

WESTON L. TESTO

Assistant Professor
Director of the Pringle Herbarium
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RESEARCH INTERESTS

Collections-based research; tropical plant diversity; evolution of ferns and lycophytes; conservation; phylogenomics; systematics; taxonomy; biogeography; polyploidy and hybridization; macroevolution; data science

EDUCATION

- 2018** **Ph.D. Plant Biology**, University of Vermont, Burlington, VT, USA
Dissertation: “Devonian origin and Cenozoic radiation in the clubmosses (Lycopodiaceae)”
Major Professor: Dr. David Barrington
- 2012** **B.A. Biology** (Magna Cum Laude), Colgate University, Hamilton, NY, USA
Honors thesis: “Climate change and rarity in the hart’s-tongue fern (*Asplenium scolopendrium*)”

PROFESSIONAL APPOINTMENTS

- 2023–** **Assistant Professor of Plant Biology**, The University of Vermont, Burlington, VT, USA
- 2023–** **Director of the Pringle Herbarium (VT)**, The University of Vermont, Burlington, VT, USA
- 2022–2023** **Assistant Curator of Pteridophytes**, The Field Museum of Natural History, Chicago, IL, USA
- 2020–** **Member**, Gothenburg Global Biodiversity Centre, Gothenburg, Sweden
- 2020–** **Research Affiliate**, Botanical Research Institute of Texas, Fort Worth, TX, USA
Principal projects: Evolution and patterns of endemism in Andean ferns, floristics of Colombia
- 2018–** **Affiliated Research Scientist**, Florida Museum of Natural History, Gainesville, FL, USA
Principal projects: Flora of the Greater Antilles, floristics of Southeastern USA, fern taxonomy
- 2020–2022** **Postdoctoral Research Associate**, University of Gothenburg, Gothenburg, Sweden
Principal Project: “Integrating specimen data and artificial intelligence to predict extinction risk for the imperiled flora of Hispaniola”
Supervisors: Dr. Alexandre Antonelli & Daniele Silvestro

PROFESSIONAL APPOINTMENTS

- 2018–2020** **Postdoctoral Research Associate**, University of Florida, Gainesville, FL, USA
Principal project: “Building a comprehensive evolutionary history of flagellate plants”
Supervisor: Dr. Emily Sessa
- 2013–2017** **NSF Graduate Research Fellow**, University of Vermont, Burlington, VT, USA
Principal project: “Hybridization and polyploidy as drivers of species diversification and niche evolution during rapid radiations”
Supervisor: Dr. David Barrington

PUBLICATIONS

58. Molino, S., Zapata, J. N., Heal, D., and **Testo, W. L.** *in press*. *Parablechnum shuariorum* (Blechnaceae), a new fern species from the Cordillera del Cóndor. *Brittonia*.
57. Keskiniva, V., Lehtonen, S., **Testo, W. L.**, and Tuomisto, H. *in press*. Rampant hybridization in an old tropical fern genus (*Danaea*, Marattiaceae). *TAXON*.
56. Kessous, I., Farooq, H., **Testo, W. L.**, Jiménez, M. F., Neves, B., Pinto, A., Salgueiro, F., Costa, A., and Bacon, C. 2024. New insights into the classification, diversification, and evolutionary dynamics of bromeliads. *Botanical Journal of the Linnean Society*, advance access online.
55. Molino, S., **Testo, W. L.**, and Moran, R. C. 2024. A new name for plants previously called *Parablechnum christii* (Blechnaceae) in Costa Rica and Panama. *Novon*: 32: 87–93.
54. Pelosi, J., Zumwalde, B., **Testo, W. L.**, Kim, E., Burleigh, G., and Sessa, E. 2024. All tangled up: Unraveling phylogenetics and reticulate evolution in the vining ferns, *Lygodium* (Schizaeales). *American Journal of Botany*: 111: e16389.
53. Sorojsrisom, E., Alvarado-Rodriguez, O., **Testo, W. L.** 2023. *Goniopteris ×tico* (Thelypteridaceae), a new hybrid fern from Costa Rica. *Systematic Botany*: 48: 471–481.
52. Prado, J., Hirai, R., Sundue, M., and **Testo, W. L.** 2023. *Adiantum weatherbyanum* Espinosa, an overlooked species from northern Chile and *A. rodriguezii*, a new species from Central Chile. *American Fern Journal*: 113: 249–256.
51. Vega-Betancur, S., Callejas, R., **Testo, W. L.**, and Vasco, A. Sinopsis de *Selaginella* (Selaginellaceae) para el departamento de Antioquia, Colombia. *Brittonia*: 75: 133
50. Lima, L. V., Salino, A., Kessler, M., Rouhan, G., **Testo, W. L.**, Argolo, C. S., and Almeida, T. E. 2023. Phylogenomic evolutionary insights in the fern family Gleicheniaceae. *Molecular Phylogenetics and Evolution*: 184: 107782.
49. Antonelli, A. ...**Testo, W. L.**,...Ralimanana, H. [89 authors]. 2022. Madagascar’s extraordinary biodiversity: Threats and opportunities. *Science*: 378: eabf0869.
48. Ralimanana, H. ...**Testo, W. L.**,...Antonelli, A. [89 authors]. 2022. Madagascar’s extraordinary biodiversity: Evolution, distribution, and use. *Science*: 378: eadf1466.
47. Mellado-Mansilla, D., **Testo, W. L.**, Sundue, M. A., Zotz, G., Kreft, H., Coiro, M., and Kessler, M. 2022. The relationship between chlorophyllous spores and mycorrhizal associations in ferns. *American Journal of Botany*, 109: 2068–2081.
46. **Testo, W. L.**, de Gasper, A., Molino, S., Gabriel y Galán, J. M., Salino, A., Dittrich, V. A. O., and Sessa, E. B. 2022. Deep vicariance and frequent transoceanic dispersal shape the evolutionary history of a globally distributed fern family. *American Journal of Botany*: 109: 1–17.
45. Mehltreter, K., Wachter, H., Trabi, C., **Testo, W. L.**, Sundue, M., Jansen, S. 2022. Hydathodes in ferns: their phylogenetic distribution, structure and function. *Annals of Botany*, 130: 331–344.

PUBLICATIONS

44. Watkins, J. E., **Testo, W. L.** 2022. Close observation of a common fern challenges long-held notions of how plants move. A commentary on ‘Fern fronds that move like pine cones: humidity-driven motion of fertile leaflets governs the timing of spore dispersal in a widespread fern species’. *Annals of Botany* 129: 1–3.
43. Herrera, F., **Testo, W. L.**, Field, A. R., Clark, E., Herendeen, P., Crane, P., Shi, G. 2022. A permineralized Early Cretaceous lycopoid from China and the evolution of crown clubmosses. *New Phytologist*, 233: 2310–2322.
42. Fawcett, S., Smith, A. R., Sundue, M., Burleigh, J. G., Sessa, E., Kuo, L. Y., Chen, C. W., **Testo, W. L.**, Kessler, M., Barrington, D. S. 2021. A global phylogenomic analysis of the Thelypteridaceae. *Systematic Botany*, 46: 891–915.
41. Øllgaard, B., and **Testo, W. L.** 2021. The Lycopodiaceae of Panamá. *Phytotaxa*, 526: 1–66.
40. Molino, S., Sundue, M. A., and **Testo, W. L.** 2021. First record of sporangiasters in Blechnaceae. *American Fern Journal*, 111: 196–204.
39. **Testo, W. L.**, Watkins, J. E., Wiley, J., Baumann, L., Weaver, E. 2021. *Asplenium scolopendrium* var. *americanum* (Aspleniaceae) found in New Mexico, USA. *American Fern Journal*, 111: 217–222.
38. Riibe, L., Sundue, M. A., Sessa, E., **Testo, W. L.** 2021. A reassessment of the little-known Amazonian fern *Diplazium praestans* based on molecular and morphological evidence. *Systematic Botany*, 46: 260–272.
37. Majure, L. C., Barrios, D., Diaz, E., Zumwalde, B. A., **Testo, W. L.**, Negrón-Ortíz, V. 2021. Pleistocene aridification underlies the evolutionary history of the Caribbean endemic, insular giant, *Consolea* (Cactaceae, Opuntioideae). *American Journal of Botany*, 108: 1–16.
36. Suissa, J., Sundue, M. A., **Testo, W. L.** 2021. Mountains, climate, and niche heterogeneity explain global patterns of fern diversity. *Journal of Biogeography*, 48: 1296–1308.
35. Breinholt, J.W., Carey, S.B., Tiley, G.P., Davis, E.C., Endara, L., McDaniel, S.F., Neves, L.G., Sessa, E.B., von Konrat, M., Chantanaorrapint, S., Fawcett, S., Ickert-Bond, S.M., Labiak, P.H., Larraín, J., Lehnert, M., Lewis, L.R., Nagalingum, N.S., Patel, N., Rensing, S.A., **Testo, W. L.**, Vasco, A., Villarreal, J.C., Williams, E.W., Burleigh, J.G., 2021. A target enrichment probe set for resolving the flagellate plant tree of life. *Applications in Plant Sciences*, e11406.
34. Majure, L. C., Clase, T., **Testo, W. L.**, Cinea, W., Peguero, B. 2020. Nuevos reportes para la flora de La Española. *Moscúsoa*, 20: 151–161.
33. Cámara-Leret, R., Frodin, D. G., [...], **Testo, W. L.**, *et al.* [91 authors]. 2020. New Guinea has the world’s richest island flora. *Nature* 2020: 1–5.
32. Hornyk, O., **Testo, W. L.**, Sessa, E. B., Watkins, J. E., Company, C. E., Pittermann, J., Ekrt, L. 2020. Insights into the evolutionary history and widespread occurrence of antheridiogen systems in ferns. *New Phytologist*. doi:10.1111/nph.16836.
31. **Testo, W. L.**, Field, A. R., Sessa, E. B., and Sundue, M. A. 2019. Phylogenetic and morphological analyses support the resurrection of *Dendroconche* and the recognition of two new genera in Polypodiaceae subfamily Microsorioideae. *Systematic Botany* 44: 1–16.
30. **Testo, W. L.** 2020. Proposal to conserve the name *Asplenium erosum* (Aspleniaceae) with a conserved type. *Taxon* 68:594–595.
29. Kinoshita, S. P., **Testo, W. L.**, Chambers, S. M., and Sessa, E. B. 2019. Using RAD data to confirm parentage of polyploids in a reticulate complex of ferns. *American Fern Journal* 109: 267–282.
28. Kuo, L. Y., Chang, Y. H., Huang, Y. H., **Testo, W. L.**, Ebihara, A., Rouhan, G., Quintanilla, L. G., Watkins, J. E., Huang, Y. M., and Li, F. W. 2019. A global phylogeny of *Stegnogramma* ferns (Thelypteridaceae): generic and sectional revision, historical biogeography and evolution of leaf architecture. *Cladistics* 36:164–183.
27. **Testo, W. L.**, Sessa, E. B., and Barrington, D. 2019. The rise of the Andes promoted rapid diversification in

PUBLICATIONS

26. **Testo, W. L.**, Field, A. R., and Barrington, D. 2018. Overcoming among-lineage rate heterogeneity to infer the biogeography and divergence times of the clubmoss family Lycopodiaceae. *Journal of Biogeography* 45: 1929–1941.
25. Wolf, P. G., Robinson, T. A., Johnson, M. G., Sundue, M. A., **Testo, W. L.**, and Rothfels, C. J. 2018. Target sequence capture of nuclear-encoded genes for phylogenetic analysis in ferns. *Applications in Plant Sciences* 6: e01148.
24. **Testo, W. L.** and Sundue, M. A. 2018. Are rates of species diversification and body size evolution coupled in the ferns? *American Journal of Botany* 105: 1–11.
23. **Testo, W. L.**, Øllgaard, B., Field, A. R., Almeida, T., Kessler, M., and Barrington, D. 2018. Phylogenetic systematics, morphological evolution, and natural groups in Neotropical *Phlegmariurus* (Lycopodiaceae). *Molecular Phylogenetics and Evolution* 125: 1–13.
22. **Testo, W. L.** 2018. Novelties in Costa Rican *Pityrogramma*: a new species and a new hybrid from the Osa Peninsula. *American Fern Journal* 108: 27–33.
21. Mahley, J., Pittermann, J., Rowe, N., Baer, A., Watkins, J.E., Schuettelpelz, E., Wheeler, J., Mehltreter, K., Windham, M., **Testo, W. L.**, and Beck, J. 2018. Geometry, allometry and biomechanics of fern leaf petioles: their significance for the evolution of functional and ecological diversity within the Pteridaceae. *Frontiers in Plant Science* 9: 197–208.
20. Schmitt, M., Mehltreter, K., Sundue, M., **Testo W. L.**, Watanabe, T., and Jansen, S. 2017. The evolution of aluminum accumulation in ferns and lycophytes. *American Journal of Botany* 104: 573–583.
19. **Testo, W. L.**, Sundue, M., and Vasco, A. 2017. *Diplazium* hybrids involving *D. plantaginifolium* and *D. ternatum* from Mexico and Central America. *Brittonia* 69: 295–306.
18. **Testo, W. L.** 2017. *Phlegmariurus lehnertii*, a new name for *Phlegmariurus lancifolius* (Lycopodiaceae). *Phytotaxa* 297: 289–290.
17. **Testo, W. L.** and Sundue, M. 2016. A 4000-species dataset provides new insight into the evolution of ferns. *Molecular Phylogenetics and Evolution*, 105: 200–211.
16. Schuettelpelz, E., Schneider, H., [...], **Testo, W. L.**, et al. [94 authors]. 2016. A community-derived classification for extant ferns and lycophytes. *Journal of Systematics and Evolution* 54: 563–603.
15. Testo, W. L., Gilman, A. V., and Haines, A. 2016. *Huperzia continentalis*, a new gemmiferous clubmoss segregated from *Huperzia haleakalae*. *Systematic Botany* 41: 894–901.
14. Sessa, E. B., **Testo, W. L.** and Watkins, J. E., 2016. On the widespread capacity for, and functional significance of, extreme inbreeding in ferns. *New Phytologist*, 211: 1108–1119.
13. Sundue, M. and **Testo, W. L.**, 2016. *Parapolystichum novoguineense* (comb. nov.; Dryopteridaceae) from New Guinea. *Phytotaxa*, 243: 193–196.
12. Field, A. R., Testo, **W. L.**, Bostock, P. D., Holtum, J.A.M., Waycott, M. and Thornhill A. 2016. Phylogenetic phylogenetics and the morphology of the Lycopodiaceae subfamily Huperzioideae supports three genera: *Huperzia*, *Phlegmariurus* and *Phylloglossum*. *Molecular Phylogenetics and Evolution* 94: 635–657.
11. Sundue, M. A., **Testo, W. L.**, and Ranker, T. A. 2015. Morphological innovation, ecological opportunity, and the radiation of a major vascular epiphyte lineage. *Evolution* 69: 2482–2495.
10. Gilman, A.V. and Testo, **W. L.** 2015. Use of gemmae characters to identify North American *Huperzia* (Lycopodiaceae). *American Fern Journal* 105: 145–161.

PUBLICATIONS

9. **Testo, W. L.** and Gerdes, L. B.. 2015. An unusual form of *Huperzia selago* (Lycopodiaceae) and its implications for gemma homology in the genus. *American Fern Journal* 105: 123–126.
8. **Testo, W. L.**, Watkins, J. E., Pittermann, J., and Momin, R. 2015. *Pteris* × *caridadiae* (Pteridaceae), a new hybrid fern from Costa Rica. *Brittonia*, 67: 138–143.
7. **Testo, W. L.**, Watkins, J.E., and Barrington, D. S. 2015. Dynamics of asymmetrical hybridization in North American wood ferns: reconciling patterns of inheritance with gametophyte reproductive biology. *New Phytologist* 206: 785–795.
6. **Testo, W. L.**, M.S. Grasso, and Barrington, D. S. 2014. Beyond antheridiogens: chemical competition between gametophytes of *Polypodium appalachianum* and *Polypodium virginianum*. *Journal of the Torrey Botanical Society* 13: 302–312.
5. **Testo, W. L.** and Sundue, M. A. 2014. Primary hemiepiphytism in *Colysis ampla* (Polypodiaceae) provides new insight into the evolution of growth habit in ferns. *International Journal of Plant Sciences* 175: 526–536.
4. **Testo, W.L.** and Watkins, J. E. 2013. Understanding mechanisms of rarity in pteridophytes: competition and climate change threaten the rare fern *Asplenium scolopendrium* var. *americanum*. *American Journal of Botany* 100: 2261–2270.
3. **Testo, W. L.** and Watkins, J. E. 2012. Influence of plant size on the ecophysiology of the epiphytic fern *Asplenium auritum* from Costa Rica. *American Journal of Botany* 99: 1840–1846.
2. **Testo, W. L.** and Watkins J. E. 2011. Comparative development and gametophyte morphology of the hart’s-tongue fern, *Asplenium scolopendrium* L. *Journal of the Torrey Botanical Society* 138: 400–408.
1. Watkins, J.E., **Testo, W. L.**, and Merkhofer, R. 2011. In situ gametophyte morphology of the tropical epiphyte *Oleandra articulata*. *American Fern Journal* 101: 50–56.

GRANTS & AWARDS

- 2024 OVPR EXPRESS** (Early EXtra Promotion of REsearch and Scholarly Success), University of Vermont Office of the Vice President of Research (\$3000)
- 2023 Biota Award**, for Leaders in Biodiversity Science, Walder Foundation (\$300,000)
- 2021 Swedish Research Award**, Kungliga Vetenskaps och Vitterhets-Samhället (\$6200)
- 2020 Co-PI**, “PurSUIT: Collaborative Research: Accelerating Lineage Discovery For Neotropical Plant Diversity - Building Capacity to Document the Ferns of Colombia” (DEB-2045319) (\$1,165,170)
- 2020 IAPT Research Grant**, International Association of Plant Taxonomists (\$1100)
- 2016 NSF Doctoral Dissertation Improvement Grant**, National Science Foundation (\$18,526)
- 2015 Graduate Student Research Award**, American Society of Plant Taxonomists (\$800)
- 2015 Graduate Research Award**, New England Botanical Club (\$585)
- 2014 Huyck Research Grant**, Edmund Niles Huyck Biological Station (\$1420)
- 2013 CALS Travel Grant**, University of Vermont (\$800)
- 2013 Huyck Research Grant**, Edmund Niles Huyck Biological Station (\$1733)
- 2013 NSF Graduate Research Fellowship**, National Science Foundation (\$94,000)
- 2012 Huyck Research Grant**, Edmund Niles Huyck Biological Station (\$1300)
- 2012 Edgar T. Wherry Award**, Botanical Society of America
- 2012 Young Botanist Award**, Botanical Society of America
- 2011 Summer Research Assistantship Grant**, Colgate University (\$6800)
- 2010 Undergraduate Student Research Award**, Botanical Society of America

PRESENTATIONS

Invited Talks:

- 2023 Plant Biology Marvin Seminar series – University of Vermont (Burlington, VT)
Leveraging large datasets to study plant evolution in Earth's richest and most imperiled biodiversity hotspot
- 2022 Congreso Colombiano de Botánico - Asociación Colombiano de Botánica
Avances en el estudio de diversidad y evolución de licofitas en los Andes
- 2021 XXXVIII Jornadas Argentinas de Botánica - Sociedad Argentina de Botánica
Especímenes de herbario y el estudio de helechos neotropicales en la era de "big data"
- 2021 Biological Sciences seminar series - Northern Arizona University
Why are tropical mountains so biodiverse? Insights from the evolution of montane plant lineages
- 2020 'Biodiversity Synthesis' colloquium - Botany 2020 (Virtual Meeting)
FronDS in high places: large-scale integrative analyses explain global patterns of fern diversity
- 2020 Biological Sciences seminar series - Universidad Autónoma de Santo Domingo (Dominican Republic)
Situación actual del estudio de los helechos en La Española: avances y retos
- 2019 IAPT Early Career Investigator Symposium: Life at the Edge - Botany 2019 (Tucson, AZ)
Into the trees and back again: major ecological shifts drive the radiation of Neotropical Phlegmariurus
- 2019 Natural History seminar series - Florida Museum of Natural History (Gainesville, FL)
Out of the Carboniferous and up the Andes: unraveling the ancient origin and recent radiation of the clubmosses.
- 2018 Biological Sciences seminar series - Universidad Autónoma de Santo Domingo (Dominican Republic)
Diversidad de helechos en la República Dominicana y su estado de conservación
- 2018 'Diversity of Andean Ferns' symposium - XII Congreso Latinoamericano de Botánica (Ecuador)
Diversidad y taxonomía de los licopodios andinos
- 2018 Harvard University Herbaria seminar series - Harvard University (Cambridge, MA)
Diversification of the clubmosses in the high Andes
- 2017 IX Congreso Colombiano de Botánica - Universidad Pedagógica de Tunja (Colombia)
Diversificación de Phlegmariurus (Lycopodiaceae) en los Andes
- 2016 XX Congreso Mexicano de Botánica - Universidad Autónoma de México (Mexico)
Filogenia y diversificación de Phlegmariurus (Lycopodiaceae) y las afinidades de las especies mexicanas
- 2015 Biology seminar series - Zurich Institute of Systematic Botany (Switzerland)
A new look at diversification in the ferns

Contributed Talks:

**Denotes presenting authorship*

- 2024 XX International Botanical Congress (Madrid, Spain) - Phylogenomic data reveal the complex evolutionary history of Neotropical Phlegmariurus (Lycopodiaceae)*
- 2023 Botany 2023 (Boise, ID) - A phylogenomic study of *Elaphoglossum* provide new insights and highlight persistent challenges in the study of diverse tropical fern groups*
- 2023 Botany 2023 (Boise, ID) - A phylogenomic study of *Elaphoglossum* provide new insights and highlight persistent challenges in the study of diverse tropical fern groups*
- 2021 Botany 2021 (Virtual meeting) - Target enrichment of 360 nuclear loci provide a first look at the evolutionary history of the pantropical fern genus *Oleandra**
- 2021 Botany 2021 (Virtual meeting) - Phylogenomics and historical perspectives in the fern genus *Elaphoglossum* (Dryopteridaceae)

PRESENTATIONS

Contributed Talks:

**Denotes presenting authorship*

- 2021 Botany 2021 (Virtual meeting) - *An early Cretaceous homosporous lycopod from China and the evolution of crown clubmosses*
- 2020 Botany 2020 (Virtual meeting) - *Pheromones largely control sex expression in ferns: a meta-analysis of fern mating via antheridiogens*
- 2019 Botany 2019 (Tucson, AZ) - *Cleaning up (some) of a mess: two new genera and another resurrected in the Polypodiaceae subfamily Microsoroideae**
- 2019 Botany 2019 (Tucson, AZ) - *Morphology and sequence data resolve the Diplazium praestans mystery*
- 2019 Botany 2019 (Tucson, AZ) - *Evolutionary history of Asplenium in Africa*
- 2019 Botany 2019 (Tucson, AZ) - *Global patterns of fern diversification*
- 2018 Botany 2018 (Rochester, MN) - *Phylogenetic systematics, morphological evolution, and natural groups in Neotropical Phlegmariurus (Lycopodiaceae)**
- 2018 Botany 2018 (Rochester, MN) - *Are rates of species diversification and size evolution coupled in ferns?*
- 2018 Botany 2018 (Rochester, MN) - *Historical biogeography of the fern family Blechnaceae*
- 2018 Botany 2018 (Rochester, MN) - *The rise of the Andes promoted rapid diversification in Neotropical Phlegmariurus (Lycopodiaceae)**
- 2018 Building Bridges Botanical Conference (Havana, Cuba) - *Nuevos conceptos en la taxonomía de los licopodios y la importancia de los jardines botánicos en su conservación**
- 2017 Botany 2017 (Savannah, GA) - *Polyploidy does not influence rates of diversification across the fern phylogeny**
- 2015 Next Generation Pteridology (Washington, DC) - *Do habitat shifts lead to an increase in diversification rate in the Dryopteridaceae?*
- 2015 Next Generation Pteridology (Washington, DC) - *Molecular and morphological systematics of the Lycopodiaceae subfamily Huperzioideae: a case for the genera Huperzia, Phlegmariurus, and Phylloglossum*
- 2015 Next Generation Pteridology (Washington, DC) - *Biogeographic patterns and processes of speciation in the Polypodiaceae**
- 2015 Next Generation Pteridology (Washington, DC) - *A new look at diversification in the ferns**
- 2014 Botany 2014 (Boise, ID) - *Exploring patterns of sex-biased hybridization in the North American wood ferns: insights from gametophyte breeding systems**
- 2014 Botany 2014 (Boise, ID) - *Fern hemiepiphytes: a bridge between terrestrial and epiphytic species?*
- 2014 Botany 2014 (Boise, ID) - *Mating systems in ferns: frequencies, functional significance, and phylogenetic signal*
- 2013 Botany 2013 (New Orleans, LA) - *Allelopathy and gametophyte competition in North American Polypodium species: ecological and evolutionary considerations**
- 2011 XVIII International Botanical Congress (Australia) - *Gametophyte ecology of the hart's-tongue fern**
- 2011 National Undergraduate Research Conference (Ithaca, NY) - *Ecology and conservation of the American hart's-tongue fern**

TEACHING

- 2023-present **Instructor:** *Herbarium Internship* (PBIO 3991)
Department of Plant Biology, University of Vermont
Undergraduate internship – 3 students.
- 2023–present **Instructor:** *Plant Systematics* (PBIO 2090)
Department of Plant Biology, University of Vermont
Undergraduate course – 45 students.
- 2023 **Instructor:** *Diversidad y sistemática de helechos*
Universidad del Valle, Cali, Colombia
Two-day workshop on fern diversity and evolution.
- 2023-present **Instructor:** *Tropical Plant Systematics in Costa Rica* (PBIO 232)
Department of Plant Biology, University of Vermont
Two-week winter 2023 undergraduate field course in Costa Rica – 15 students.
- 2022 **Faculty:** *Helechos y licofitas de Colombia: Herramientas modernas y tradicionales para su estudio*
Universidad de Los Llanos, Colombia
Two-day course offered in advance of the XI Colombian Botanical Congress. Undergraduate course.
- 2022 **Faculty:** *Tropical Ferns and Lycophytes*
Organization for Tropical Studies, Costa Rica
Two-week course on fern and lycophyte biology. Graduate course.
- 2021 **Guest Lecturer:** *Diversidad de plantas tropicales*
Universidad Pedagógica y Tecnológica, Colombia
Guest lecture on plant diversity and conservation in Colombia. Undergraduate course.
- 2019 **Invited Faculty:** *Tropical Ferns and Lycophytes*
Organization for Tropical Studies, Costa Rica
Two-week course on fern and lycophyte biology. Graduate course.
- 2019 **Instructor:** *Taxonomía e Identificación de los Helechos de la República Dominicana*
Universidad Autónoma de Santo Domingo, Dominican Republic
One-week course of use of herbarium specimens and fern taxonomy. Undergraduate course.
- 2018 **Instructor:** *Local Flora of North Florida*
University of Florida, USA
One-semester field course on plant diversity and identification. Undergraduate course.
- 2017 **Instructor:** *Morfología y Sistemática de los Helechos Neotropicales*
Universidad Pedagógica y Tecnológica, Colombia
One-week field course on tropical fern diversity and identification. Graduate course.
- 2017 **Teaching Assistant:** *Tropical Plant Systematics*
University of Vermont, USA (course offered in Costa Rica)
Two-week field course on tropical plant diversity, classification, and morphology. Undergraduate course.
- 2013–2016 **Teaching Assistant:** *Plant Systematics*
University of Vermont, USA
One-semester field- and lab-based course in plant diversity and morphology. Undergraduate course.
- 2015 **Invited Faculty:** *Tropical Ecology in a Changing World*
Organization for Tropical Studies, Costa Rica
One-week field course leading student research projects on plant ecology. Undergraduate course.

TEACHING

- 2015 **Teaching Assistant:** *Tropical Ferns and Lycophytes*
Organization for Tropical Studies, Costa Rica
Two-week course on fern and lycophyte biology. Graduate course.
- 2013 **Teaching Assistant:** *Morphology and Evolution of Vascular Plants*
University of Vermont, USA
One-semester course on microscopy, plant morphology and anatomy. Undergraduate course.

GRADUATE STUDENT MENTORSHIP

- 2024–present **Ph.D. Co-Advisor,** Evelin Krol
University of Zurich
Dissertation: Origins and reticulate evolution in the *Dryopteris affinis* complex
- 2024–present **Ph.D. Advisor,** Nicolás Zapata
University of Vermont
Dissertation: Systematics and biogeography of *Pityrogramma* (Pteridaceae)
- 2024–present **Ph.D. Advisor,** Nicole Phelan
University of Vermont
Dissertation: Species origins and reticulation in the *Helianthus strumosus* complex
- 2023–present **Ph.D. Co-Advisor,** Sarah Morris
University of Vermont
Dissertation: Systematics and trait evolution in *Pleopeltis* (Polypodiaceae)
- 2020–2024 **Master's Co-Advisor,** Susana Vega
Universidad de Antioquia, Colombia
Dissertation: “Systematics and taxonomy of the genus *Selaginella* in Antioquia, Colombia”
- 2019–2022 **Ph.D. Co-Advisor,** Sonia Molino
Universidad Complutense de Madrid, Spain
Dissertation: “Taxonomy, phylogeny, and historical biogeography of the genus *Parablechnum*”
- 2019–2021 **Master's Co-Advisor,** Francis Gruillon
Universidad Autónoma de Santo Domingo, Dominican Republic
Dissertation: “Diversity of vascular plant epiphytes in the valley of Manabao, Dominican Republic”

** I have co-authored a total of 25 publications with undergraduate and graduate students.

SERVICE & OUTREACH

Editorial Service:

2023–	Associate Editor , <i>TAXON</i>
2020	Guest Editor , <i>American Fern Journal</i>
2020–	Associate Editor , <i>Lilloa</i>
2018–2020	Review Editor , <i>Frontiers in Plant Sciences</i>

Manuscript Review:

(167 manuscripts reviewed as of November 2024)

Acta Botánica Mexicana, Acta Physiologiae Plantarum, American Fern Journal, American Journal of Botany, Annals of Botany, Annals of the Missouri Botanical Garden, Botany, Brittonia, Blumea, Canadian Journal of Botany, Checklist, Diversity and Distributions, Evolution, Flora, Functional Ecology, Genome Biology and Evolution, Global and Planetary Change, International Journal of Plant Sciences, Journal of Biogeography, Molecular Biology and Evolution, Molecular Ecology, Nature, New Phytologist, New Zealand Journal of Botany, Nordic Journal of Botany, Oecologia, Phytokeys, Phytotaxa, PLoS One, Proceedings B, Revista Mexicana de Biodiversidad, Rodriguesia, Science, Systematic Botany, Taxon, Tropical Conservation Science, Willdenowia

Professional Society Membership:

American Fern Society, American Society of Plant Taxonomists, Asociación Colombiana de Botánica, Asociación Latinoamericana de Pteridología, Botanical Society of America, International Association of Plant Taxonomists, New England Botanical Club, Torrey Botanical Society

Additional Service & Outreach:

2023–	Graduate Student Admissions Committee, Department of Plant Biology, University of Vermont
2024–	Member, New England Botanical Club Herbarium Committee
2024–	President, American Fern Society
2023	‘Meet a Curator’ Host, Field Museum of Natural History, Chicago, IL, USA
2022–2024	President-Elect, American Fern Society
2021	Doctoral Thesis Examiner, University of Neuchâtel, Switzerland 2020
2021	Special Issue Editor, <i>American Fern Journal</i>
2020	Grant Reviewer, American Society of Plant Taxonomists
2020	NSF Graduate Research Fellowship Program Mentor, Botanical Society of America
2019–	Webmaster, American Fern Society
2019–	Council Member, American Fern Society
2019	‘Science Day’ Panelist, East Side High School, Gainesville, FL, USA
2019	‘Day in the Lab’ Event, University of Florida (with visiting high school students from Colombia)
2019	Colloquium Organizer, “Reticulate Evolution and Biogeography in Ferns and Lycophytes” - Botany
2019–2020	Postdoc Representative, University of Florida Biology Mentorship Committee
2018	Grant Reviewer, Czech Science Foundation
2015–	Column Contributor, Fiddlehead Forum (Newsletter of American Fern Society)
2011–2015	Project Mentor, Botanical Society of America ‘PlantingScience’ high school outreach program

PRESS & SCIENCE COMMUNICATION

- 2023 Press for “Documenting Diversity Amidst a Mass Extinction: Generating a Conservation Framework for the Flora of Hispaniola” (Biota Award, Walder Foundation) ([Link here](#))
- 2020 Press for “New Guinea has the world’s richest island flora” (paper #33 in ‘Publications’) ([Link here](#))
- 2019 Press for “The rise of the Andes promoted rapid diversification in Neotropical *Phlegmariurus* (Lycopodiaceae)” (paper #27 in ‘Publications’) ([Link here](#))
- 2019 Interview on fern and lycophyte diversity for *In Defense of Plants* Podcast ([Link here](#))