


Meaghan I. Clark

NSF Postdoctoral Scholar, Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

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Appointments

2025–present	NSF Postdoctoral Scholar, Global Change Research Group, University of California, Santa Cruz, CA <i>Dynamics of evolutionary rescue in giant kelp.</i>
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Education

2019–2024	W.K. Kellogg Biological Station, Michigan State University (MSU), Hickory Corners, MI <i>PhD in Integrative Biology and Ecology, Evolution, and Behavior</i> <i>Graduate Advisors: Drs. Gideon Bradburd and Sarah Fitzpatrick</i>
2016–2019	California State University, Northridge (CSUN), CA <i>M.S. in Biology, Graduate Advisor: Dr. Jeanne Robertson</i>

Research and Professional Experience

2019–2024	Graduate Researcher, Fitzpatrick & Bradburd Labs, MSU, Hickory Corners, MI <i>Inferring historical demography and inbreeding in eastern massasauga rattlesnakes, and using simulations to explore the genetic signatures of population decline.</i>
2016–2019	Graduate Researcher, Robertson Lab, CSUN, Northridge, CA <i>Investigating the evolutionary origins of red-eyed treefrog color-pattern variation using field and genomic techniques.</i>
2015–2016	Research Aide, Waits & Hohenlohe Labs, University of Idaho, Moscow, ID <i>Supported conservation and evolutionary genomic projects by extracting and amplifying DNA from low- and high-quality samples and generating genetic and genomic data using microsatellite and BestRAD approaches.</i>
Summer 2014	Research Assistant, O'Malley Lab, Coastal Oregon Marine Experiment Station, Oregon State University, Newport, OR <i>Investigated the role of circadian clock genes in migration of Arctic charr using microsatellite markers.</i>
Summer 2013	NSF Research Experience for Undergraduates Program, Broderick Lab, Montana State University, Bozeman, MT <i>Designed and successfully mutated protein involved in Fe-Fe hydrogenase synthesis.</i>

Publications

5. **Clark M.I.**, Hileman E.T., Moore J.A., Faust L.J., Junge R.E., Reid B.N., Bradke D.R., Bradburd G.S., and Fitzpatrick F.W. **2025**. Inbreeding reduces fitness in spatially structured populations of a threatened rattlesnake. *Proceedings of the National Academy of Sciences* 122 (34) e2501745122. doi:10.1073/pnas.2501745122.
4. **Clark M.I.**, Fitzpatrick F.W., and Bradburd G.S. **2024**. Pitfalls and windfalls of detecting demographic declines using population genetics in long-lived species. *Evolutionary Applications* 17, pp. e13754.
3. **Clark M.I.**, Bradburd G.S., Akopyan M., Vega A., Rosenblum E.B., and Robertson J.M. **2022**. Genetic isolation by distance underlies color pattern divergence in red-eyed treefrogs (*Agalychnis callidryas*). *Molecular Ecology* 31, pp.1666-1681.

2. Stahlke A.R., Bitume E.V., Ozsoy A.Z., Bean, D.W. Veillet, A., **Clark M.I.**, Clark E.I., Moran P., Hufbauer R.A., and Hohenlohe P.A. **2022**. Hybridization and range expansion in tamarisk beetles (*Diorhabda* spp.) introduced to North America for classical biological control. *Evolutionary Applications*, 15, 60-77.

1. Talavera J. B., Collosi E., **Clark M. I.**, Robertson J. M., and Gray D. A. **2021**. Minimal prezygotic isolation between ecologically divergent sibling species. *Biological Journal of the Linnean Society*, 132(1), 32-43.

Grant Support

Total awarded for research: \$74,500

2024	NSF Postdoctoral Research Fellowship in Biology (PRFB), \$240,000
2022,23	W.K. Kellogg Biological Station Research Award, MSU, \$11,000
2017	Sigma Xi Grant-in-Aid of Research, \$1,000 Julie Gorchynski, M.D., Graduate Research Grant, CSUN, \$1,000 Gage Fund Award, American Society of Ichthyologists and Herpetologists, \$500
2016	Thesis Support Award, CSUN, \$1000

Awards and Honors

2025	W.D. Hamilton Award, Honorable Mention, Society for the Study of Evolution
2024	Dissertation Completion Fellowship, MSU, \$10,000
2022	Outstanding Scholar Fellowship, MSU, \$7,500 Don Hall Fellowship, MSU, \$6,625
2021	Summer Fellowship in Ecology, Evolution, and Behavior, MSU, \$5625
2019	Outstanding Thesis/Graduate Project Competition Winner, CSUN, \$1500 Hugo and Irma Oppenheimer Award, CSUN, \$200 Donald E. Bianchi Outstanding Graduate Research Award, CSUN, \$200 Donald E. Bianchi Outstanding Graduate Student Award, CSUN, \$200 Julie Gorchynski, M.D. Graduating Master's Student Award, CSUN, \$200 Association of Retired Faculty Award, CSUN, \$2,000 University Distinguished Fellowship, MSU, \$70,000
2018	James R. Simpson Merit Scholarship, CSUN, \$2,000 Associated Students Scholarship in Honor of Jolene Koester, CSUN, \$8,000 Graduate Equity Fellowship, CSUN, \$2,000 Lori and Dr. Bob Luszcak Graduate Scholarship in Biology, CSUN, \$1,000 Outreach Program Award for Girls in Science and Technology, CSUN Matador Involvement Center, CSUN; Awarded to CSUN Women in Science
2017	Graduate Fellowship for Outstanding Research Promise in Science and Mathematics, CSUN, \$5,000
2016	Tuition Waiver, CSUN, \$13,476 over two years
2014	Summer Internship Grant, Whitman College, \$2,500

Natural History Publications

I. Vega A., **Clark M.I.**, Chaves G. (2019). *Agalychnis spurrelli*. Geographic range expansion. *Herpetological Review*. 50(3).

Oral Presentations

** indicates presenting author*

Clark M.I.*, Hileman E.T., Moore, J.A., Faust L.J., Junge R.E., Reid B.N., Bradburd G.S., Fitzpatrick S.W. (2025, August). Using genomic and long-term demographic data to infer the impacts of fragmentation and inbreeding in a threatened rattlesnake. *Ecological Society of America*. Baltimore, MD.

Clark M.I.*, Hileman E.T., Moore, J.A., Faust L.J., Junge R.E., Reid B.N., Bradburd G.S., Fitzpatrick S.W. (2025, May). Long-term demographic and genomic data reveal the consequences of land-use change and inbreeding in populations of a threatened rattlesnake. *Virtual Evolution. Finalist and Honorable Mention in Hamilton Award Symposium*.

Clark M.I.*, Hileman E.T., Moore, J.A., Faust L.J., Junge R.E., Reid B.N., Bradburd G.S., Fitzpatrick S.W. (2025, January). Impacts of inbreeding on fitness of a threatened rattlesnake revealed through long term monitoring. *American Society of Naturalists*. Asilomar, CA. *Invited Symposium Speaker*.

Clark M.I.*, Hileman E.T., Moore, J.A., Faust L.J., Junge R.E., Reid B.N., Bradburd G.S., Fitzpatrick S.W. (2024, August). Dissecting spatial mechanisms of inbreeding depression in a threatened rattlesnake. *Midwest Population Genetics*. Bloomington, IN. *First place graduate student talk winner*

Clark M.I.*, Hileman E.T., Moore, J.A., Faust L.J., Junge R.E., Reid B.N., Bradburd G.S., Fitzpatrick S.W. (2024, July). Inbreeding reduces fitness in spatially structured populations of a threatened rattlesnake. *Evolution*. Montréal, Canada.

Clark M.I.*, Moore, J.A., Hileman E.T., Faust L.J., Bradburd G.S., Fitzpatrick S.W. (2023, June). Leveraging pedigrees in natural populations to learn about demography, inbreeding, and spatial population dynamics in the threatened eastern massasauga rattlesnake. *Evolution*. Albuquerque, NM.

Clark M.I.*, Moore, J.A., Hileman E.T., Faust L.J., Bradburd G.S., Fitzpatrick S.W. (2023, May). Secret lives of snakes: Pedigree-based insights into demography and inbreeding in the threatened eastern massasauga rattlesnake. *EEB Research Symposium*. East Lansing, MI. *Second place oral presentation winner*.

Clark M.I.*, Fitzpatrick S.W. (2023, May). Secret lives of snakes: Pedigree-based insights into demography and inbreeding in the threatened eastern massasauga rattlesnake. *Eastern Massasauga Rattlesnake Species Survival Plan Meeting*, Cassopolis, MI. *Invited talk*.

Clark M.I.*, Bradburd G.S. (2022, June). Pitfalls and of detecting demographic declines using population genetics in species with long lifespan and overlapping generations. *Evolution*. Cleveland, OH.

Clark M.I.*, Bradburd G.S. (2022, May). Pitfalls and promise in population genetic approaches for detecting demographic declines in long-lived species. *EEB Research Symposium*. East Lansing, MI. *First place oral presentation winner*.

Clark M.I.*, Fitzpatrick S.W. (2021, May). Quantifying inbreeding and fitness in Michigan massasaugas using pedigree reconstruction. *Eastern Massasauga Rattlesnake Species Survival Plan Meeting*, Cassopolis, MI. *Invited talk*.

Clark M.I.*, Saporito, R.A., Vega A., Robertson J.M. (2019, May). Red-eyed treefrogs look like the rainbow, but don't taste like it. HerpFest. Northridge, CA. *First place graduate oral presentation winner*.

Clark M.I.*, Saporito, R.A., Vega A., Robertson J.M. (2019, April). Tasting the rainbow: geographic variability in palatability and color pattern in red-eyed treefrogs. Student Research & Creative Works CSUNposium. Northridge, CA.

Clark M.I.*, Torres-Mura J.C., Sausner J., Robertson J.M., Hertel F.S. (2018, November). Fly away home: Is there genetic connectivity between breeding colonies of storm petrels? Southwest Regional Meeting of Organismal Biologists. San Marcos, CA.

Clark M.I.*, Akopyan M., Bradburd G.S., Vega A., Robertson J.M. (2018, April). Unraveling the rainbow: Evolution of red-eyed treefrogs in a hot-spot of color pattern diversity. Student Research & Creative Works CSUNposium. Northridge, CA. *First Place Winner for 10-Minute Oral Presentation*.

Clark M.I.*, Akopyan M., Bradburd G.S., Vega A., Robertson J.M. (2018, Jan). Unraveling the rainbow: Evolution of red-eyed treefrogs in a hot-spot of color pattern diversity. Society for Integrative and Comparative Biology. San Francisco, CA.

Clark M.I.*, Robertson J.M. (2017, April). Does hybridization underlie color variation in red-eyed treefrogs? Student Research & Creative Works CSUNposium. Northridge, CA.

Clark M.I.*, O'Malley K.G., Jacobson, D.P. (2015, April). Genetic differentiation of circadian clock genes in resident and migratory Arctic charr (*Salvelinus alpinus*). Whitman College Undergraduate Conference. Walla Walla, WA.

Clark M.I.* (2014, May). Thanatosis (death-feigning) duration in ithomiine butterflies. CIEE Tropical Ecology and Conservation Research Symposium. Monteverde, Puntarenas, Costa Rica.

Poster Presentations

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Clark M.I.*, Moritsch, M.M., Roberts R.L., Elsmore K., Raimondi P.T., Pinsky M.L. (2025, June). Designing genomic monitoring approaches for giant and bull kelp in coastal California amid marine heat waves. Evolution. Athens, GA.

Clark M.I.*, Moore, J.A., Hileman E.T., Faust L.J., Bradburd G.S., Fitzpatrick S.W. (2023, August). Inbreeding and spatial dynamics in eastern massasauga rattlesnakes. Midwest Population Genetics. Ann Arbor, MI. Best graduate poster presentation winner.

Clark M.I.*, Bradburd G.S. (2021, August). Pitfalls and promise of conservation genetics in long-lived species. Midwest Population Genetics. Madison, WI.

Clark M.I.*, Saporito R.A., Vega A., Robertson J.M. (2019, July). Tasting the rainbow: variation in palatability and color pattern in red-eyed treefrogs. Joint Meeting of Ichthyologists and Herpetologists. Snowbird, UT.

Clark M.I.*, Akopyan M., Bradburd G.S., Vega A., Robertson J.M. (2018, July). Orange to Purple: Evolutionary history of red-eyed treefrogs in a hotspot of color pattern diversity. Joint Meeting of Ichthyologists and Herpetologists. Rochester, NY.

Clark M.I.*, Akopyan M., Vega A., Robertson J.M. (2017, June). Detecting hybridization in red-eyed treefrogs (*Agalychnis callidryas*) through genomics and color pattern distribution. Evolution. Portland, OR.

Clark M.I., Denman A., Dokko S., Heilig M., Palacios J., Scott L., Snell G., Wieneke A., Zarazua B., Crook M.* (2015, June). *C. elegans* as a tool to study gonad development in a small liberal arts context. 20th International *C. elegans* Meeting. Los Angeles, CA.

Clark M.I.*, O'Malley K.G. (2014, August). Genetic variation at *OtsClock1b*, a circadian clock gene, between resident and anadromous Arctic charr (*Salvelinus alpinus*). Hatfield Marine Science Center student research symposium. Newport, OR.

Clark M.I.*, Duffus, B. R., Broderick, J. B. (2013, August). Defining the Role of the C-Terminal Cluster in HydG Diatomic Ligand Biosynthesis. Montana State University Summer Undergraduate Research Symposium. Bozeman, MT.

Invited Lectures

Nov 2022	Introduction to Deterministic Functions, Guest Lecture, Statistical Methods in Ecology and Evolution course, MSU
Oct 2021	RMarkdown for Research, Guest Lecture, Statistical Methods in Ecology and Evolution course, MSU
April 2020	Genomics in Evolutionary Biology, Guest Lecture, Molecular Ecology course, CSUN
April 2018	Comparison of genotype and phenotype hint at evolution of color-pattern diversity in red-eyed treefrogs, Guest Lecture, Molecular Ecology course, CSUN
Feb 2018	Totally RAD: Restriction-site associated DNA sequencing, Guest Lecture, Molecular Ecology course, CSUN

Teaching Experience

* indicates instructor of record

Fall 2020, 21, 22	Teaching Assistant, Department of Integrative Biology, MSU <i>Course: Statistical Methods in Ecology and Evolution I</i>
2016-2019	Teaching Associate*, Department of Biology, CSUN <i>Course: Introductory biology lab for biology majors (13 sections over 6 semesters)</i>
2016-2018	Graduate Assistant, Department of Biology, CSUN <i>Courses: Upper-division molecular ecology, upper-division bioinformatics, lower-division molecular biology research methods</i>
2017-2018	Tutor, Department of Biology, CSUN
2013	Writing Fellow, Department of Biology, Whitman College, Walla Walla, WA
Summer 2012	Program Intern, Teen Conservation Leaders, Monterey Bay Aquarium, Monterey, CA <i>Mentored volunteers in science interpretation and assisted with biology curricula</i>

Outreach

Oct 2020	Genomics in Evolutionary Biology, Guest Speaker, Biological Sciences class, Reseda High School, Los Angeles, CA
Feb 2020	Girls Math and Science Day Volunteer, MSU
Jan 2020	What is Evolutionary Biology?, Guest Speaker, Biomedical Sciences class, Reseda High School, Los Angeles, CA
2017-19	Coordinator for Girls in Science and Technology Club, Portola Middle School <i>Plan and lead bi-monthly STEM activities for 8th grade girls; Served as head coordinator for the 2017-18 school year.</i>
2018-19	Science Lab Volunteer Instructor, Dearborn Elementary School <i>Design and teach hour-long science enrichment lessons for grades K—5 twice a semester.</i>
Spring 2018	Head Coordinator for Spring Science Exploration Series, Los Angeles Public Library <i>Organized three workshops to introduce middle school students to STEM fields and careers.</i>
Spring 2018	Activity Leader at CSUN Earth Day & March for Science, CSUN
Spring 2018	Science Fair Judge, Portola Middle School, Tarzana, CA
Spring 2018	7th Grade DNA Lab Volunteer, Portola Middle School, Tarzana, CA

Leadership and Service

2023-24	Graduate Student Representative, DEI Committee, EEB Program, MSU
2022-23	Graduate Student Representative, W.K. Kellogg Biological Station, Seminar Committee MSU
2021-23	Graduate Student Representative, Department of Integrative Biology Graduate Student Affairs Committee, MSU
2021-22	Recruitment Liaison, EEB Graduate Group, MSU
2020-22	Secretary, EEB Graduate Group, MSU
2020-21	Colloquium Co-Chair, EEB, Graduate Group, MSU
2020	Research Symposium Planning Committee Member, EEB Graduate Group, MSU
2017-18	President, Behavior, Ecology, Evolution, and Research Club, CSUN
2017-18	Community Outreach Officer, Women in Science Club, CSUN
2016-17, 2018-19	Secretary, Behavior, Ecology, Evolution, and Research Club, CSUN

Journal Reviews

Evolutionary Applications, Ecological Applications, Integrative Zoology, Molecular Ecology

Professional Training

2020	SLiM Workshop, Ithaca, NY <i>One-week training workshop in SLiM simulation framework</i>
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