

ELIZABETH TAPANES, PH.D.

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EDUCATION

Ph.D. , Human Paleobiology The George Washington University	2021 Washington, DC
M.Phil. , Human Paleobiology The George Washington University	2020 Washington, DC
M.A. , Anthropology Florida Atlantic University	2016 Boca Raton, FL
B.S. , Biological Sciences Florida International University	2012 Miami, FL

PROFESSIONAL EXPERIENCE

AAAS Science and Technology Policy Fellow American Association for the Advancement of Science (AAAS) 1200 NY Ave NW, Washington DC, 20005 <i>Hosted by US Environmental Protection Agency (EPA)</i> <i>Office of Pesticide Programs</i>	09/2023 – Present Full time (40 hours/week)
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- Conducting non-partisan original research and analytical studies for policy analysts in the EPA's Emerging Technologies Branch (ETB) to inform decision makers on potential environmental impacts.
- Providing technical expertise to analyze environmental risks (hazard and exposure) and biological (fish and wildlife species) impacts of modified pest control programs.
- Assisting in the administration of federal laws on pest safety [Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Federal Food, Drug, and Cosmetic Act (FFDCA)] as they apply to fish, wildlife, the environment, and human health.
- Co-leading AAAS S&T Affinity Group on Biodiversity & Conservation (ABC) events on discussions surrounding the 50th Anniversary of the Endangered Species Act (ESA) and the broad intersection of science and policy for natural resources as it pertains to biodiversity and conservation.
- Leading the planning of a trip and panel discussion between policy analysts (i.e., other fellows in group) and scientists at the Patuxent Research Refuge (managed by USFWS) focused on decision analysis and environmental toxicology.
- Identifying emerging issues in plant pest biotech, such as biotech trees, gene drive models in mosquitos and rodents, island ecology to inform risk assessments and regulatory decision making.
- Monitoring the listing status of potentially new endangered species (i.e., monarch butterfly) to inform ecological risk assessments.
- Collaborating with other policy analysts to assess the implications of new government regulations on the public and government programs. For example:

- Participating in ongoing discussions on implications of the Endangered Species Act to farmers and developers regarding the potential USFWS listing of the monarch butterfly.
- Assessing implications of regulatory oversight and assisting in streamlining regulatory clarity for the US Coordinated Framework for the Regulation of Biotechnology.
- Co-authored interagency public policy documents, such as collaborating with colleagues in the US Coordinated Framework for the Regulation of Biotechnology (e.g., EPA, USDA, FDA) to draft a plain language summary and strategic plan for the White House on implementing regulatory reform for the bioeconomy under EO 14081.
- Co-authoring a technical white paper on an emerging plant pest biotechnology and conducting problem formulation for human health risks and environmental impacts; and, summarizing current information + identifying data gaps on this new technology. Paper will be the basis of a FIFRA Scientific Advisory Panel (SAP) in the Fall 2024, to aid EPA-SAP consultation.
- Leading an effort to re-imagine the EPA's Emerging Technologies Branch (ETB) website to clarify regulations on plant pest biotechnology to developers and the public.
- Presenting and developing briefings for senior officials at EPA and other agencies on emerging issues in agricultural biotechnology. For example, prepared materials for and orally briefed the Division Director on FY23 proposed federal programs (i.e., rules, regulations, budget, staffing) on biotechnology set forth by the USDA APHIS division, via clarifying highly technical information and distilling down to important take-home messages.
- Preparing a graphical fact sheet for developers and other stakeholders to provide regulatory clarity on recent rules and regulations, which decreased regulatory burden on EPA's Emerging Technologies Branch (ETB) branch and developers.
- Providing consultations and assistance on bilateral and multilateral working groups on global biotechnology and bioeconomy. For example:
 - Periodically meeting with and discussing emerging biotech issues across the US, Mexico, and Canada in the Trilateral Technical Working Group (TTWG).
 - Co-authoring position papers with colleagues at EPA, FDA, and USDA on the US stance on agricultural and conservation biotechnology at the Organization for Economic Co-operation and Development (OECD) meetings on global biotechnology issues.

Supervisor(s): Dr. Amanda Pierce / Dr. Elizabeth Milewski

Ok to contact this supervisor: Yes

Contact Info: Pierce.amanda@epa.gov / Milewski.Elizabeth@epa.gov

NSF PRFB Postdoctoral Fellow

University of California, San Diego
 Biology Department
 Division of Ecology, Behavior & Evolution
 La Jolla, CA, 92128

08/2021 – 08/2023

Full time (40 hours/week)

- Independently conducted non-partisan analyses, reporting, writing across three distinct projects on natural resources, particularly those that relate to wild populations of fish (i.e., threespine stickleback) across the transboundary of the US-Canada (specifically British Columbia).

- Managed a research program that spanned three independent research projects on the ecology and evolution of stickleback fish, including managing several undergraduate and master's student projects.
- Co-authored two publications (in development) and a funded grant on fish ecology and evolutionary biology.

Supervisor: Dr. Diana Rennison

Ok to contact this supervisor: Yes

Contact information: drennison@mail.ucsd.edu

Doctoral Researcher

The George Washington University
800 22nd St NW, Washington, DC, 20052

08/2016 – 05/2021

Full time (40 hours/week)

- Conducted original research and analysis used by managers and policy makers on the topic of natural resource policy in international conservation. Specifically, conducted analyses on genetics of Critically Endangered lemurs in Madagascar, to support local NGO (Sadabe) in determining conservation and land use priorities.
- Won awards (\$145k) to support projects in natural resource policy, specifically international conservation of Critically Endangered lemurs.
- Discussed research plans and considered feedback on conservation goals with international stakeholders, including: a Malagasy NGO (Sadabe), local government and academic officials, as well as local land owners and farmers.
- Participated in two international field work trips to Madagascar to work hands-on next to land managers, NGO leaders, and Malagasy policy experts in an unprotected forest. Collaborated on projects that might inform local and international conservation policy as it applies to endangered wildlife.
- Handled and led the successful application for import for biological samples for CITES regulated mammals listed as Critically Endangered, as well as one export permit from the country of origin (Madagascar).
- Managed a research program, spanning five independent research projects on the ecology, conservation, and evolution of endangered primates. This involved application and interpretation of standard quantitative analytical methods involving natural resources policy issues (i.e., land use modeling, genomic bioinformatics, complex modeling using R/Python).
- Identified emerging issues in international conservation and natural resource policy as it relates to endangered primates and their habitats, such as usability of new monitoring/sampling technologies in remote locations of Madagascar, climate change impacts on evolutionary potential, and anthropogenic habitat pressures in fragmented forests.
- Led evaluation and monitoring of the budget for multiple funded projects, including identification of low-cost similar substitutions for project needs.
- Led and co-authored a variety of descriptive reports and memoranda related to natural resource policy. Specifically, I authored and established one Memoranda of Understanding (MOU) across three institutions for future collaboration on data from Critically Endangered sifaka lemurs in the Tsinjoarivo forest in Madagascar.
- Wrote blogs for the general public; one on the importance of lemurs for basic research and conservation priorities and another that outlined the federal processes of obtaining a CITIES importation permit from USFWS.

- Led the analysis and interpretation, and subsequent writing, for projects related to the ecology and evolution of Critically Endangered primate species, and two of them have implications for natural resource policy implementation for international conservation of lemurs.
- Conveyed information via 19 oral briefings and presentations for broad audiences (e.g., general public, scientists with differing expertise) on public policy issues that relate to natural resource management and international conservation.

Supervisor: Dr. Brenda Bradley

Ok to contact this supervisor: Yes

Contact information: bradleybrenda@gmail.com

PRODUCTS (PAPERS, REPORTS, PUBLICATIONS, TOOLS)

** = Denotes co-authorship as part of Agency document

In development:

1. The Coordinated Framework for the Regulation of Biotechnology (**EPA****, USDA, FDA). Regulatory plan for US biotechnology, in response to White House Executive Order 14081.
2. **EPA****. White paper in development for an upcoming FIFRA Science Advisory Panel (SAP). Title/topic classified until Fall 2024.
3. **EPA****. Fact sheet on regulatory examples and clarifications on the EPA Final Rule for Exemptions of Certain Plant-Incorporated Protectants (PIPs) Derived from Newer Technologies.
4. Tsai, B., **Tapanes, E.**, & Rennison, D.J. Geographic distance and climatic similarity impacts divergence estimates in wild stickleback populations.
5. **Tapanes, E.**, & Rennison, D.J. The genetic basis of melanic pigmentation in benthic and limnetic threespine stickleback. *Submitted & under review.*

Completed:

1. The Coordinated Framework for the Regulation of Biotechnology (**EPA****, USDA, FDA). 2023. Plain language information on the biotechnology regulatory system, in response to White House Executive Order 14081.
2. **Tapanes, E.**, Kamilar, J.M., Nukala, M., Irwin, M.T., & Bradley, B.J. (2022). Melanism in a wild sifaka population: Darker where cold and fragmented. *International Journal of Primatology*.
3. **Tapanes, E.**, Jacobs, R.L., Harryman, I., Louis Jr., E.E., Irwin, M.T., Kamilar, J.M., & Bradley, B.J. (2022). Hair phenotype diversity across Indriidae lemurs. *American Journal of Biological Anthropology*, 178(2): 257-272.
4. **Tapanes, E.**, J. M. Kamilar, & Bradley, B.J. (2021). Molecular and cellular processes underlying hair pigmentation and growth in primate evolution. *In: Evolutionary Cell Processes in Primates: Genes, Skin, Energetics, Breathing, and Feeding; Volume II.* Pitirri, M.K., & Richtsmeier, J.T. (Eds.) CRC Press.
5. **Tapanes, E.**, T., Anestis, S., Kamilar, J.M., & Bradley, B.J. (2020). Does hair greying in chimpanzees provide a salient progressive cue of ageing? *PLOS ONE*, 15(7): e0235610.
6. Wolovich, C.K., **Tapanes, E.**, & Evans, S. (2017). Allogrooming in male-female pairs of captive owl monkeys (*Aotus nancymae*). *Folia Primatologica*, 88(6), 483-496.

7. **Tapanes, E.**, Cords, M., & Detwiler, K.M. (2016). Predation on bats by *Cercopithecus* monkeys: Implications for zoonotic disease transmission. *EcoHealth*, 13(2), 405-409.
8. Jefferson, J.P., **Tapanes, E.**, & Evans, S. (2014). Owl monkeys (*Aotus* spp.) socially anoint in captivity. *Folia Primatologica*, 85(2), 119-134.

AWARDS & HONORS

- Received the **Gordon Research Conference Carl Storm Underrepresented Minority Fellowship** for the Genetic Biocontrol conference in Barcelona, Spain where researchers and policy makers/analysts discuss agricultural and conservation biotechnology and its application to natural resource policy.
- Received the **AAAS Science and Technology Policy Fellowship**, which was awarded to 276 scientists in 2023 (success rate: ~25%).
- As a post-doctoral fellow, wrote and was awarded the prestigious **National Science Foundation (NSF) Postdoctoral Research Fellowship in Biology (PRFB)** (~\$138K) to study genomics and ecology of rapid adaptation in wild stickleback fish. Reviewers commented I was a “remarkable and promising scientist” and the project had “transformative potential.” Success rate: ~20%.
- Invited to peer review publications (Scientific Reports, Ecology & Evolution, Evolutionary Anthropology, Data in Brief, African Journal of Ecology).
- As a doctoral student, was awarded the joint American Journal of Physical Anthropology & Journal of Human Evolution **Best Student Presentation Award** for the 2021 oral presentation titled “Ecology and opsin variation underscore the evolution of hair phenotypes across Indriidae lemurs—implications for human evolution.” (\$500)
- Wrote and was awarded a **Leakey Foundation Research Grant** (\$15K) as a doctoral student to fund genomics work for Critically Endangered sifaka lemurs in Madagascar.
- As a doctoral student, wrote and was awarded the Lewis N. Cotlow Award from George Washington University (\$2K) twice, for field work in Madagascar to study Critically Endangered sifaka lemurs.
- Wrote and was awarded the William Warren Graduate Research Grant from the George Washington University (\$800) as a doctoral student for field work in Madagascar to study Critically Endangered sifaka lemurs.
- As a doctoral student, wrote and was awarded an International Primatological Society Research Grant (\$1.5K) for field work in Madagascar to study Critically Endangered sifaka lemurs.
- Nominated and inducted into **The Edward Bouchet Graduate Honors Society** at Yale University due to “outstanding efforts to advance diversity and equity at The George Washington University (GWU) while showing promise for leadership in the sciences.” I was one of only three students from GWU inducted this year.
- Received a five-year **GWU Provost Graduate Fellowship** to aid in my doctoral education and research training. Only awarded to 5-10 graduate students (university-wide) yearly that show outstanding scientific promise
- As a master’s student, I wrote and was awarded three grants: the Technology Fee Grant and the Graduate Research and Inquiry Program Grant from Florida Atlantic University (\$5K) and the Sigma Xi Grants-in-Aid of Research (\$1K).

PRESENTATIONS (BRIEFINGS, CONFERENCES, SEMINARS)

1. “Updates from Department of Agriculture’s BRS Annual Agriculture Stakeholder Meeting.” 2023. *Oral briefing* for EPA’s Biopesticides and Pollution Prevention Division Director. Washington, DC.

2. Genomics and cellular biology of primate pigmentation: Lessons from other taxa." 2022. *Invited oral presentation* at the American Association of Biological Anthropology Conference. Denver, CO.
3. "Evolution of phenotypic diversity in wild vertebrates." 2021. *Invited oral presentation* at San Diego Zoo in the Conservation Genetics Department. San Diego, CA.
4. "Ecological and social factors underlying pelage pigmentation in a wild sifaka (*Propithecus diadema*) population." 2021. *Oral presentation* at the American Society of Naturalists Conference. Virtual.
5. "Ecology and opsin variation underscore the evolution of hair phenotypes across Indriidae lemurs—implications for human evolution." 2021. *Oral presentation* at the American Association of Biological Anthropology Conference. Virtual.
6. "The impact of ecology, demography, and genetics on primate pelage." 2021. *Oral dissertation defense* at The George Washington University. Washington, DC.
7. "Evolution of Indriidae hair biology." 2020. *Invited oral seminar* at The University of California-Berkley in the Department of Integrative Biology, for The Nachman Lab. Berkley, CA.
8. "The evolution of pelage biology: From phenome to genome." 2019. *Invited oral presentation* at Pennsylvania State University in the Department of Anthropology, for the Anthropological Genomics Laboratory. State College, PA.
9. "The evolution of mammalian hair: From phenome to genome." 2019. *Invited oral presentation* at The George Washington University in the Department of Biology, for The Martin Lab. Washington, DC.
10. "Evolution of pelage in a wild lemur population." 2019. *Oral presentation* at the Northeastern Evolutionary Primatologists Meeting. Amherst, MA.
11. "Pigmentation changes are (sort of) related to ageing in chimpanzees." 2019. *Oral presentation* at the American Society of Mammologists Conference. Washington, DC.
12. "Behavioral genetics in mammals." 2019. *Invited guest lecture* at The George Washington University for the Great Ape Behavior and Evolution Class. Washington, DC.
13. "Subtle sexual dichromatism and dimorphism detected in wild *Propithecus diadema*." 2017. *Poster presentation* at the American Association of Biological Anthropology Conference. Austin, Texas.
14. "Pigmentation in a comparative context: Factors shaping variation and convergence in primate pelage patterns." 2017. *Poster presentation* at the American Association of Biological Anthropology Conference. New Orleans, LA.
15. "The significance of allogrooming to pair-bonded owl monkeys (*Aotus* spp.)." 2015. *Poster presentation* at the American Association of Biological Anthropology Conference. St. Louis, MO.
16. "Phenotypic diversity and mating in Gombe National Park's *Cercopithecus* hybrid zone: implications for conservation." *Invited oral presentation* at the International Primatological Society Congress. Chicago, IL.
17. "Patterns of allogrooming in male-female pairs of captive owl monkeys (*Aotus nancymae*)." 2016. *Invited oral presentation* at the International Primatological Society Congress. Chicago, IL.
18. "Testing methods for studying color objectively in wild arboreal primates." 2015. *Oral presentation* at the South Florida Primatology Meeting. Boca Raton, FL.
19. "Owl monkeys (*Aotus* spp.) socially anoint." 2012. *Poster presentation* American Society of Primatologists. Sacramento, CA.
20. "Leaping into the night: when owl monkeys (*Aotus* spp.) awake." 2007. *Poster presentation* American Society of Primatologists. Winston-Salem, NC.

ACTIVITIES & OTHER INTERESTS

- Perpetual volunteer for organizations and programs that promote conservation, animal welfare, and STEM education for youth.
 - **Led outreach events for youth** (2012 – 2021) with various educational organizations and schools, such as Smithsonian Natural History Museum, Yale Peabody Museum of Natural History, USA Science and Engineering Festival, STEM for Her, BePolished, and elementary schools.
 - As part of Alternative Breaks (2010), **assisted with invasive species policy and educational outreach** with local fishermen and schools, in collaboration with Cape Eleuthera Institute in Eleuthera, Bahamas.
 - **Founded and was president of animal health club** (i.e., FIU's Pre-Veterinary Society (2008-2010)). Organized events such as volunteering with pet adoption agencies, spay/neuter clinics, and donation drives for rehabilitated wildlife.
- Served as a doctoral student representative for my department's Curriculum Committee, where I assisted in ushering in a wave of changes to improve the current and incoming student experiences, such as setting standards for laboratory safety protocols, graduate class swaps, and a tiered mentoring program.
- **Amateur animal and nature photographer** of scenes and animals across the globe from Yellowstone, to Gombe National Park in Tanzania, Central America, the US Mid-Atlantic, and more (see work at: https://www.flickr.com/photos/e_tapa/).
- **Established backyard as a certified wildlife friendly habitat** (2022) for pollinators and other native wildlife in the area (i.e., rabbits, deer) in accordance with the National Wildlife Federation and the Maryland Department of Natural Resources.