7. Peñaloza-Bojacá, G.***, A. Maciel-Silva; D.C. Cargill; D. Bell; E.B. Sessa; F.-W. Li; J.G. Burleigh; S.F. McDaniel; E.C. Davis; L. Endara; N. Salazar Allen; P. Schafran; S. Chantanaorrapint; J. Duckett; S. Pressel; C. Solís-Lemus; K.S. Renzaglia; **J.C. Villarreal. A. 2025**. Ancient reticulation, incomplete lineage sorting and the evolution of the pyrenoid at the dawn of hornwort diversification. *Annals of Botany*
8. Dauphin, G.; L. Söderström; A. Hagborg; N. Salazar Allen; A. M. Sierra**; T. Pócs; J. Gudiño; M.E. Pérez; **J.C. Villarreal A.**; Y. Rodríguez; M. von Konrat & A. Whittemore. **2025**. Catalogue of liverworts (Marchantiophyta) and hornworts (Anthocerotophyta) from Central America. *Smithsonian Contributions to Botany.*
9. Meléndez, O.*; R. Bethancourt; A. Bethancourt; L. Rodríguez–Castro**; J. Mendieta; A. A. Durant; M. Vargas; B. Sedio; K. Saltonstall; **J.C. Villarreal. 2025**. Culture-based and Sanger sequencing approaches to uncover the diversity of leaf-fungal endophytes in neotropical gymnosperms. *Tecnociencias* 27: 158–173. ***Citations=1***
10. **Villarreal, J.C.**; O. Meléndez; R. Bethancourt; A. Bethancourt; L. Rodríguez–Castro**; A. A. Durant; M. Vargas; B. Sedio; K. Saltonstall. **2024**. Two draft fungal genomes of leaf endophytes from tropical gymnosperms. *Microbiology Resources Announcements* 13 (11): e00511-24. ***Citations=1***
11. Suwanmala, O.**; **J.C. Villarreal A.**; F.W. Li; S. Chantanaorrapint. **2024**. *Phaeoceros perpusillus* var. *scabrellus* (Notothyladaceae, Anthocerotophyta), a new taxon from northern Thailand. *Phytokeys* 244: 271–283.
12. Bell-Doyon, P.**; M.J. Mazerolle; L. Bélanger; Nicole Fenton; **J.C. Villarreal A. 2024**. Differential impact of clearcut and insect outbreak on boreal lichens and bryophytes 50 years after disturbance. *Biological Conservation* 295: 110672. ***Citations=2***
13. Sierra A.M.**; O. Meléndez; R. Bethancourt; A. Bethancourt; L. Rodríguez–Castro**; B. Sedio; K. Saltonstall; **J.C. Villarreal. 2024**. Leaf endophytes correlate with host metabolome expression in tropical gymnosperms. *Journal of Chemical Ecology* 50: 815–829. ***Citations=3***
14. Hernández-Rodríguez, E.**; **J.C. Villarreal**; N. Fenton. **2024**. Patch level boreal bryophyte diversity driven by landscape heterogeneity. *Forest Ecology and Management* 563: 121978.

15. Sierra, A.**; S. Toupin**; M. Alonso García***; **J.C. Villarreal. A. 2024**. *rbc*L-X amplicon recovers a reduced core microbiome in the coralloid roots of tropical gymnosperms. *Symbiosis*. 92 (2): 271–288.
16. Bechteler, J.; G. Peñaloza-Bojacá; D. Bell; J. G. Burleigh; S.F. McDaniel; E.C. Davis; E.B. Sessa; A. Bippus; D.C. Cargill; S. Chantanoarrapint; I. Draper; L. Endara; R. Garilleti; S.W. Graham; S. Huttunen; J. Jauregui Lazo; F. Lara; J. Larraín; L.R. Lewis; D.G. Long; D. Quandt; K. Renzaglia; A. Schäfer-Verwimp; G. Ee Lee; A.M. Sierra**; M. von Konrat; C.E. Zartman; M. Regina Pereira; B. Goffinet & **J.C. Villarreal A. 2023.** Comprehensive phylogenomic time tree of bryophytes reveals deep relationships and uncovers gene incongruences in the last 500 million years of diversification. *American Journal of Botany*. 110(11): e16249. ***Citations=65***
17. Escolástico–Ortiz, D.A.**; C. Blasi; J.-P. Bellenger & J**.C. Villarreal A. 2023**. Differentially abundant bacteria drive the N_2-fixation of a widespread moss in the forest-tundra transition zone. *Symbiosi*s 90: 193–211. ***Citations=3***
18. Escolástico–Ortiz, D.A.**, L. Hedenäs; D. Quandt; D. Harpke; J. Larraín; M. Stech & **J.C. Villarreal A. 2023.** Cryptic speciation shapes the biogeographic history of a northern distributed moss. *Botanical Journal of the Linnean Society* 201(1): 114–134. ***Citations=3***
19. Peñaloza-Bojacá, Gabriel F.**; T. Vilas-Boas; **J.C. Villarreal** A. & A.S. Maciel-Silva. 2023. Differential effects of desiccation on hornworts with contrasting life histories in tropical montane forests: A functional trait—based perspective. *Forests* 14(2): 255. ***Citations=1***
20. Bell-Doyon, P.** **2023.** Checklist of Lichens and Associated Fungi from Mingan Archipelago National Park Reserve, Québec, Canada. Northeastern Naturalist 30(3): 304–328. The author is a doctoral student directly supervised by the applicant. The student is highly independent, and the applicant provides freedom to pursue this side project with local outreach implications.
21. Cargill, D.C.; S. Chantanaorrapint; R. Zhu; A.K. Asthana; I. Li; K. S. Renzaglia & **J.C. Villarreal A. 2022**. Resolving relationships within the hornwort genus *Anthoceros*. *Bryophyte Diversity and Evolution* 45(1): 26–43. ***Citations=1***
22. Gabriel F. Peñaloza-Bojacá**; A.M. Sierra**; H. Becher; K.S. Renzaglia & **J.C. Villarreal A. 2022**. Historical Biogeography of the austral hornwort genus *Phaeomegaceros* (Dendrocerotaceae, Anthocerotophyta). *Bryophyte Diversity and Evolution* 45(1): 44–66.
23. Salazar Allen, N.; G. Dauphin; **J.C. Villarreal**; C. Caswell-Levy**; E.R Cox*; J. Gudiño; E. Hernández-Rodríguez**; K.Y Magaña-Marcial*; A. Mezăka**; J.D. Ramírez-Román**; L. Rodríguez*; A. Rojas Carvajal*; C. Romero-Moreno*; A. Tomitani*; K. Zeballos-Grijalva*. **2022**. Bryophytes of mangroves of Bocas Del Toro, Panama. *Bryophyte Diversity and Evolution* 45(1): 133–150. ***Product of a field course in Panama. Citations=2***
24. Bell–Doyon, P.**; V. Bellavance*; L. Bélanger; M.J. Mazerolle; **J.C. Villarreal A. 2022**. Bacterial, Fungal, and Mycorrhizal Communities in the Soil Differ between Clearcuts and Insect Outbreaks in the Boreal Forest 50 Years after Disturbance. *Forest Ecology and Management* 523(1): 120493 ***Citations=9***
25. Monteza–Moreno, C.M.; L. Rodríguez–Castro*; P.L. Castillo–Caballero; E. Toribio; K. Saltonstall*. **2022**. Arboreal camera trapping sheds light on seed dispersal of the world's only epiphytic gymnosperm: *Zamia pseudoparasitica*. *Ecology and Evolution* 12(3): e8769. The second author was an undergraduate student directly supervised by the applicant. The student is highly independent, and the applicant provided freedom to pursue this side project with local outreach implications. ***Citations=12***

26. Alonso–García, M.***; R. Pino–Bodas & **J.C. Villarreal A. 2022**. Co–dispersal of symbionts in the lichen *Cladonia stellaris* inferred from genomic data. *Fungal Ecology* 60: 101165. ***Citations=4***
27. Patiño, J.; I. Bisang; B. Goffinet; L. Hedenäs; S. McDaniel; S. Pressel; M. Stech; C. Ah–Peng; A. Bergamini; R.T. Caners; D.C. Cargill; N. Cronberg; J. Duckett; S. Eppley; N.J. Fenton; K. Fisher; J. González–Mancebo; M. Hasebe; J. Heinrichs; K. Hylander; M.S Ignatov; J. Martínez–Abaigar; N.G. Medina; R. Medina; D. Quandt; S.A. Rensing; K. Renzaglia; M. Renner; R.M. Ros; A. Schäfer–Verwimp; **J.C. Villarreal A.** & A. Vanderpoorten. **2022**. Unveiling the nature of a miniature world: a horizon scan of fundamental questions in bryology. *Journal of Bryology* 44(1): 1–34. ***Citations=24***
28. Alonso, M.*** & **J.C. Villarreal. 2022.** Bacterial community of reindeer lichens differs between northern and southern lichen woodlands. *Canadian Journal of Forest Research* 52(5): 662–673. ***Citations=12***
29. Brazil Flora Group (900 authors) **2022**. Brazilian Flora 2020: Leveraging the power of a collaborative scientific network. *Taxon* 71(1): 178–198. ***Citations=113***
30. Rahmatpour, N.; D.A. Hauser; J.M. Nelson; P.Y. Chen; **J.C. Villarreal A.**; M.Y. Ho & F–W. Li. **2021**. A novel thylakoid–less isolate fills a billion year gap in the evolution of Cyanobacteria. *Current Biology* 31(13): 2587–2867. ***Citations=51***
31. Breinholt, J.W.; Sarah B. Carey; ——20 authors, ——**J.C. Villarreal**; E. Webb Williams & J. Gordon Burleigh. **2021**. A target enrichment probe set for resolving the flagellate plant tree of life. *Applications in Plant Sciences* 9(1): e11406.
32. Bell–Doyon, P.**; S.B. Selva & T. R. Mcmullin. 2021. Calicioid fungi and lichens from an unprotected intact forest ecosystem in Québec. *Écosciences* 28(2): 127–136.
33. Alonso, M.***; F. Grewe*; S. Payette & J**.C. Villarreal. 2021.** Population genomics and genetic diversity of a reindeer lichen species in Eastern Canada lichen woodlands. *American Journal of Botany* 1081(1): 159–171. ***Citations=16***
34. **Villarreal, A., J.C.**; M. Renaudin, A. Beaulieu–Laliberté* & J.P. Bellenger. **2021**. *Stigonema* associated with boreal *Stereocaulon* possesses the alternative vanadium nitrogenase. *The Lichenologist* 53: 215–220.
35. Alonso, M.***; **J.C. Villarreal**; K. McFarland & B. Goffinet. **2020**. Population genomics and phylogeography of a clonal bryophyte with spatially separated sexes and extreme sex ratios. *Frontiers in Plant Science* 11: 495. ***Citations=12***
36. Piot, A.; J. Prunier; N. Isabel; J. Klápště; Y.A. El-Kassaby; **J.C. Villarreal** & I. Porth. **2020**. Genomic diversity evaluation of *Populus trichocarpa* germplasm for rare variant genetic association studies. *Frontiers in Genetics* 10: 384. ***Citations=12***
37. Frangedakis, E.; M. Shimamura; **J.C. Villarreal**; F–W. Li; M. Tomaselli; M. Waller; K. Sakakibara; K. Renzaglia & P. Szövény. **2020**. The hornworts: Morphology, evolution, and development. *New Phytologist* 229(2): 735–754. ***Citations=82***
38. Bouchard, R.*; G. Peñaloza–Boyacá**; S. Toupin**; Y. Guadalupe*; J. Gudiño; N. Salazar; F.W. Li & **J. C. Villarreal A. 2020.** Contrasting bacteriome of the hornwort *Leiosporoceros dussii* in two nearby sites with emphasis on the hornwort–cyanobacterial symbiosis. *Symbiosis* 81: 39–52. ***Citations=19***
39. Bell–Doyon, P.** & **J.C. Villarreal A. 2020.** New notes on the ecology of the epiphytic gymnosperm and Panamanian endemic *Zamia pseudoparasitica*. *Neotropical Naturalist* 2: 1–7. ***Citations=5***
40. Lavoie, C.*; M. Renaudin; R. Troy McMullin; J. Gagnon; M.–E. Beaulieu; J.P. Bellenger **& J. C. Villarreal A. 2020.** Extremely low genetic diversity of *Stigonema* associated with *Stereocaulon* in eastern Canada. *The Bryologist* 123(2): 188–203. ***Citations=18***

41. Li, F.W.; T. Nishiyama; M. Waller; E. Frangedakis; J. Keller; Z. Li; N. Fernandez-Pozo; M.S. Barker; T. Bennett; M.A. Blázquez; S. Cheng; A.C. Cuming; J. de Vries; S. de Vries; P.-M. Delaux; I.S. Diop; J. Harrison; D. Hauser; J. Hernández-García;, A. Kirbis; J.C. Meeks; I. Monte; S.K. Mutte; A. Neubauer; D. Quandt; T. Robinson; M. Shimamura; S.A. Rensing; **J.C. Villarreal**; D. Weijers; S. Wicke; G.K.-S. Wong; K. Sakakibara & P. Szövény. **2020**. *Anthoceros* genomes illuminate the origin of land plants and the unique biology of hornworts. *Nature Plants* 6: 259–272. ***Citations=309***
42. Dawes, T.; **J.C. Villarreal**; P. Szövény; I. Bisang; F–W. Li; D.A. Hauser; D. Quandt; D.C. Cargill. **2020**. Molecular data shows a recent European origin of the model species *Anthoceros agrestis*. *Plant Systematic and Evolution* 306: 49. ***Citations=7***
43. Bell–Doyon, P.*; J. Laroche; K. Saltonstall & **J.C. Villarreal A. 2020.** Specialized bacteriome uncovered in the coralloid roots of the epiphytic gymnosperm, *Zamia pseudoparasitica*. *Environmental DNA* 2(4): 418–428. ***Citations=17***
44. OneKP Initiative. A Phylogenomic View of Evolutionary Complexity in Green Plants. **2019**. *Nature* 574: 679–685. **JCVA** Equal contribution, see online version. ***Citations=1509***
45. Peñaloza–Bojacá, G.**; **J.C. Villarreal A.** & A. Silva. **2019**. Phylogenetic and morphological circumscription of the genus *Dendroceros* Ness (Dendrocerotaceae; Anthocerotophyta), with the addition of two new subgenera. *Systematics and Biodiversity* 17: 712–727. ***Citations=10***
46. Bell, D.; Q. Lin; W.K. Gerelle; S. Joya; Y. Chang; Z.N. Taylor; C.J. Rothfels; A. Larsson; **J.C. Villarreal**; F.-W. Li; L. Pokorny; P. Szövényi; B. Crandall-Stotler; L. DeGironimo; S.K. Floyd; D.J. Beerling; M.K. Deyholos; M. von Konrat; S. Ellis; A.J. Shaw; T. Chen; G.K.-S. Wong; D.W. Stevenson; J.D. Palmer & S.W. Graham. **2019.** *American Journal of Botany* 107(1): 91–115. ***Citations=63***
47. Nelson, J.M.; D.A. Hauser; J.A. Gudiño; Y.A. Guadalupe*; J.C. Meeks; N. Salazar; **J.C. Villarreal** & F.–W. Li. **2019**. Complete genomes of symbiotic cyanobacteria clarify the evolution of vanadium nitrogenase. *Genome Biology and Evolution* 11(7): 1959–1964. ***Citations=42***
48. Garrido A.; J. Gudiño Ledezma; Armando A. Durant–Archibold; N. Salazar Allen; **J.C. Villarreal A.** & M.P. Gupta. **2019**. Chemical profiling of the gametophyte and sporophyte from the Panamanian hornwort *Leiosporoceros dussii* (Leiosporocerotaceae) by HSSPME–GC–MS. *Natural Products Communications* 14(8): doi:10.1177/1934578X19868875. ***Citations=6***
49. Têtu, B. & **J.C Villarreal A**. **2019**. Bryophytes des murailles du Vieux–Québec. *Carnets de bryologie* 24: 1–5.
50. Sierra, A.M.**, J. Bechteler, D. Cardoso D, C. Zartman & **J.C. Villarreal A. 2018**. Divergence time analyses suggest a Miocene origin of the narrow Amazonian endemic rheophytic *Ceratolejeunea temnantha* (Spruce) Reiner–Drehwald (Porellales, Lejeuneaceae) *Bryophyte Diversity and Evolution*. 40(2): 55–67. ***Citations=4***
51. Renzaglia, K.S.; **J.C. Villarreal A.** & D. Garbary. **2018**. Morphology supports the setaphyte hypothesis: mosses plus liverworts form a natural group. *Bryophyte Diversity and Evolution*. 40(2): 11–17. ***Citations=47***
52. **Villarreal, J.C.**; M. Turmel; M. Bourgouin–Couture*; J. Laroche; N. Salazar–Allen; F–W. Li; S. Cheng; K. Renzaglia & C. Lemieux. **2018**. Genome wide organellar analyses from the hornwort *Leiosporoceros dussii* show low frequency of RNA editing. *Plos One* 13(8): e0200491. ***Citations=28***
53. Lewis, L.R.; S. Ickert–Bond; E.M. Biersma; P. Convey; B. Goffinet; K. Hassel; K. Kruijer; C. La Farge; M. Stech; **J.C. Villarreal** & S.F. McDaniel. **2017**. Future

directions and priorities for Arctic bryophyte research. *Artic Science* 3: 475–497. ***Citations=24***

54. Lang, D., —**J.C. Villarreal**, —50 authors. **2017**. The *P. patens* chromosome–scale assembly reveals moss genome structure and evolution. *The Plant Journal* 93: 515–533. ***Citations=444***
55. Li, F.–W.[$]; **J.C. Villarreal**[$] & P. Szövényi. **2017**. Hornworts: an overlooked window into carbon concentrating mechanism. *Trends in Plant Science* 22(4): 275–277. [$]Equal authorship. ***Citations=40***
56. **Villarreal, J.C.**, Duckett, J.G. & S. Pressel. **2017**. Morphology, ultrastructure, and phylogenetic affinities of the single–island endemic *Anthoceros cristatus* Steph. (Ascension Island). *Journal of Bryology* 39(3): 226–234. ***Citations=12***
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58. Long, D.G.; **J.C. Villarreal** & B. Crandall–Stotler. **2016**. The genus *Aitchisoniella* Kashyap (Marchantiopsida, Cleveaceae) new to China, and its taxonomic placement. *Journal of Bryology* 38: 308–311. ***Citations=7***
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85. Garcia, C.; C. Sergio; **J.C. Villarreal** & F. Lara. **2012**. The genera *Dendroceros* Nees and *Megaceros* Campb. in São Tomé e Príncipe (Africa, Gulf of Guinea) and description of a new species, *Dendroceros paivae*. *Cryptogamie, Bryologie et Lichénologie* 33: 3–21. ***Citations=35***
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5.1.c. Book chapters

1. Hanson, D.; K.S. Renzaglia & **J.C. Villarreal**. **2014**. Diffusion limitation and CO_2 concentrating mechanisms in bryophytes. In *Advances in Photosynthesis and Respiration: Photosynthesis in Early Land Plants*, D.T. Hanson & S.K. Rice (eds) Vol. 37: 95–112 Springer, Dordrecht. ***Citations=35***
2. **Villarreal**, **J.C. 2013**. Hornworts (genera *Anthoceros* and *Phaeoceros*) In *The liverworts and hornworts of Tristan da Cunha*, J. Váňa & J.J. Engel, J.J. (eds.) Memoirs of the New York Botanical Garden 105: 32–35, 85–86.
3. Renzaglia, K.S.; **J.C. Villarreal** & R.J. Duff. **2009**. New insights into morphology, anatomy and systematics of hornworts. In *Bryophyte Biology II*, B. Goffinet & J. Shaw

(eds.), pp 139–171. *I was the only doctoral student as author of a chapter of this classic book.* ***Citations=179***

4. Duff, R.J.; D.C. Cargill; **J.C. Villarreal** & K.S. Renzaglia. **2004**. Phylogenetic relationships of the hornworts based on *rbc*L sequence data: novel relationships and new insights. *Monographs in Systematic Botany from the Missouri Botanical Garden* 98: 41–58. ***Citations=54***

5.1.d. Edited volumes, Book reviews, conference proceedings and popular publications

1. Budke, J.M.; M. Renner; **J.C. Villarreal A.**, M. Stech. (Eds.) **2022**. In celebration of Jeffrey Graham Duckett's unending curiosity and impactful contributions to bryology. *Bryophyte diversity and Evolution* 45(1).
2. **Villarreal, J.C.**; B. Goffinet, N. Fenton, M. Favreau, S. Schuette & M. von Konrat. (Eds.) **2021**. Proceedings of Bryophytes, lichens, and northern ecosystems in a changing world (July 6-9, 2021) *Bryological Times* 152.
3. **Villarreal, J.C.;** L. Rochefort; C. Boismenu & M. Guêné-Nanchen. **2017**. Future Arctic: from species to ecosystems. *Proceedings of the workshop Future Arctic*.
4. **Villarreal, J.C**. **2014**. New insights on early land plant diversification: pyrenoid evolution and sexual system of hornworts. *Field bryology* 112: 55–57.
5. Pressel, S.; J. Duckett & **J.C. Villarreal**. **2013**. Hornwort heaven: recount of the expedition into the Himalayan foothills of northern Indian. *Field bryology* 110: 39–46.
6. **Villarreal, J.C.** & N. Salazar Allen. **2012**. The enigmatic hornworts of the miniature forest of Cape Horn (English and Spanish) In *Miniature Forest of Cape Horn: Ecotourism with a hand lens.* B. Goffinet, R. Rozzi, L. Lewis, et al. (eds.) University of North Texas Press, pp. 118–126.
7. **Villarreal, J.C.,** W. Frey & D.C. Cargill (eds.) **2010**. Bryophyte Biology, Phylogeography, Systematics and Evolution in the Southern Hemisphere. *Nova Hedwigia* 91(3-4): 1–250 pp. (contributed peer-reviewed papers on biogeography, niche modeling, cryo-microscopy, floristics and evolution of Southern Hemisphere bryophytes)
8. **Villarreal, J.C. 2010**. Before the vascular plants. Book review of "Syllabus of Plant Families A. Engler's Syllabus der Pflanzenfamilien. 3. Bryophytes and seedless vascular plants." 2009. Eds.: W. Frey, M. Stech & E. Fischer. *The Bryologist* 113: 431–434.

5.1.e.Papers in review

1. Sierra, A.**, M. Alonso García***, C. Zartman & **J.C. Villarreal A.** The consequences of mating system and dispersal potential on the genetic structure of leaf-inhabiting bryophyte metapopulations in a fragmented Amazonian landscape. Submitted to *Biotropica*.
2. Dong, S.; S. Wang; L. Li; J. Yu; Y. Zhang; J.Y Xue; H. Chen; J. Ma; Y Zeng; Y. Cai; W. Huang; J. Li; Y.F. Yao; R. Hu; R. Zhao; **J.C. Villarreal**; L. Dirick; L. Liu; M. Ignatov; M. Jin; J. Ruan; Y. He; H. Wang; B. Xu; J. Wegrzyn; D. Stevenson; K.S. Renzaglia; H. Chen; L. Zhang; S. Zhang; R. Mackenzie; J. Moreno; M. Melkoniann; T. Wei; Y. Gu; X. Xu; S. Rensing; J. Huang; M. Long; B. Goffinet; J. Bowman; Y. van de Peer; H. Liu & Y. Liu. Novel genes drive the diversification of bryophyte genomes**.** *Nature Genetics***.**
3. Jousse, Maximiliane; S. Aguilar; H. Barrios; D. Chami; D. Dent; I. Dogirama; H., Homilia; M. Kunz; J. Levitan; E. Degaiza; W. Valdespino; D. Mitre; E. Mosquera; H. Muller-Landau; A. Ortega; R. Pérez; J. Valdés; **J.C. Villarreal. A.**; **C. Potvin. In review.** Insights into the forests of Darién, Panama, from the new 10 ha Bacurú Drõa plot established through participatory methods within an Emberá territory. *Conservation science and practice*

4. Sierra, A.**, D. Escolástico-Ortiz**, M. C. Zartman, N. Derome, C. Lovejoy & **J.C. Villarreal A.** Assembly and co-occurrence networks of nitrogen-fixing bacteria associated with epiphyllous liverworts in fragmented tropical forests. Submitted to *ISME Communications*.
5. Castro, L.**, A. Sierra**, **J.C. Villarreal** & K. Saltonstall. Phyllosphere bacterial communities of the epiphytic gymnosperm Zamia pseudoparasitica: homogeneity across sites and season. Submitted to *Applied Biosciences*.
6.

5.2.Scientific activities

5.2.a.Study or research stays abroad

1. ***May-July 2024.*** Year of study and research (sabbatical) at the University of Lille hosted by Dr. Christelle Fraïsse to do transcriptomic work on bryophytes
2. ***September 2024.*** Year of study and research (sabbatical) at the University of Leiden hosted by Dr. Angélica Cibrián-Jaramillo and Francisco Barona to learn metabolomic techniques on cycads and planning studies on cycad conservation.
3. ***October-December 2024.*** Year of study and research (sabbatical) at the University of Toulouse hosted by Dr. Pierre-Marc Delaux to work on symbiotic relationships in plants using genomic approaches

5.2.b.Active participation in international conferences and symposia (*speaker/leader)

1. Organization of the workshop (May and July 2025). Community visions for a sustainable Darien: aiming at biodiversity conservation and sustainable development in the Balsas River basin in Panama. Workshop held in two communities of the lower Río Balsa (Camogantí) populated by Afrodarienitas and Upper Río Balsa (Manené) within the Emberá Territory. With participation and co-organization of *Ejua Wagadicarea*, Javier Mateo, Yann Le Polain de Waroux and Indra Candanedo.
2. Slate, M., J. Atwood, J. Brinda, B. Carter, A. Eberly, S. Schuette, **J.C. Villarreal.** 2025. Bryophyte conservation in North America: new opportunities and challenges. **Botanical Society of America, California.**
3. Villarreal, J.C.* & S. Salzman. July 2024. Organisation of a symposum: "Cycads emerging models in biology and evolution**". XX International Botanical Conference, Madrid, Spain.**
4. Bechteler, J.; A.M. Sierra Pinilla; A. Schäfer-Verwimp; G.E. Lee; K. Feldberg; A. Schmidt; G. Burleigh; S. McDaniel; C. Davis; E. Sessa; D. Quandt & **J.C. Villarreal**.* July 2024. Evolution of tropical epiphyllous liverworts of the Lejeuneaceae. **XX International Botanical Conference: Symposium on habitat-bound diversification in bryophytes, Madrid, Spain.**
5. Ortega, A.; D. Valdespino; M. Berrugate; S. Aguilar; H. Barrios; D. Dent; M. Kunz; J. Levitan; D. Mitre; R. Pérez; P. Ramos; M. Solano; **J.C. Villareal A.**; J. Valdés; C. Potvin. 2024. Bacurú Drõa Plot: Bringing BFDP science to people. **Barro Colorado Island 100 years.**
6. Minor organizer of the conference entitled: **"Annual general meeting of the Canadian Society of Plant Biologists"**. 18–21 June, 2023. 250 attendees

7. Chair of the conference entitled: **"Bryophytes, lichens, and northern ecosystems in a changing world"**, Québec. Meeting of 4 botanical societies (online) –July 6–9, 2021. 230 attendees.
8. Co–organization of the workshop entitled: **"Future Arctic: A global initiative on bryophyte and lichen Arctic research: from species to ecosystems"** Québec. Co–organizer: L. Rochefort– May 24–26, 2017. 54 attendees.
9. Co–organization of the symposium entitled: **"Biology, genomics and evolution on the complex thalloids, including *Marchantia*"** Royal Botanic Garden, Edinburgh, Scotland. July 14–15, 2015. 25 attendees.
10. Co–organization of the symposium entitled: **"Bryophyte biology, genomics and evolution on the occasion of the 200th anniversary of the Munich Herbarium"** *Botanischer Garten München*-Nymphenburg, Germany. Coorganizer: S.S. Renner – March 22, 2013. 22 attendees.

5.2.c.Invitations to speak at conferences other than congresses and symposia (since 2016)

1. Villarreal, J.C. May 2025. 25 things you didn't know about bryophytes: advance in systematic and ecological genomics. Universidad Nacional de Colombia, Bogotá
2. Jousse, M.**, C. Potvin, D. Dent, J. Levitan, Villarreal, J.C. November 2024. The Bacurú Drõa Plot: Bringing BFDP science to people. Symposium organized by the Botanical Society of America "Plant Resilience and Conservation for a changing climate"
3. Villarreal, J.C. November 2024. 25 things you didn't know about bryophytes: advance in systematic and ecological genomics. INRAE, Toulouse, France
4. Villarreal, J.C. November 2024. 25 things you didn't know about bryophytes: advance in systematic and ecological genomics. University of Copenhagen, Denmark.
5. Villarreal, J.C. September 2024. Bryophyte museomics, ecology and symbiosis in a changing world. Université of Leyden, The Netherlands.
6. Villarreal, J.C. June 2024. New insights on cycad biology and lichen symbiosis. Botanischer Garten, Munich, Germany.
7. Villarreal, J.C. May 2024. Bryophyte macroevolutionary processes and evolution of lichen symbiosis. Université de Lille, France.
8. Villarreal, J.C. April 2024. Bryophyte museomics, ecology and symbiosis in a changing world. University of Jena, Germany.
9. Villarreal, J.C. April 2024. Bryophyte museomics, ecology and symbiosis in a changing world. Instituto de Ciencias Médicas, Panamá.
10. Villarreal, J.C. February 2024. Eco-evolutionary dynamics in cryptogams: Bryophytes, fires and reindeer lichens. Cornell University, Boyce Thompson Institute, Ithaca, USA.
11. Villarreal, J.C. November 2022. *Procesos macroevolutivos y microevolutivos en briofitas: 500 millones de años de evolución.*Universidad de Panamá, Panamá.
12. Villarreal, J.C. November 2021. *Hornworts phylogenomics and evolution of plant-cyanobacterial symbioses.* MADLAND, University of Marburg, Germany.
13. Villarreal, J.C. September 2021. *Biología y filogenia de los anthocerotes.* Universidad Nacional de La Plata, Argentina.

14. Villarreal, J.C. February 2021. *Symbiosis, metagenomics, and genomics of Neotropical Zamias.* STRI, Panamá.
15. Villarreal, J.C. November 2020. *Sistemática, diversidad y simbiosis en plantas tropicales.* Universidad Militar de Nueva Granada, Colombia.
16. Villarreal, J.C. March 2020. *Extreme sex ratios and symbiosis: lessons from hornworts and cycads.* UQAT, Canada.
17. Villarreal, J.C. November 2018. *From the tropics to the arctic functional diversity of plant and lichen-cyanobacterial symbiosis.* Concordia University, Canada.
18. Villarreal, J.C. April 2018. *Symbiosis in plants and lichens: A contrast between Arctic and tropical ecosystems.* Field Museum, Chicago, USA.
19. Villarreal, J.C. November 2017. *Hornwort evolution: Sexual systems, clonality and spatial separation of sexes.* University of Alberta, Canada.
20. Villarreal, J.C. September 2017. *Hornwort evolution: from genes to genomes and symbiomes.* Museum of Nature, Ottawa, Canada.
21. Villarreal, J.C. May 2017. *From the tropics to the arctic: Biodiversity and plant-cyanobacterial symbiosis.*Université de Montréal, Montréal, Canada.
22. Villarreal, J.C. September 2016. *Evolution of sexual system in hornworts, clones, and sex in the Southern Appalachian Nothoceros.* Duke University, USA.

5.2.e.Funding

Project; Funding agency or institution; Amount (in CAD); Period; Role (Principal investigator, PI). Total amount of third–party funding:

1. *Functional genomics and metabolomics of the symbiosis between tropical plants and microbes*; Canada Research Chairs, Government of Canada; **500 000 CAD** 2025 – 2029; **PI.**
2. *Improving the understanding of one of the largest carbon stocks in the American tropics.* Subvention Alliance-Collaboration Seed grant. Conseil de Recherches en Sciences Naturelles et Génie du Canada. **23 600 CAD**. 2024-2025. **Principal investigator.**
3. *Visiones comunitarias para un Darién sostenible: apuntando a la conservación de la biodiversidad y al desarrollo sostenible en la cuenca del Río Balsas en Panamá*. Instituto Interamericano para la Investigación del Cambio Global (IAI). **41 656 CAD. PI. Seed grant to apply for the Belmont Forest grant**
4. *Phyllosphere microbiome and conservation of tropical rainforests***. Postdoctoral FRQNT fellow: Gabriel Peñaloza-Bojacá** from Brazil **35 000 CAD**. (Oct. 2024-2025), winner of a competitive Brazil-Québec fellowship sponsored by FRQNT. **PI.**
5. *Évaluation et bio monitoring (biosurveillance) omique des inoculants microbiens en terrain minier ferrifère dans le Nord du Québec*. Génome Québec; **308 900 CAD.** 2025-2027. **Co-PI.**
6. *Accès et utilisation des données numériques relatives aux plantes vasculaires ayant servi au projet de la flore nordique du Québec et du Labrador et des données des plantes invasculaires de la collection de l'herbier Louis-Marie.* Ministre De

L'environnement, De La Lutte Contre Les Changements Climatiques, de la Faune Et des Parcs; **106 668 CAD**. 2024-2026. **PI.**

7. *Exploring Antibiotic Resistance Dynamics in Lichen Woodlands*. Sentinelle Nord **25 000 CAD**. 2024-2025. **PI.**
8. *Élaboration d'une liste à jour des lichens du Québec (Macrolichens et microlichens et proposition d'une première liste documentée des macrolichens susceptibles d'être désignés menacés ou vulnérables au Québec.* Ministre De L'environnement, De La Lutte Contre Les Changements Climatiques, de la Faune et des Parcs. **186 105 CAD**. 2024-2026. **PI.**
9. *Végétalisation de perturbations minérales composées de particules fines dans la toundra du Bas-Arctique par des approches de restauration écologique.* Subvention Alliance-Partenaire Conseil de Recherches en Sciences Naturelles et Génie du Canada (CRSNG) **396 549 CAD**. 2025-2027. **Co- PI.**
10. *Impact of wildfires on the bacterial diversity and the nutrient flow in lichen woodlands*; Laval University; **15 000 CAD**; June 2023 – March 2024; **PI.**
11. *Elucidating the evolutionary history of a cold-temperate moss Racomitrium using long-read sequencing*; MITACS; **6 000 CAD.** Travel fellowship for a graduate student; October 2022 – March 2023; **PI.**
12. *Ecogenomics of mining areas for sustainable Canadian North*; Sentinelle Nord, Laval University; **700 000 CAD;** Funds to JCVA: **92 500 CAD;** March 2021 – March 2024; **Co-PI.**
13. *Ecological revegetation of mining sites covered with granular material: development of an efficient and inexpensive method*; Fonds Québécois de la Recherche sur la Nature et les Technologies (FQRNT); **323 224 CAD** Funds to JCVA: **65 500 CAD**; April 2021 – March 2024; **Co-PI.**
14. *Functional genomics and metabolomics of the symbiosis between tropical plants and microbes*; Canada Research Chairs, Government of Canada; **600 000 CAD** October 2019 – September 2024; **PI.**
15. *Laboratory on genomics and metabolomics of the symbiosis between tropical plants and microbes*; Canadian Funds for Innovation (Infrastructure); **281 088 CAD** May 2020 – September 2024; **PI.**
16. *Impact of wildfires on the diversity of lichen-associated viruses in a changing North*; Sentinelle Nord, Laval University; **83 576 CAD** Postdoc salary March 2018 – February 2021; **Co-PI.**
17. *Determining critical thresholds of landscape disturbance in boreal and mixed coniferous forests in eastern Canada*; Natural Sciences and Engineering Research Council of Canada (NSERC); **65 976** CAD. March 2018 – February 2021; **Co-PI.**
18. *Cicadófitas y sus simbiontes: diversidad genética y química como potencial en la conservación de especies*; SENACYT-Panamá; **13 885 CAD**; March 2018– March 2020; **PI.**
19. *Establishing a laboratory on Nordic bryophyte diversity and symbiosis*; Canadian Funds for Innovation (Infrastructure); **149 144 CAD**; May 2017 – December 2019; **PI.**
20. *Documenting the genetic and metabolomic diversity of tropical plants*; Fonds Québécois de la Recherche sur la Nature et les Technologies (FQRNT); **32 000 CAD**; April 2017 – December 2019; **PI.**

21. *Spatial and temporal diversity of the bryophyte Arctic flora and associated cyanobacterial and fungal biota*; Natural Sciences and Engineering Research Council of Canada (NSERC); **165 000 CAD**; April 2016 – December 2022; **PI.**
22. *Understanding the evolution of key traits in hornworts, the sister group to vascular plants*; Deutsche Forschungsgemeinschaft (DFG).; **266 555 CAD**; April 2012 – April 2014; **Co-PI.**
    - PI: Prof. Dr. Susanne S. Renner, co-PI: J.C. Villarreal, DFG does not allow post-doctoral researchers to be PI. I wrote the proposal with supervision of Prof. Dr. Renner.
23. *Genetic and evolutionary consequences of the shift to asexuality in bryophytes: Insights from the Southern Appalachian hornwort Nothoceros aenigmaticus*; Doctoral Dissertation Improvement Grant, US National Science Foundation; **12 496 CAD**; 2009 – May 2012; **Co-PI.**
    - PI: Prof. Dr. B. Goffinet, co-PI: J.C. Villarreal. NSF does not allow doctoral students to be PI. I wrote the proposal with supervision of Prof. Dr. B. Goffinet.

5.3.Outreach activities (including media outreach).

The Herbarium Louis-Marie has an active outreach program in Québec. My Panamanian students have a program on cycad biology and conservation involving local societies, social media and high-schools (e.g. https://www.youtube.com/watch?v=t-cv_HImKts, sponsored and produced by the Authority of the Panama Canal).

- Pour la Science. **Upcoming April 2025**. A la recherche d'une photosynthèse efficace ; https://www.pourlascience.fr/sd/biologie-vegetale/une-piste-pour-ameliorer-la-photosynthese-des-plantes-agricoles-grace-aux-anthocerotes-27463.php. Interview by Isabelle Bellin.
- **Le Soleil, Québec, Canada. 2023.** Un portrait de famille plus complet pour les bryophytes. https://www.lesoleil.com/partenaires/ulaval-nouvelles/2023/10/17/un-portrait-de-famille-plus-complet-pour-les-bryophytes-T7VM2NEGOVEZLMJB6DME3HAVVY/.
- **Radio Canada, Canada**. 2023. https://ici.radio-canada.ca/ohdio/premiere/emissions/bonjour-la-cote/episodes/724721/rattrapage-lundi-14-aout-2023
    - *Interview to Philip Bell-Doyon about his research on Quebec lichens.*
- **STRI press, Panamá**. 2022. https://stri.si.edu/story/caught-red-handed
    - *Article on research conducted by Lilisbeth Rodríguez in Panamá*
- **The Atlantic, USA**. 2022. https://www.theatlantic.com/science/archive/2022/04/zamia-pseudoparasitica-Panamánian-plant-seed-dispersal/629444/
    - *Interview by K.J. Wu about research conducted by Lilisbeth Rodríguez in Panamá.*
- **TVN-2, Panamá**. 2022. https://www.tvn-2.com/contenido-exclusivo/panameno-seleccionado-desarrollar-investigacion-canada_1_1000837.html
- **EurekaAlert!,** 2021. https://www.eurekalert.org/news-releases/806512
    - *Article on the research conducted by Marta Alonso García.*

- **Telemetro Reporta, Panamá**. 2021. https://www.youtube.com/watch?v=EFwyyp4bNSY
- **BBC Mundo**. 2018. http://www.bbc.com/mundo/noticias-43811164
- **La Prensa, Panamá**. 2018. https://www.prensa.com/impresa/vivir/Hongos-plantas-misterios_0_5064993515.html
- **La Prensa, Panamá**. 2018. https://www.prensa.com/impresa/vivir/Hongos-plantas-misterios_0_5064993515.html

6.LOGISTICAL RESPONSIBILITIES

6.2.b.Others

Awards

- **Canada Research Chair**, Government of Canada. 2019–2029. **1 100 000 CAD** including salary: Functional genomics and metabolomics of the symbiosis between tropical plants and microbes. Renewed in 2025.
  - *Only 7 researchers selected at the University Level from all fields of research.*
- **Hattori Prize Award,** International Association of Bryologists (IAB). 2017: Best paper or series of papers published within the previous two years in a journal or book by a member of IAB.
- **A.J. Sharp Award**, American Bryological and Lichenological Society (ABLS**).** 2010: Best student paper, Botanical Society of America Meeting, Rhode Island.
- **Earl's Tupper Fellowship.** Smithsonian Tropical Research Institute **86309 CAD**. 2015: Genetic diversity and functional genomics of the symbiosis between plants and cyanobacteria.
  - *Most prestigious fellowship of Smithsonian Tropical Research Institute.*
- **Sibbald Fellowship.** Royal Botanic Garden Edinburgh. **41542 CAD**. 2015: Evolutionary relationships of complex thalloid liverworts.
- **Presidential Summer Graduate Research Award**, UCONN**.** 2009: Nomination-based award.
- **Extraordinary Doctoral Travel Award**, UCONN. (2009).
- **William Sullivant Award**. ABLS. 2008: Best paper published in the Bryologist in the year 2007, for "Progress and challenges toward developing a phylogeny and classification of the hornworts".
- **Graduate research award,** Botanical Society of America. 2004: A novel symbiotic association in land plants: cyanobacterial strands in *Leiosporoceros dussii.*

7.OTHER USEFUL INFORMATION

Ad-hoc reviewer:

Associate Editor of the scientific journal *American Journal of Botany* (since November 2023) and invited editor of *Frontiers of Plant Sciences* and *Bryophyte Diversity and Evolution*.

Other journals: **American Journal of Botany**; Annals of Botany; Australian Journal of Systematic Botany; Biological Journal of the Linnean Society; Botanical Journal of the Linnean Society; Cryptogamie, Bryologie et Lichenologie; Bryologist; Cambridge University Press; Fieldiana; **Frontiers in Plant Sciences**; Journal of Biogeography; Journal of Bryology; Journal of Experimental Botany; Molecular Phylogenetics and Evolution; **Nature**; Nova Hedwigia; Phytotaxa; Plant and Cell Physiology; Proceedings of the Royal Society B; Systematics and Biodiversity

RESEARCH AND SOCIETAL SERVICES

1. President of the Equality, Diversity, and Inclusion Committee (IBIS, U. Laval) 2022–CURRENT
2. Co-organiser of the seminar series. IBIS, Université Laval. 2022–CURRENT
3. Curator of the Louis-Marie Herbarium 2018–CURRENT
4. Vice-president, International Association of Bryologists 2021–2025
5. Academic board of short-term fellowships (STRI) 2021–2024
6. NSERC fellowship board (U. Laval) 2021–2023
7. *Comité stratégique pour augmenter la représentation des femmes dans le corps professoral du Département de Biologie* 2025–CURRENT

FIELD EXPERIENCE

Canada (Hudson Bay, James Bay, boreal forest and subarctic); Colombia (Nariño); Costa Rica (most of the country); Dominican Republic (most of the country); Germany (Hessen); India (East and West Himalayas: Shimla and Darjeeling); Mexico (central volcanic zone); Panamá (most of the country); Scotland; USA (Southern Appalachians, California); Venezuela (Mérida);