



Department of Ecology & Evolutionary
Biology
University of Connecticut
75 N. Eagleville Rd, Unit 3043
Storrs CT, 06269-3043

Office Phone: +1 (860) 486-4638
Mobile: +1 (860) 634-4418
Website: timothymoore.com
Email: timothy.e.moore@uconn.edu

EDUCATION & POSTGRADUATE EXPERIENCE

- 2018 – present **University of Connecticut**, Storrs, CT.
Postdoctoral Research Associate in Ecology and Evolutionary Biology
Advisor: Carl D. Schlichting
- 2012 – 2018 **University of Connecticut**, Storrs, CT.
Ph.D. in Ecology and Evolutionary Biology
Advisor: Carl D. Schlichting
Dissertation title: Patterns of trait and range size variation in an evolutionary radiation: The role of environmental gradients.
- 2008 – 2011 **University of Cape Town**, Rondebosch, Cape Town, South Africa.
M.Sc. in Botany (awarded with distinction)
Advisors: G. Anthony Verboom, Michael D. Cramer
Dissertation title: Testing the adaptive nature of morphological diversification in the hemiparasitic genus *Thesium* L. (Santalaceae).
- 2004 – 2007 **University of Cape Town**, Rondebosch, Cape Town, South Africa.
B.Sc. (*Honours*).
Honours Theses:
- The role of water and nutrient availability in determining above- and below-ground allocations in a C4 grass *Stipagrostis ciliata* (Desf.) de Winter.
 - The adaptive significance of leaf size and shape variation in *Jamesbrittenia* (Scrophulariaceae: Manuleae)

PUBLICATIONS

- Moore, T.E.**, Bagchi, R., Aiello-Lammens, M., Schlichting, C.D. (2018). Spatial autocorrelation inflates niche breadth-range size relationships. *Global Ecology & Biogeography*. doi: 10.1111/geb.12818
- *Phylogenetic least squares regression, Bayesian spatial regression using a Matérn correlation function, modeling in INLA.*

Moore, T.E., Schlichting, C.D., Aiello-Lammens, M., Mocko, K., Jones, C.S. (2018). Divergent trait and environment relationships among parallel radiations in *Pelargonium* (Geraniaceae): a role for evolutionary legacy? *New Phytologist*. 219, 794-807. doi: 10.1111/nph.15196

- *Bayesian phylogenetic generalized mixed effects models using brms (Stan via R), model selection using leave-one-out cross-validation.*

Wright T., & Zimmerman N. (eds), [et al, including **T.E. Moore**]. (2016). Software Carpentry: R for Reproducible Scientific Analysis. Version 2016.06. doi: 10.5281/zenodo.57520

Mitchell, N., **Moore, T.E.**, Kilroy-Mollmann, H., Carlson, J.E., Mocko, K., Martinez-Cabrera, H., Adams, C., Silander Jr., J.A., Jones, C.S., Schlichting, C.D. & Holsinger, K.E. (2015). Functional Traits in Parallel Evolutionary Radiations and Trait-Environment Associations in the Cape Floristic Region of South Africa. *The American Naturalist*. 185, 525-537. doi: 10.1086/680051

- *Bayesian multiple-response generalized linear mixed-effects models (in JAGS).*

Verboom, G. A., **Moore, T. E.**, Hoffmann, V., & Cramer, M. D. (2012). The roles of climate and soil nutrients in shaping the life histories of grasses native to the Cape Floristic Region. *Plant and Soil*, 355, 323–340. doi: 10.1007/s11104-011-1102-6

- *Ordinary least squares regression, multiple regression, Principal Component Analysis, Fisher's exact test.*

Moore, T. E., Verboom, G. A., & Forest, F. (2010). Phylogenetics and biogeography of the parasitic genus *Thesium* L. (Santalaceae), with an emphasis on the Cape of South Africa. *Botanical Journal of the Linnean Society*. 162, 435–452. doi: 10.1111/j.1095-8339.2010.01032.x

- *Analysis of phylogenetic relationships based on parsimony and Bayesian inference.*

Submitted Papers and Papers in Preparation

*Mickley, J.G., ***Moore, T.E.**, Schlichting, C.D., DeRobertis A., Mason E., & Bagchi, R. *In prep.* DIY microcontrollers for measuring microenvironment: The new frontier of ecological sensors.

- *Time series analysis using GAMs and GAMMs.*

Moore, T.E., Jones, C.S., Schlichting, C.D. *In prep.* Seasonality of rainfall alters patterns of leaf size and shape variation in *Pelargonium scabrum* (Burm. f.) L'Herit., a shrub from the Greater Cape Floristic Region of South Africa.

- *Discriminant function analysis, Bayesian regression using brms, Principal Components Analysis.*

* Authors contributed equally to this work

Moore, T. E., Verboom, G.A., Cramer, M.D. *In prep.* The adaptive significance of leaf size and shape variation in *Jamesbrittenia* (Scrophulariaceae: Manuleae).

- *Phylogenetic least squares regression, analysis of variance, Student's t-Test.*

Published Abstracts and Letters

Moore, T.E., Mickley, J.G., Jones, C.D., & Schlichting, C.D. (2017). RE: Global climatic drivers of leaf size. *Science Signalling* (eLetter – 17 November 2017)

<http://science.sciencemag.org/content/357/6354/917/tab-e-letters>

- *Generalized linear mixed-effects models.*

Moore, T. E., Verboom, G.A., Cramer, M.D. (2008). The adaptive significance of leaf size and shape variation in *Jamesbrittenia* (Scrophulariaceae: Manuleae). *South African Journal of Botany*. 74, 373-373. doi: 10.1016/j.sajb.2008.01.082

SELECTED TALKS AND PRESENTATIONS

Timothy E. Moore, Robert Bagchi, Matthew E. Aiello-Lammens, Carl D. Schlichting: *Spatial autocorrelation inflates niche breadth-range size relationships in the genus Pelargonium (Geraniaceae)*. Ecological Society of America, New Orleans, 2018.

Timothy E. Moore, Carl D. Schlichting, Matthew Aiello-Lammens, Kerri Mocko, & Cynthia S. Jones: *Trait-based ecology at regional scales needs an evolutionary context*. Society for the Study of Evolution, Austin, 2016.

Timothy E. Moore, Michael D. Cramer, & G. Anthony Verboom: *The adaptive significance of leaf size and shape variation in Jamesbrittenia (Scrophulariaceae: Manuleae)*. Botanical Society of America, Savannah, 2016.

Timothy E. Moore, Carl D. Schlichting, Matthew Aiello-Lammens, Kerri Mocko, & Cynthia S. Jones: *Trait-based ecology at regional scales needs an evolutionary context*. Botanical Society of America, Savannah, 2016.

Nora Mitchell, **Timothy E. Moore**, & Kent E. Holsinger: *Functional traits in parallel evolutionary radiations: trait-environment associations in the Cape Floristic Region of South Africa*. Botanical Society of America, Boise, 2014.

GRANTS AND FELLOWSHIPS

2015 University of Connecticut Graduate School Doctoral Dissertation Fellowship – USD2,000

2014 Scholarship: Ronald Bamford Endowment – USD1,500

2009 Siri Johnson Scholarship - ZAR10,000
2009 KW Johnstone Research Scholarship – ZAR5,000
2009 The Harry Crossley Foundation Research Fellowship – ZAR40,000
2009 University of Cape Town International Travel Award – ZAR43,000

RESEARCH EXPERIENCE

- 2018 – present **Postdoctoral Research Associate**, University of Connecticut, Storrs, CT.
Investigating patterns of trait variation in the genus *Pelargonium* in response to environmental gradients. Reconstructing ancestral trait variation in *Pelargonium*. Developing system to monitor microenvironmental variation across broad spatial scales. Trained and mentored undergraduate students.
Supervisors: Carl. D. Schlichting
- 2012 – 2018 **Doctoral Research**, University of Connecticut, Storrs, CT.
Participated in NSF-funded Dimensions of Biodiversity Research project. Devised research into trait-trait and trait-environment associations across species of *Pelargonium*. Conducted, and led extensive fieldwork in remote areas of South Africa, collecting material for functional trait and genetic analyses. Developed method to examine effect of spatial autocorrelation on estimates of niche breadth using Bayesian modeling. Co-developed Environmental Monitoring Units (EMUs). Organized and coordinated ‘Plant Diversity in the GCFR’ symposium held in South Africa in 2015. Visited Australian National University to learn genomic techniques.
Committee: Carl D. Schlichting (primary), Cynthia S. Jones, Robert Bagchi, and Kent E. Holsinger.
- 2011 **Research Assistant**, University of Connecticut, Storrs, CT.
Facilitated the field collection of plant functional trait data from plant communities in South Africa.
- 2011 **Herbarium Assistant**, Bolus Herbarium, Cape Town, South Africa.
Assisted in the curation of the genus *Thesium* and grasses in the tribe Danthonioideae.
Supervisor: Terrence Trinder-Smith
- 2008 – 2011 **Masters Research**, University of Cape Town, South Africa.
Examined role of soil nutrients driving the ecology and evolution of parasitism in the genus *Thesium*. Conducted a large amount of field work, often unaccompanied. Analyzed plants for physiological traits, including gas exchange measurements. Sampled soils for nutrient assays. Designed and executed greenhouse-based experiments, investigating the growth and development of *Thesium* species grown with different hosts.

- Supervisors: G. Anthony Verboom, Michael D. Cramer
- 2009 **Research Assistant**, Royal Botanic Gardens, Kew, London, United Kingdom.
Carried out DNA extractions, PCRs, and cycle sequencing of species of *Thesium* as part of phylogenetic work for Master research.
Supervisor: Félix Forest
- 2007 **Honours Research**, University of Cape Town, South Africa.
Physiological analysis of the significance of leaf size and shape variation in the genus *Jamesbrittenia*, including ancestral trait reconstructions and trait-environment associations. Field-based evaluation of differential rooting depth in the grass *Stipagrostis ciliata*, in sites in Namaqualand and the Great Karoo of South Africa. Isotope analyses of above- and below-ground plant tissues.
- 2005 – 2007 **Undergrad. Research Assistant**, University of Cape Town, South Africa.
Maintained plants for common garden experiment; including watering and nutrient supplementation. Assisted with field collection of seeds from wild populations. Carried out DNA extractions.

TEACHING EXPERIENCE

- 2016 – present **Certified Instructor, Software Carpentry Foundation**.
Teaching basic scientific programming skills, reproducible research, and data management to scientist and non-scientists. Led and assisted with workshops held at UConn.
- 2013, 2015 **Teaching Assistant**, EEB2244W – General Ecology, UConn.
- 2015 **Coordinator**, EEB3894 – Current Topics in Ecology & Evolution, UConn.
Facilitated discussion of diverse topics in Ecology and Evolution, based on primary, peer-reviewed literature. Assigned and graded student responses to literature and in-class discussions.
- 2014 **Teaching Assistant**, EEB2245 – Evolutionary Biology, UConn.
- 2012, 2013 **Teaching Assistant**, BIO1108 – Introduction to Biology, UConn.
- 2010, 2011 **Teaching Assistant**, BIO2008 – Principles of Evolution, Univ. of Cape Town.
- 2008, 2009 **Teaching Assistant**, BIO3011 – Ecophysiology, Univ. of Cape Town.
- 2007 – 2010 **Teaching Assistant**, BIO2006 – Plant Diversity, Univ. of Cape Town.

MENTORING AND CONSULTING EXPERIENCE

- Undergraduate Mentoring** Trained undergraduates (6 at UConn) in Ecological field techniques, experimental design, project management, scientific writing, and data analysis.
- Graduates and Faculty** Assisted EEB faculty and graduate students (more than 10 at

Consulting

UConn) with experimental design, data management, and data analysis, including ordination, Bayesian regression, data visualization in R and Tableau.

External Consulting

Consulted on statistical analyses for researchers at University of Albany (generalized mixed effects models, survival analysis) and Chinese Academy of Sciences (Bayesian phylogenetic regression analysis). Consulting for local environmental consulting company (North East Aquatic Research, LLC) on data manipulation and statistical techniques, including principal components analysis and time series analysis.

PROFESSIONAL SERVICE

Manuscript reviewer for: *American Journal of Botany*, *Botanical Journal of the Linnaean Society*, *Conservation Biology*, *Journal of Ecology*, *Taxon*

SOCIETY MEMBERSHIP

Society for the Study of Evolution; Ecological Society of America; Botanical Society of America; South African Association of Botanists; Southern African Society for Systematic Biology

EXPERTISE

Geographic Information Systems (GIS); Programming in R; GitHub; Bayesian Statistics; Tableau

LANGUAGES

English (native); Afrikaans