LaPolice-Science.com

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APPOINTMENTS

2026–Present **Postdoctoral Research Associate** *Princeton University, Princeton, NJ*
Department of Ecology & Evolutionary Biology (PI: Bridgett M. vonHoldt – Princeton University)
Using genomic analyses and simulations to investigate red wolf conservation genomics, with a particular focus on "ghost wolves" (canids that retain red wolf ancestry outside the managed population) and what they reveal about red wolf demographic history and deleterious variant burden.

EDUCATION

2026 **PhD, Bioinformatics and Genomics** *Pennsylvania State University, University Park, PA*
PhD Dissertation: "Passing Through Time: Exploring evolutionary signals to make inferences about past and future populations" (PI: Christian D. Huber – Pennsylvania State University)

2021 **BS with Interdisciplinary Honors, Graduated Magna Cum Laude, Biology** *University of New Hampshire, Durham, NH*
Undergraduate Honors Thesis: "Investigating Gene Duplication Origin in a Non-Model Organism: Analysis of genomic data to investigate origin of repeated portions of the genome" (PI: Matthew D. MacManes – University of New Hampshire)

PUBLICATIONS (* DENOTES CORRESPONDING AUTHORSHIP)

2026 **LaPolice, T. M.,** Howe, C., N., Locatelli, N. S., & Huber, C. D. (2026) Simulations reveal hybridization in Caribbean *Acropora* restoration poses low risk of genetic swamping but limited potential for adaptive introgression. [Preprint]. *bioRxiv*. https://doi.org/10.64898/2026.02.26.708281. *In Review.*

Selected Publication

2025 **LaPolice, T. M.,** Williams, M. P., & Huber, C. D. (2025). Modeling the European Neolithic expansion suggests predominant within-group mating and limited cultural transmission. *Nature Communications*, *16*(1), 7905. https://doi.org/10.1038/s41467-025-63172-0

Primary Selected Publication

2024 Stuckert, A. M. M., Chouteau, M., McClure, M., **LaPolice, T. M.**, Linderoth, T., Nielsen, R., Summers, K., & MacManes, M. D. (2024). The genomics of mimicry: Gene expression throughout development provides insights into convergent and divergent phenotypes in a Müllerian mimicry system. *Molecular Ecology*, *33*(14), e17438. https://doi.org/10.1111/mec.17438

2024 Makova, K. D., Pickett, B. D., Harris, R. S., Hartley, G. A., Cechova, M., Pal, K., Nurk, S., Yoo, D., Li, Q., Hebbar, P., McGrath, B. C., Antonacci, F., Aubel, M., Biddanda, A., Borchers, M., Bornberg-Bauer, E., Bouffard, G. G., Brooks, S. Y., Carbone, L., ... **LaPolice, T. M.,** ..... Phillippy, A. M. (2024). The complete sequence and comparative analysis of ape sex chromosomes. *Nature*, *630*(8016), 401-411. https://doi.org/10.1038/s41586-024-07473-2

2024 Rubio, A. O., Stuckert, A. M. M., **LaPolice, T. M.,** Cole, T. J., & Summers, K. (2024). Under pressure: Evidence for selection on color-related genes in poison frogs of the genus *Ranitomeya*. *Evolutionary Ecology*. *38*, 639-655 https://doi.org/10.1007/s10682-024-10297-1

2023 **LaPolice, T. M.*,** & Huang, Y. -F.* (2023). An unsupervised deep learning framework for predicting human essential genes from population and functional genomic data. *BMC Bioinformatics*, *24*(1), 347. https://doi.org/10.1186/s12859-023-05481-z

Selected Publication

2021 Spillane, J. L., **LaPolice, T. M**., MacManes, M. D., & Plachetzki, D. C. (2021). Signal, bias, and the role of transcriptome assembly quality in phylogenomic inference. *BMC Ecology and Evolution*, *21*(1), 43. https://doi.org/10.1186/s12862-021-01772-2

MANUSCRIPTS IN PREPARATION (^ DENOTES CO-FIRST AUTHORSHIP)

LaPolice, T. M., Kwong, A., Mutton, J. V., & Huber, C. D, Ancient DNA shows evidence of increased deleterious variant burden in ancient hominins. *In Prep*.

Nicholson, R., **LaPolice, T. M.,** Kwong, Mossotti, R., Weller, E., A., Lasher, C., Brzeski, K. E., & vonHoldt, B. M. The Red wolf is a shadow of its ancestral ghost morphological variation. *In Prep*.

LaPolice, T. M., Kwong, A., Huber, C. D., & vonHoldt, B. M. What was left behind: Modeling "ghost" red wolf ancestry following historical capture and admixture. *In Prep*.

LaPolice, T. M., Kwong, A., Huber, C. D., & vonHoldt, B. M. Recovering once lost variation in "ghost" red wolves. *In Prep*.

Mutton, J. V., **LaPolice, T. M.,** Kwong, A., Mahony S., & Huber, C. D. DeepINSIGHT: A Temporal Regulatory Disentanglement Framework for Non-Coding Variant Interpretation. *In Prep*.

LaPolice, T. M.^, MemarMoshrefi, D.^, Huber, C. D., & vonHoldt, B. M. Echoes of oral health: Using historical microbiomes to trace red wolf health through capture and admixture. *In Prep*.

RESEARCH INTERESTS

Computational evolutionary biology; evolutionary and conservation genomics; population genetics; demographic history and inference; purifying selection, genetic load, and deleterious variation; admixture and introgression; ancient and historical genomics; evolutionary simulation and predictive modeling; genotype–phenotype evolution; integrative approaches to complex evolutionary questions.

TECHNICAL SKILLS

Simulation; population-genetic analysis; ancient DNA analysis; bioinformatics; reproducible computational workflows; R; Python; Bash; SLiM; high-performance computing; advanced scientific presentation design in PowerPoint; slide-based technical storytelling; scientific communication.

RESEARCH FELLOWSHIPS

2022–2023 **Computation, Bioinformatics and Statistics Predoctoral NIH T32 Training Grant Fellow** (National Institutes of Health, Pennsylvania State University)

2021	**Graham Fellow** (Pennsylvania State University)
2020	**Summer Undergraduate Research Fellowship** (University of New Hampshire Hamel Center for Undergraduate Research)
2019	**Summer Undergraduate Research Fellowship** (University of New Hampshire Hamel Center for Undergraduate Research)
2018	**Research Experience and Apprentice Program Grant Fellow** (University of New Hampshire Hamel Center for Undergraduate Research)

AWARDS

2022	**Second Place** at the 2022 Pennsylvania State University Biology Student Research Showcase. *Recognized for "research excellence and innovation in the fields of biology and scientific communication."*
2021	**Jack & Pat Weeks Award** for *Poster Presentation of "Notable Excellence"* at University of New Hampshire Undergraduate Research Conference 2021
2017–2021	**Presidential Scholar** at the University of New Hampshire. *Awarded scholarship to students with "outstanding academic records"*

CONFERENCE AND CAMPUS TALKS

2026	**"The Digital Reef: Simulating hybridization and restoration dynamics in critically endangered Caribbean corals"** (15-Minute Seminar Podium Presentation), Pennsylvania State University Biology Seminar Series, Pennsylvania State University, January 27.
2025	**"The Digital Reef: Modeling the effect of active restoration methods on introgression within a Caribbean coral system"** (Podium Presentation), Evolution 2025 Conference, Athens, GA, June 24.
2024	**"DeepLOF: An unsupervised deep learning framework for predicting human essential genes from population and functional genomic data"** (Podium Presentation), 2024 Bioinformatics and Genomics Retreat, Pennsylvania State University, August 19.
2024	**"The Digital Reef: Informing coral restoration through insights from agent-based modeling"** (Podium Presentation), 3rd Joint Congress on Evolutionary Biology (Evolution 2024), Montreal, QC, Canada, July 27. (Specially Selected for "*Conservation Genetics Across Multiple Species*" Symposium)
2023	**"Simulating European Neolithic farming expansion reveals high levels of assortative mating and limited cultural transmission"** (Podium Presentation), Evolution 2023 Conference, Albuquerque, NM, June 25

2023 **"Agent-based evolutionary simulations of coral populations determine how differing restoration practices impact introgression in acroporid corals"**
(Abstract Selected for Featured "Lightning Talk" Podium Presentation), 7th Annual Huck Life Sciences Symposium, Pennsylvania State University, May 26.

2023 **"Simulating European Neolithic farming expansion reveals high levels of assortative mating and limited cultural transmission."**
(30-Minute Seminar Podium Presentation), Pennsylvania State University Weekly Wednesday Wartik Genomics Lecture Series (WWWGLS), Pennsylvania State University, April 19.

2022 "Simulating the effect of farming expansion on genetic ancestry in Europe."
(Podium Presentation), 2022 Biology Student Research Showcase, Pennsylvania State University, October 7. **(Presentation earned 2nd place at event, See *Awards*)**

2022 **"Simulating the effect of farming expansion on genetic ancestry in Europe"**
(Podium Presentation), 2022 Bioinformatics and Genomics Retreat, Pennsylvania State University, August 11.

2021 **"Investigating Erroneous Gene Duplication in Poison Frog *Ranitomeya imitator* Genome Assembly"**
(Poster Presentation), Undergraduate Research Conference (College of Life Science and Agriculture), University of New Hampshire, April 24 **(Presentation earned Jack & Pat Weeks Award at event, See *Awards*)**

2020 **"The Effect of Transcriptome Assembly Quality on Phylogenetic Relationships"**
(Podium Presentation), Undergraduate Research Conference (Interdisciplinary Science & Engineering Symposium), University of New Hampshire, April 29.

2020 **"The Effect of Transcriptome Assembly Quality on Phylogenetic Relationships"**
(Poster Presentation), Undergraduate Research Conference (College of Life Science and Agriculture), University of New Hampshire, April 25

TEACHING EXPERIENCE

(SEE ALSO TEACHING RELATED EXPERIENCE IN SCIENCE COMMUNITY OUTREACH AND LEADERSHIP SECTION)
(FULL TEACHING FOCUSED CV ALSO AVAILABLE ON REQUEST OR ON *LAPOLICE-SCIENCE.COM*)

2026 **Co-Instructor** for three sessions of EEB 390 *(Research Methods in Ecology & Evolutionary Biology),* Princeton University, Fall Semester. *[Three 80-minute instructional sessions for EEB juniors focused on science communication and visual storytelling. Co-developed instructional content and activities on narrowing research questions for effective communication, communicating complex scientific ideas clearly, and developing and presenting concise research pitches.]*

2025 **Senior Lead Teaching Assistant** for BIOL 220W (Biology: Populations and Communities) Pennsylvania State University, Fall Semester. *[Expanded upon position from 2024 and worked extensively on curriculum and content improvement for an undergraduate course on population*

genetics, ecology and evolution. Meet with professors regularly and designed content for the course. Additional focus on new TA mentorship and assistance in transitioning new TAs into teaching.]

2024 **Senior Lead Teaching Assistant** for BIOL 220W (Biology: Populations and Communities) Pennsylvania State University, Fall Semester. *[Curriculum and content improvement for an undergraduate course on population genetics, ecology and evolution. Meet with professors and design content for the course. Focus on new TA mentorship and assistance in transitioning new TAs into teaching.]*

2024 **Taught lab section as a Teaching Assistant** for BIOL 220W (Biology: Populations and Communities) Pennsylvania State University, Fall Semester. *[Undergraduate course on population genetics, ecology and evolution, responsible for ~20 students]*

2023 **Guest Lecturer and Teaching Assistant** for BGEN/BMMB/MCBIS 551 (Genomics), Pennsylvania State University, Fall Semester. *[Graduate level course on genomics research]*

2023 **Taught two lab sections as a Teaching Assistant** for BIOL 220W (Biology: Populations and Communities) Pennsylvania State University, Fall Semester. *[Undergraduate course on population genetics, ecology and evolution, responsible for ~40 students]*

2022 **Coursework.** Took BIOL 893 *Experiential Teaching in Biology*, Pennsylvania State University, Fall Semester. *[Graduate level course taken on effective teaching and science learning]*

2018 **Undergraduate Teaching Assistant** for lab section of BIOL 412 *Introductory Biology: Evolution, Biodiversity and Ecology*, University of New Hampshire, Spring Semester. *[Undergraduate course on ecology, behavior and evolution]*

STUDENT COLLABORATIONS, ADVISING, AND MENTORSHIP

2026–Present **Desmen A. Boykin,** *Princeton University* Undergraduate, *Ecology and Evolutionary Biology*
Senior Thesis Mentorship

2025–Present **Julien V. Mutton,** *Pennsylvania State University* Undergraduate, Computer Science & Mathematics
Multiple Project Collaborations & Honors Thesis Mentorship

2025–Present **Gustavo Rodrigues Foz,** *Pennsylvania State University* Undergraduate, Computer Science
Project Collaboration, Mentorship

DEPARTMENTAL/PROGRAM SERVICE

2025 Fox Graduate School Open House Volunteer (October 28 – Pennsylvania State University)
Co-led campus tours for prospective graduate students at the Fox Graduate School Open House at Penn State, guiding visits across key facilities and active research labs, answering attendee questions, and sharing firsthand perspectives on graduate student life, academic programs, and research opportunities. ***Students at this open house were made up of traditionally underrepresented undergraduates with strong academic records who had interest in applying to graduate school.***

2022–2026 Huck Institutes of the Life Sciences Prospective Student Host (Pennsylvania State University)
Assisted the University with Interview Day for prospective PhD students. Worked with administration and provided advice for prospective students.

Events Volunteered:

March 3, 2022	*February 7, 2024*	*January 31, 2025*
January 20, 2023	*January 17, 2025*	*January 30, 2026*

SCIENCE COMMUNITY OUTREACH AND LEADERSHIP

2026–Pres

Mentor, Princeton University Ecology & Evolutionary Biology (EEB) Mentors Program

Mentor prospective graduate students participating in Princeton's EEB Scholars Program, providing individualized guidance on navigating the graduate-school application process in ecology and evolutionary biology.

2026

Invited Panelist for "Navigating the Post-Comps Journey: A Graduate Panel" (June 4)

Selected to share reflections on navigating doctoral research, personal and professional development, career decision-making, mentorship, funding, extracurricular opportunities, and lessons learned from later-year graduate student panelists.

2026

Invited Panelist for Eberly College of Science "Perspectives & Insights form Grad and Postdocs Mentors: How to Make the Most of Your Summer Research Experience" (May 24)

Spoke to group of~30 Penn State undergrads spanning all ECoS majors about how to get the most from a summer mentor mentee research experience. Discussed "the hidden curriculum" of science research and graduate school with undergraduate students, some first generation.

2023–2026

Member of Young Women in STEM (YWIS) Workshop Event Planning Committee

*Plan and conduct a **day-long workshop each semester for local middle school students to participate in science activities and introduce them to careers in science.** I help facilitate the workshops and work with the students on the day of the event. I work extensively with logistics, advertising and event preparation. I designed and generated our graphical promotional materials and all day-of signage and graphics. My promotional materials were used and distributed in digital and print media.*

YWIS Workshops Coordinated:

*April 22, 2023 – **Theme:** Sci-Fi Science: Where science-fiction meets science-fact!*
*December 2, 2023 – **Theme:** Winter Science: An afternoon in a scientific winter wonderland!*
*April 4, 2024 – **Theme:** Earth Day: Don't let Earth Day be anticlimactic!*
*December 12, 2024 – **Theme:** The Magic of Science!*
*May 3, 2025 – **Theme:** April Showers Bring May Flowers!*
*November 15, 2025 – **Theme:** Game Day!*
*April 18, 2026 – **Theme:** All About Animals!*

2022–2025

Science Ambassador for the Penn State Chapter of National DNA Day

Outreach organization that connects with underrepresented and/or underprivileged high school students to teach a class about topics in genetics and introduce them to careers in science. Prepared and gave lessons on genetics each April as a Science Ambassador.

DNA Day Talks:

April 29, 2022 – Genetics and Forensics
April 20, 2023 – Genomics and Inheritance
April 21, 2023 – Genetics and Forensics
April 9, 2024 – Genetics and Forensics
April 10, 2025 – Symbiosis and the Microbiome

2022–2026

Member of Penn State Graduate Women in Science (GWIS) Chapter - Penn State chapter of national GWIS organization.

Organization supports diversity, equity and inclusion initiatives and equal opportunity in science.

2021–2026

Member of Penn State GENOMIX (2021–2026), (2024–2026) Executive Board Member

Organization for students with research related to Bioinformatics and Genomics. Participate in mentoring of graduate students, professional development activities, workshops, and outreach.

EDUCATIONAL SOFTWARE AND PRODUCTS

MATCHMYLAB

2026–Present

MatchMyLab: An AI-based TA-to-Lab Scheduling Tool

Developed MatchMyLab, an AI-driven web platform for department-level TA allocation and scheduling that replaced fragmented spreadsheets, forms, and email-based workflows with a centralized, reusable system. Automated TA-to-course allocation and conflict-free schedule generation, reducing a process that previously required days to weeks of manual coordination to seconds. Designed to promote fair, transparent, and explainable decision-making by incorporating TA preferences, experience, course needs, and workload balance across approximately 155 annual lab sections serving 3,610 undergraduate students in Penn State Biology core courses. Recognized as a student-driven departmental innovation, the platform is now being piloted for expansion beyond Biology, with planned demonstrations at other institutions. The project has earned a total of $4,800 in combined awards.

MATCHMYLAB MEDIA COVERAGE

2026

Penn State Science News
"A Match Made in Lab: How MatchMyLab is revolutionizing teaching assistant assignment, scheduling, and beyond."
https://science.psu.edu/news/match-made-in-lab

Penn State News
"Top student teams awarded funding to move to next phase of Nittany AI Challenge"
https://www.psu.edu/news/students/story/top-student-teams-awarded-funding-move-next-phase-nittany-ai-challenge

Penn State News
"Student teams win cash awards for their AI solutions in the Nittany AI Challenge"
https://www.psu.edu/news/academics/story/student-teams-win-cash-awards-their-ai-solutions-nittany-ai-challenge

MATCHMYLAB AWARDS

2026

Nittany AI Challenge Awards, Penn State Nittany AI Alliance (Feb.–Apr. 2026)
Third Place overall (out of 40 initial teams). Advanced through the Prototype and Minimum Viable Product phases earning funding at each step, and received the Penn State Office of Physical Plant Special Award for operational efficiency, earning $4,800 in total competitive funding.

MATCHMYLAB PRESENTATIONS & RELATED TEACHING

2026

Invited Guest Instructor
MKTG 450W (Marketing Strategy) Smeal College of Business, Pennsylvania State University
Three class sessions using MatchMyLab as a live business case study. Developed instructional content focused on pricing models, product strategy, branding, competitive analysis, and development of a sustainable business model.

2026 **"Transforming the puzzle of university scheduling with *MatchMyLab*"**
(Special Invited 45-Minute Seminar Podium Presentation), Pennsylvania State University Biology Seminar Series, Pennsylvania State University, April 21.

2026 **"Transforming university scheduling with *MatchMyLab*"**
(7-Minute Product Pitch), Nittany AI Challenge, Pennsylvania State University, April 15.

MEDIA COVERAGE

PUBLICATION-RELATED MEDIA

2025 LaPolice et. al., *Nature Communications*

Penn State News
"Ancient DNA reveals farming spread through migration, locals slow to adopt it"
https://www.psu.edu/news/research/story/ancient-dna-reveals-farming-spread-through-migration-locals-slow-adopt-it

Earth.com
"Ancient DNA shows what really spread the farming revolution"
https://www.earth.com/plants/ancient-dna-shows-what-really-spread-the-farming-revolution/

Archaeology News
"Farming spread through migration, not local adoption, ancient DNA reveals"
https://archaeologymag.com/2025/08/farming-spread-through-migration/

2024 Makova et. al., *Nature*

Penn State News
"Complete X and Y chromosome sequences of living great ape species determined"
https://www.psu.edu/news/eberly-college-science/story/complete-x-and-y-chromosome-sequences-living-great-ape-species

RESEARCH AND ACADEMIC RECOGNITION MEDIA

2021 **UNH Today**
"COLSA Awards Outstanding Work at 2021 URC"
https://www.unh.edu/unhtoday/2021/05/colsa-awards-outstanding-work-2021-urc

COMMUNITY OUTREACH AND LEADERSHIP (ACTIVITIES OUTSIDE OF SCIENCE)

2026–Pres **Princeton Athletics Fellow, Princeton University**
Princeton University Football Program

- *Mentor student-athletes and support their academic, personal, and professional development within the broader university community.*

2022–2026 **The Roar Zone, The Pennsylvania State University**
President (2022–23); Executive Officer (2023–25); Co-Advisor (2025–26)

- *Led a large student organization focused on building an inclusive, and community-centered environment through Penn State men's and women's ice hockey.*
- *Led membership coordination, organizational planning, and mentorship of student leaders.*

- *Collaborated extensively with university offices and staff across athletics, communications, marketing, ticketing, and event operations.*
- *Supported large-scale student outreach and transition programming, including annual activities reaching approximately 6,000 first-year students.*

2018–2021 **The 'Cat Pack Captains, The University of New Hampshire**
Vice President (2018–19), President (2019–21)

- *Led a university-wide student organization focused on community building, student engagement, and campus participation.*
- *Collaborated with athletics, residential life, admissions, campus recreation, and university administration to develop and implement student programming.*
- *Supported large-scale orientation, admissions, and welcome programming, including activities reaching approximately 3,000 incoming students annually.*

2018–Present **Oyster River High School Boys' Lacrosse Program, Durham, NH**
Assistant Coach (2018–2021); Remote Operations Assistant and Graphic Designer/Social Media Administrator (2022–Present)

- *Coached and mentored high school student-athletes, developing experience in teaching, feedback, team leadership, and individual development.*
- *Continue to support program administration, communications, and operations through remote coordination.*

OTHER RESEARCH EXPERIENCE

2018 State Endangered New England Cottontail Conservation Genetics:
DNA extraction, PCR, microsatellite genotyping and monitoring of cottontail captive breeding pen.
(PI: Adrienne Kovach – University of New Hampshire)

2018 Bird Species Characterization, Conservation and Use of Shrubland Habitats Field Work:
Mist netting, banding (PI: Adrienne Kovach – University of New Hampshire)

PROFESSIONAL MEMBERSHIPS

2023–Present Society for the Study of Evolution

PEER REVIEWER

Genome Biology and Evolution