



Tyler R. Kartzinel

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EDUCATION

- 2012 Ph.D. Odum School of Ecology, The University of Georgia
Thesis: *The influence of landscape heterogeneity and species interactions on the distribution of an epiphytic orchid and its genetic variation.*
- 2007 B.A. Biology, Honors, *cum laude*, Rollins College
- 2007 B.A. Environmental Studies, Honors, *cum laude*, Rollins College

PROFESSIONAL APPOINTMENTS

- 2017- Assistant Professor, Ecology and Evolutionary Biology, Brown University
- 2017- Fellow, Institute at Brown for Environment and Society, Brown University
- 2015-2017 NatureNet Fellow, Princeton University & The Nature Conservancy
- 2013-2015 Postdoctoral Research Associate, Princeton University
- 2007-2012 Presidential Fellow, The University of Georgia

DISCIPLINARY CONCENTRATIONS

Conservation biology, ecology and evolutionary biology, molecular ecology, population genetics.

REFEREED JOURNAL ARTICLES

(UNDERLINED AUTHORS ARE KARTZINEL LAB STUDENTS/POSTDOCS; *INDICATES JOINT FIRST AUTHORSHIP.)

1. Gill BA, Musili PM, Kurukura S, Hassan AA, Goheen JR, Kress WJ, Kuzmina M, Pringle RM, **Kartzinel TR**. *Accepted (pending minor revisions)*. Plant DNA barcode library and regional phylogeny for a semi-arid savanna in Kenya. *Molecular Ecology Resources*.
2. Pansu J, Guyton JA, Potter A, Atkins J, Daskin J, Wursten B, **Kartzinel TR**, Pringle RM. 2018. Trophic ecology of large herbivores in a reassembling African ecosystem. *Journal of Ecology*, in press.
3. Reese AT, Pereira FC, Schintlmeister A, Berry D, Wagner M, Hale LP, Wu A, Jiang S, Durand HK, Zhou X, Premont R, Mae Diehl A, O'Connell TM, Alberts SC, **Kartzinel TR**, Pringle RM, Dunn RR, Wright JP, David LA. 2018. Microbial nitrogen limitation in the mammalian large intestine. *Nature Microbiology*, DOI: 10.1038/s41564-018-0267-7.
4. Deagle BE, Thomas AC, McInnes JC, Clarke LJ, Vesterinen EJ, Clare EL, **Kartzinel TR**, Eveson JP. 2018. Counting with DNA in metabarcoding studies: how should we convert sequence reads to dietary data? *Molecular Ecology*, DOI: 10.1111/mec.14734. *BioRxiv* preprint: 10.1101/303461.
 - Invited contribution to the special feature: *Species interactions, ecological networks and community dynamics*.
5. Goheen JR, Augustine DJ, Veblen KE, Kimuyu DM, Palmer TM, Porensky LM, Pringle RM, Ratnam J, Riginos C, Sankaran M, Ford AT, Hassan AA, Jakopak R, **Kartzinel TR**, Kurukura S, Louthan AM, Odadi WO, Otieno TO, Wambua AM, Young HS, Young TP. 2018. Conservation lessons from large-mammal manipulations in East African savannas: the KLEE, UHURU, and GLADE experiments. *Annals of the New York Academy of Sciences*, 1429: 31-49.
 - Invited contribution to the special issue: *The year in ecology and conservation biology*.

6. Budischak SA, Hansen CB, Caudron Q, Garnier R, **Kartzinel TR**, Pelcer I, Cressler C, van Leeuwen A, Graham A. 2018. Feeding immunity: physiological and behavioral responses to infection and resource limitation. *Frontiers in Immunology*, 8: 1914.
 - Invited contribution to the special feature: *Wild immunology—the answers are out there*.
7. Pellegrini AFA, Anderegg WRL, Paine CET, Hoffmann WA, **Kartzinel TR**, Rabin SS, Sheil D, Franco AC, Pacala SW. 2017. Convergence of bark investment according to fire and climate structures ecosystem vulnerability to future change. *Ecology Letters*, 20: 307-317.
 - *Nature* Highlights, Princeton University homepage, coverage in *Boston Globe* and other media.
8. Coverdale TC, **Kartzinel TR**, Grabowski K, Shriver R, Hassan A, Goheen JR, Palmer TM, Pringle RM. 2016. Elephants in the understory: opposing direct and indirect effects of consumption and ecosystem engineering. *Ecology*, 97: 3219-3230.
 - *Ecology* homepage feature.
9. **Kartzinel TR**, Campbell DA, Trapnell DW. 2016. Spatial patterns of haplotype variation in the epiphytic bromeliad *Catopsis nutans*. *Biotropica*, 48: 206-217.
10. **Kartzinel TR**, Hamrick JL, Wang C, Bowsher AW, Quigley BGP. 2015. Heterogeneity of clonal patterns among patches of kudzu, *Pueraria montana* var. *lobata*, an invasive plant. *Annals of Botany*, 116: 739-750.
11. **Kartzinel TR**, Chen PA, Coverdale TC, Erickson DL, Kress WJ, Kuzmina ML, Rubenstein DI, Wang W, Pringle RM. 2015. DNA metabarcoding illuminates dietary niche partitioning by African large herbivores. *Proc. Nat. Acad. Sci. USA* 112: 8019-8024.
 - Cover article and photograph.
 - *PNAS* Commentary by Tilman & Borer. “African mammals, foodwebs, and coexistence.”
 - *PNAS* “New and Newsworthy” feature; Recommended on Faculty of 1000.
 - Coverage in *New York Times*, *National Geographic*, NPR, and other media.
 - The paper and supporting data are the basis of a [Howard Hughes Medical Institute BioInteractive Lab](#)—a tool for curricular enhancement of “textbook” high school biology.
12. **Kartzinel TR** and Pringle RM. 2015. Molecular detection of invertebrate prey in vertebrate diets: Trophic ecology of Caribbean island lizards. *Molecular Ecology Resources*, 15: 903-914.
13. **Kartzinel TR**, Goheen JR, Charles GK, DeFranco E, Maclean JE, Otieno T, Palmer TM, Pringle RM. 2014. Plant and small-mammal responses to large-herbivore exclusion in an African savanna: five years of the UHURU experiment. *Ecology* 95: 787-787.
 - Data paper published with *Ecological Archives* E085-064.
14. **Kartzinel TR**, Shefferson RP, Trapnell DW. 2013. Relative importance of pollen and seed dispersal across a Neotropical mountain landscape for an epiphytic orchid. *Molecular Ecology* 22: 6048-6059.
15. **Kartzinel TR**, Trapnell DW, Shefferson RP. 2013. Highly diverse and spatially heterogeneous mycorrhizal symbiosis in a rare epiphyte is unrelated to broad biogeographic or environmental features. *Molecular Ecology* 22: 5949-5961.
16. **Kartzinel TR**, Trapnell DW, Shefferson RP. 2013. Critical importance of large native trees for conservation of a rare Neotropical epiphyte. *Journal of Ecology* 101: 1429-1438.
17. Trapnell DW, Hamrick JL, Ishibashi CD, **Kartzinel TR**. 2013. Genetic inference of epiphytic orchid colonization; it may only take one. *Molecular Ecology* 22: 3680-3692.
18. **Kartzinel TR**, Trapnell DW, Glenn TC. 2012. Microsatellite primers for the Neotropical epiphyte *Epidendrum firmum* (Orchidaceae). *American Journal of Botany* 99: e450-452.

SUBMITTED ARTICLES

19. Guyton JA, Pansu J, **Kartzinel TR**, Coverdale TC, Potter AB, Daskin JH, Hutchinson MC, Gledis da Conceição Miranda A, Stalmans M, Pringle RM. *Revised & Resubmitted*. Restoration of native African megafauna revives biotic resistance to plant invasion.
20. Shefferson RP, Bunch W, Cowden CC, Lee Y-I, **Kartzinel TR**, Yukawa T, Downing J Jiang, H. *In Review*. Does evolutionary history determine specificity in broad ecological interactions?
 - Invited contribution to the *Journal of Ecology* special feature: *Macroevolution of Biotic Interactions in Plants*.
21. Pringle RM*, **Kartzinel TR***, Thurman TJ, Fox-Dobbs K, Coverdale TC, Daskin JH, Evangelista D, Gotanda K, Kolbe JJ, Man in 't Veld N, Wegener H, Xu CC, Losos JB, Schoener TW, Spiller DA, Palmer TM, Barrett RDH. *In Revision*. Collapse of niche structure on islands with introduced top predators.
22. **Kartzinel TR** and Pringle RM. *In Revision*. Multiple dimensions of dietary diversity in African large herbivores.
23. Trapnell DW, Ishibashi CD, **Kartzinel TR**, Hamrick JL, Quigley CTC. *In Revision*. Phylogeography of the Neotropical epiphytic orchid, *Brassavola nodosa*: evidence for a secondary contact zone.

PUBLISHED ABSTRACTS

1. **Kartzinel TR** and Pringle RM. 2015. DNA metabarcoding illuminates dietary niche partitioning by large herbivores in Africa. *Genome* 5: 236-236.

INVITED LECTURES & OTHER RESEARCH PRESENTATIONS

- 2018 University of Idaho, Moscow, ID, USA (student-invited speaker, Institute for Bioinformatics & Evolutionary Studies and Bioinformatics & Computational Biology).
- 2018 University of Connecticut, Storrs, CT, USA (departmental seminar).
- 2018 Rhode Island College, Providence, RI, USA (departmental seminar).
- 2018 Iowa State University, Ames, IA, USA (departmental seminar).
- 2018 Mpala Research Centre, Laikipia, Kenya ("Science Friday" seminar).
- 2018 Syracuse University, Syracuse, NY, USA (departmental seminar).
- 2018 National Museums of Kenya, Nairobi, Kenya (departmental seminar).
- 2017 University of Wyoming, Laramie, WY, USA (departmental seminar).
- 2017 Brown University, Providence, RI, USA (departmental seminar).
- 2017 Ecological Society of America Conference, Portland, OR, USA (organized oral session invited speaker, large herbivores).
- 2017 Association for Tropical Biology and Conservation Conference, Mexico (symposium invited speaker, biotic interactions in the Anthropocene).
- 2016 Ecological Society of America Conference, FL, USA.
- 2016 Association for Tropical Biology and Conservation Conference, Montpellier, France (symposium invited speaker, tropical plant-animal interactions in the Anthropocene).
- 2015 International Barcode of Life Conference, University of Guelph, Canada.
- 2015 Brown University, Providence, RI, USA (departmental seminar).
- 2012 University of Georgia Presidential Fellows Lecture Series, Athens, GA, USA.
- 2012 Ecological Society of America Conference, Portland, OR, USA.
- 2011 Ecological Society of America Conference, Austin, TX, USA (poster).
- 2011 Southeastern Ecology and Evolution Conference, Auburn, MS, USA.
- 2011 Symbiofest, Athens, GA, USA.
- 2011 The Explorers Club, Columbia, SC, USA (guest speaker).

RESEARCH GRANTS

a. Current Grants:

2018-2020 Seed Funding, Institute at Brown for Environment and Society. Connecting earth observation and ecological networks. Role: PI with J.R. Kellner. Amount: \$80,000.

b. Completed Grants:

2017 Emerging Frontiers in Tropical Sciences Working Group, Organization for Tropical Studies. Predicting extinction of tropical species under climate change: combining precise data, robust models, and new perspectives. Role: co-PI with W.J. Kress and C. Garcia-Robledo. Amount: undisclosed.

2013-2015 Development Grand Challenges Program, Princeton Environmental Institute. Ecosystem spatial pattern and development opportunities in African rangelands. Role: co-PI with R.M. Pringle, R.A. Long, and C.E. Tarnita. Amount: \$200,000.

2011-2012 NSF DEB-1110307. The influence of landscape heterogeneity and mycorrhizal fungi on the distribution of an epiphytic orchid and its genetic variation. Role: co-PI, Doctoral Dissertation Improvement Grant to T.R. Kartzinel. Amount: \$14,986.

c. Proposals Submitted:

Pending DNA metabarcoding to track food intake. National Institutes of Health. Role: subaward PI with L.A. David.

Pending Testing predictions of the core-satellite and resource-breadth hypothesis in small mammal communities: field tests of a macroecological pattern. National Science Foundation. Role: co-PI with J.R. Goheen.

Pending Forensic monitoring of diamondback terrapin population recovery, an indicator of saltmarsh health in Narragansett Bay. Rhode Island Research Alliance Collaborative Grant. Role: PI with L.A. Meyerson & R.Y. Kartzinel.

HONORS & AWARDS

2018-2022 Early Career Fellow, Ecological Society of America

2015-2017 NatureNet Science Fellowship, The Nature Conservancy

2015 International Barcode of Life Conference Travel Award

2007-2012 Presidential Fellowship, The University of Georgia

2012 Smithsonian Tropical Research Institute Fellowship (declined to pursue a postdoc)

2012 University of Georgia Graduate School Travel Award

2011 University of Georgia Graduate School Travel Award

2011 IDEA WILD

2010 The Explorers Club Exploration Fund

2009 Lewis and Clark Fund for Exploration and Field Research

2009 Eugene P. Odum Small Grant

2009 Sigma Xi Grant in Aid of Research

2009 Tinker Foundation Field Research Award

2009 National Science Foundation Graduate Research Fellowship, honorable mention

2009 University of Georgia Costa Rica Ecology Program

2009 Bosque de Paz Biological Reserve, Costa Rica

2008 University of Georgia Graduate School Travel Award

2006 Morris K. Udall Scholarship

2006 Honors thesis award, Rollins College

2006 Sustainable Development International Scholar, Singapore & Vietnam

2005 Sustainable Development International Scholar, Costa Rica

2004 Archer D. Midland Scholarship, Galápagos National Park, Ecuador
2004 Service Learning Scholarship, Dominican Republic
2004 National Society of Collegiate Scholars

RESEARCH MENTORSHIP & SUPERVISION

Postdoctoral Supervision:

- Brian Gill (Brown IBES, 2017 – present).

Graduate Student Supervision:

- Courtney Reed (Brown EEB PhD, 2018 – present).
- Robert Ang'ila (Karatina Environmental Studies MSc, 2018 – present, co-advised by Dr. Duncan Kimuyu).
- Patrick Freeman (Brown EEB PhD, 2017 – present).
- Bianca Brown (Brown EEB PhD, 2017 – present, NSF Graduate Research Fellow, advanced to candidacy in 2018).

Graduate Student Committee Membership:

- Karen Wang (Brown DEEPs, 2018 – present).
- Sian Liao (Brown Chemistry, 2018 – present).
- Lindsay McCulloch (Brown EEB, 2018 – present).

Undergraduate Research Supervision:

- Ashley Bang (Brown DEEPs, 2018 – present).
- Molly Magid (Voss Environmental Fellow, Brown EEB, 2017 – present).

Undergraduate Honors Thesis Second Reader:

- Fiona Beltram (Brown EEB, 2017 – 2018).

Research Assistants:

- Peter Lokeny (Mpala Research Centre, 2017 – present).

Visiting Student Collaborators:

- Edmund Basham (PhD student, University of Florida, 2018 – present).

Mentorship & Supervision as a Postdoctoral Fellow (Princeton University):

Ph.D. students (3), undergraduate thesis students and interns (4), laboratory managers (3).

- Mentee accomplishments include coauthoring publications, winning scholarships of \$1000-\$7390, and presenting research talks and theses.

Mentorship & Supervision as a Graduate Student (University of Georgia):

Ph.D. students (3), M.S. students (1), undergraduate students (5), research technicians (1), and undergraduate research assistants (10).

- Mentee accomplishments include coauthoring publications, giving talks at international meetings, and winning symposia research awards.

TEACHING

Courses:

AY 2018-2019

2019 Biology 2430 (spring): Topics in Ecology and Evolutionary Biology (multiple instructors, enrollment 9).

- 2018 Biology 1515/2015 (fall): Conservation in the Genomics Age (sole instructor of course with inquiry-based & engaged-learning lab, enrollment 15).
2018 Biology 1950 (fall): Independent Study (supervising Molly Magid, class of '19; Ashley Bang, class of '19).

AY 2017-2018

- 2018 Biology 1950 (spring): Independent Study (supervising Molly Magid, class of '19).

AY 2016-2017

- 2017 Field Ecology: Skills for Science and Beyond, Organization for Tropical Studies Graduate Program, Costa Rica (resource faculty member).

Guest Lectures:

- 2018 Living Biology at Brown and Beyond (BIOL0100, Brown University).
2016 Savanna Ecology (Makerere University, Uganda; Presented at Mpala Research Centre, Kenya).
2015 Ecology: Species interactions, biodiversity, and society (EEB321, Princeton University).
2012 Evolutionary Ecology (ECOL4500/6500, University of Georgia).
2011 Evolutionary Ecology (ECOL4500/6500, University of Georgia).
2011 Universidad Técnica Nacional, San Luis, Costa Rica (given in English and Spanish).

Teaching Assistantships:

- 2012 The Ecological Basis for Environmental Issues, head TA (ECOL1000, University of Georgia).
2011 The Ecological Basis for Environmental Issues, head TA (ECOL1000, University of Georgia).
2010 Plant Variation and Evolution (PBIO8720, University of Georgia).
2009 The Ecological Basis for Environmental Issues (ECOL1000-Lab, University of Georgia).
2009 Ecology Research, Costa Rica Ecology Program (ECOL4960, University of Georgia).
2009 Ecology Lab, Costa Rica Ecology Program (ECOL3510, University of Georgia).
2009 Methods in Marine Science, Costa Rica Ecology Program (ECOL4510, University of Georgia).

SERVICE

To the University:

- 2018 Biodiversity subject-matter expert, Sustainability Planning Committee, Brown University.
2018 Faculty search committee, Professor of Climate and Health, Department of Epidemiology & IBES, Brown University.
2018 Environmental Studies concentration (major) advising, IBES, Brown University.
2018 ENVS honors thesis committee, IBES, Brown University.
2011 Faculty search committee. Ecology, University of Georgia.
2010-2011 Executive committee, Office of the Dean of Ecology, University of Georgia.
2009-2011 Program committee (chair), Graduate symposium, Ecology, University of Georgia.
2010-2011 Graduate student representative, Ecology, University of Georgia.
2008-2010 Undergraduate symposium convener and abstract judge, Center for Undergraduate Research Opportunities, University of Georgia.

To the Profession:

Workshops, Working Groups, & Symposia Organized

- 2018 "DNA barcoding: ecology and systematics in East African ecosystems." Training and development workshop, National Museums of Kenya (co-organizer).
2017 "Tropical biotic interactions in the Anthropocene." Symposium at the 54th annual meeting of the Association for Tropical Biology and Conservation, Merida, Mexico (co-organizer).
2017 "Predicting extinction of tropical species under climate change: combining precise data, robust models, and new perspectives." Emerging Frontiers in Tropical Science Working

Group, Organization for Tropical Studies, La Selva Biological Station, Costa Rica (co-organizer).

Workshops, Working Groups, & Symposia Participant

- 2019 (Feb.) “State of the Field 2019: The Ancient DNA Revolution in Archaeology.” Panel on alternative sources of ancient DNA. Joukowsky Institute for Archaeology and the Ancient World, Brown University (moderator).
- 2018 “Giraffe Conservation Science Symposium.” To produce a 2030 conservation framework for giraffe. Smithsonian Conservation Biology Institute (invited).
- 2016 “Enhancing capacity for wildlife conservation in Equatorial Guinea.” Stakeholder meeting, Biodiversity Initiative (invited).
- 2016 “Leveraging Prairie Reserves for Conservation Under Climate Change.” Science Solution Space, The Nature Conservancy (invited).
- 2013 “Gorongosa National Park Science-Media Workshop.” Gorongosa Restoration Project, Gregory C. Carr Foundation (invited).

Ad hoc Reviewing

- Manuscripts (reviews submitted = 49): *Acta Oecologica*, *American Journal of Botany*, *Biological Conservation* (“Outstanding Reviewer”), *Biological Journal of the Linnean Society*, *Conservation Genetics*, *Diversity and Distributions*, *Heredity*, *Journal of Applied Ecology*, *Journal of Applied Entomology*, *Journal of Ecology*, *Journal of Heredity*, *Marine Ecology Progress Series*, *Methods in Ecology and Evolution*, *Molecular Ecology*, *Molecular Ecology Resources*, *Nature Communications*, *Oikos*, *Plant Molecular Biology Reporter*, *PLoS ONE*, *Proceedings of the Royal Society B*, *Scientific Reports*.
- Grants: National Geographic Society.
- Curriculum: Howard Hughes Medical Institute (HHMI) BioInteractive.

Advisory Positions

- 2018- Senior Advisor, New Research Technologies, a laboratory for DNA and stable isotopes analysis at Mpala Research Centre, Kenya (NSF Award #1821088).
- 2013- Department of Scientific Services, Gorongosa Restoration Project, Mozambique.

Selected Media

- 2018 WPRO Providence. Live radio interview about the “2018 Living Planet Report” by WWF.
- 2013 EO Wilson Biodiversity Foundation Film Production. “Gorongosa Field Notes: Going Back in Time Four Decades” Available: <https://vimeo.com/114287571>.

Elected Positions

- 2007-2009 Society for Conservation Biology, Founding member of the State of Georgia & University of Georgia chapters. Vice President & Program development chair (2008-2009).

Professional Memberships & Affiliations

Association for Tropical Biology and Conservation, Ecological Society of America, Kenya Wildlife Services, Mpala Research Centre, National Museums of Kenya, Sigma Xi (Associate Member), Society for Conservation Biology. Note: not all may be current.