

# MARY BURAK

## PhD Candidate, Conservation Scientist

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### TECHNICAL SKILLS

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**Wildlife research and biodiversity/ecological monitoring:** Camera trapping, GPS collaring with field immobilization and VHF telemetry, spoor tracking, wildlife surveys, mark-recapture, fecal sampling, monitoring and evaluation (M&E)

**Software:** ArcGIS/QGIS, R, Zotero, Microsoft Office (Word, Excel, PowerPoint), FileMaker, EarthRanger, SMART data collection, CyberTracker, Google Earth Engine, Adobe Photoshop. Basic knowledge of Python.

**Professional Development:** Project design/management, technical/financial reporting, networking, partnership & stakeholder collaboration, budgets, time management, team coordination, outreach, DEI, excellent communication (written, verbal)

**Other:** Quantitative and qualitative research skills, publication experience, education (mentorship, supervision)

### EDUCATION

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**Yale University** **New Haven, CT, USA**  
School of the Environment, *Ph.D.* 2016 – Present  
Advisor: Dr. Oswald Schmitz  
School of the Environment, *M.Phil* 2018

**Providence College** **Providence, RI, USA**  
Biology, *B.A.* 2011 –2015

### GRANTS & OTHER FUNDING

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**McCarthy Family**, Private Donation (**\$15,000**) 2021  
**The MacMillan Center**, International Dissertation Research Fellowship (**\$18,000**) 2019  
**Yale Tropical Resources Institute**, Endowment Fellowship, (**\$10,000**) 2017, 2019  
**Yale Institute for Biospheric Studies**, Doctoral Dissertation Improvement Grant, (**\$5,000**) 2019  
**National Geographic Society**, Early Career Award (**\$9,660**) 2018  
**Greenville Zoo**, Conservation Grant (**\$805**) 2018  
**Yale Institute for Biospheric Studies**, Research Grant (**\$4,000**) 2017  
**Yale Institute for Biospheric Studies**, Doctoral Pilot Award (**\$2,900**) 2017  
**Yale University**, Schiff Fund for Wildlife, Habitat, and Environment (**\$2,000**) 2017  
**Providence College**, Undergraduate Research Grant (**\$500**) 2014

### FELLOWSHIPS, SCHOLARSHIPS, & AWARDS

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**National Science Foundation**, Graduate Research Fellowship (pre-doctoral) (**\$138,000**) 2016 – 2021  
**Philanthropic Educational Organization (P.E.O.)**, P.E.O. Scholar Award (**\$20,000**) 2021  
**MacMillan Center**, Travel Award (**\$750**) 2020

## PUBLICATIONS

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1. **Burak, M.K.**, et al. *In Review*. Considering Context When Rewilding to Animate the Carbon Cycle.
2. **Burak, M.K.**, et al. *In Prep*. Spatiotemporal Patterns of Lion (*Panthera Leo*) Step-Selection and Landscape Resistance in a Human-Wildlife Coexistence Landscape.
3. **Burak, M.K.**, Monk, J.D., and Schmitz, O.J. 2018. Eco-Evolutionary Dynamics: The Predator-Prey Adaptive Play and the Ecological Theater. *Yale Journal of Biology* 91(4): 481–489. Invited Manuscript.
4. Saarman, N.\*, **Burak, M.K.\***, et al. 2018. A spatial genetics approach to inform vector control of tsetse flies (*Glossina fuscipes fuscipes*) in Northern Uganda. *Ecology & Evolution* 8(11): 5336–5354. [Read here.](#)
5. Richardson, J.L., **Burak, M.K.**, et al. 2017. Using fine-scale spatial genetics of Norway rats to improve control efforts and reduce leptospirosis risk in urban slum environments. *Evolutionary Applications* 10: 323–337. [Read here.](#)
6. Costa, F., Richardson, J.L., Dion, K., Mariani, C., Pertile, A.C., **Burak, M.K.**, et al. 2015. Multiple Paternity in the Norway rat, *Rattus norvegicus*, from Urban Slums in Salvador, Brazil. *Journal of Heredity* 107: 181–186. doi: 10.1093/jhered/esv098. [Read here.](#)

\* Indicates shared first-authorship

## PROFESSIONAL EXPERIENCE

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### Action for Cheetahs in Kenya (ACK)

Nairobi/Samburu Kenya

#### Consultant

Feb. 2022 – Present

- Strategic planning, project development, proposal writing, fundraising for ACK's sniffer dog program and conservation enterprises. Supervise dog handlers and their projects. Work with partners/authorities (KWS/WRTI) to build a data repository to monitor human- and climate-threats against cheetahs.

### Lion Landscapes

Laikipia, Kenya

#### Yale University, School of the Environment (YSE)

New Haven, CT, USA

#### Ph.D. Candidate

2016 – Present

- Lion spatial ecology and landscape genetics research to study human effects on large carnivore connectivity. Collaboration with cross-border conservation partners and/or local community-based conservation initiatives to support site-level strategies for human-wildlife coexistence (e.g., land use zoning for species conservation).
- Relevant skills include: Collaring, camera trapping, sign surveys, occupancy modeling, habitat use modeling, population genetics and landscape genetics analyses, and capacity building engagement (e.g., staff training on lion ecology and conflict mitigation, student mentorship/supervision).

### African People & Wildlife

Loibor Siret, Tanzania

#### Visiting Doctoral Student with Dr. Laly Litchenfeld

June – July 2017

- Assisted in camera trap deployment and monitoring.
- Observed Monitoring & Evaluation staff practices and provided recommendations for more efficient data storage, quality control, and regular assessment and reporting.

**Yale University** Kigali, Rwanda  
**Visiting Doctoral Student with Dr. Amy Vedder** May – June 2017

- Consulted with government, NGO, and private landowners regarding problems surrounding wildlife management in one of the world's most densely populated countries.

**Yale University, Center for Genetic Analyses of Biodiversity (CGAB)** New Haven, CT, USA  
**Research Assistant** Oct. 2015 – Aug. 2016

- Led the GIS component for population and landscape genetics research on East African tsetse flies to inform vector control: DNA analysis, landscape modeling, large data repository management (cross-collaborator standardization), ILRI partnerships to foster M&E. DNA extraction, sequencing, and analysis (microsatellites, mtDNA, ddRAD).
- Responsible for CGAB's budgets, reports, scheduling, and maintenance of external client relationships.

**Providence College** Providence, RI, USA  
**Research Assistant (joint with Yale University)** May 2015 – Oct. 2015

- Conducted landscape ecology and population genetics (i.e., landscape genetics) of urban rat connectivity in Brazil in order to optimize vector management strategies.
- Relevant skills include: large database organization, public health forum policy briefs, knowledge-sharing (eradication strategy, analytical training), post-project impact assessment.

**Undergraduate Student Researcher** Sept. 2014 – May 2015

- Ecological and genetic research of white-footed mice via small mammal trapping and handling, tissue collection, and DNA extraction. Liaised with the general public (e.g., local animal trappers) on the value of sharing animal samples with researchers.

**The School for Field Studies** Karatu, Tanzania  
**Undergraduate Student Researcher** 2014

- Led a team to assess Buger Community Forest sustainability: biodiversity and human impact assessments, community interviews (resource management perceptions). Presented reports to managers and communities.

**Providence College, Friar Phage Hunters** Providence, RI, USA  
**Research Student** 2011 – 2012

- Research on the behavior and genetic sequence of novel mycobacteriophage JOB42.

## PRESENTATIONS & INVITED SPEAKING ENGAGEMENTS

Speaker, <i>International Association of Landscape Ecology (IALE) North America Conference</i> (Virtual)	2021
Speaker, <i>International Savanna Science Network Meeting</i> (Kruger National Park, South Africa)	2020
Poster, <i>Pathways Africa: Human Dimensions of Wildlife Conference</i> (Limuru, Kenya)	2020
Invited Speaker, Women in Ecological Webinar, <i>Saint Mary's College</i> (Virtual)	2019
Flash talk, <i>Yale Forestry &amp; Environmental Studies Research Conference</i> (Yale University, USA)	2018
Speaker, <i>Yale Tropical Resources Institute Annual Symposium</i> (Yale University, USA)	2018
Flash talk, <i>Yale Forestry &amp; Environmental Studies Research Conference</i> (Yale University, USA)	2017
Poster, <i>International Association of Landscape Ecology (IALE) World Congress</i> (Portland, OR, USA)	2015
Poster, <i>Sigma Xi: The Scientific Research Society</i> (Providence College, USA)	2015
Poster, <i>Celebration of Student Scholarship and Creativity</i> (Providence College, USA)	2015

## TEACHING EXPERIENCE

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### **Teaching Assistant**

Yale University, *Ecological Patterns & Processes* Fall 2019  
Yale University, *Wetlands Ecology: Conservation and Management* Fall 2018, Fall 2020  
Yale University, *Ecosystems and Landscapes* Fall 2017

### **Guest Lecturer**

Yale University, *Ecological Patterns & Processes* Fall 2019

## VOLUNTEERISM & MENTORSHIP

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**Mentor**, *EEB Mentor Match* 2020 – Present

- Mentor students in minoritized groups gain admission to, and fellowships for, graduate school in the ecology and evolutionary biology fields.

**Peer Mentor**, *Yale School of Environment PhD Peer Mentoring Program* 2017 – Present

- Serve as a peer mentor for first-year PhD students in the department. Acted as the program organizer for the 2020 - 2021 academic year.

**Mentor**, *Women in Science at Yale (WISAY)* 2016 – Present

- Mentor undergraduate students at Yale University via monthly meetings to discuss current events within academia and science at large, goal setting, professional trajectories, and related topics.

**Science Communicator/Public Educator**, [\*EBTSOYP\*](#) and [\*Skype a Scientist\*](#) 2017 – Present

- Virtual science communication for grades 3 – 12 in Canada and the U.S. including a high school “Girls in Science” club.

**Judge**, *New Haven Science Fair (Grades K-12)* 2018

## LEADERSHIP & PROFESSIONAL SERVICE

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**Board Member**, *Women in Science at Yale (WISAY)* 2020 – Present

**General Member**, *Women in Science at Yale (WISAY)* 2016 – 2020

- I co-lead monthly meetings, organize career- and community-building events, and maintain WISAY’s online presence. WISAY is comprised of more than 500 undergraduate, graduate students, and postdoctoral scientists. It is dedicated to promoting female scientists and advocating for gender equality in STEM. Our main goals include advocacy and awareness, mentoring, networking and community building, and career development. The group.

**Co-founding member**, *Yale School of the Environment Doctoral Committee (DocComm)* 2019 – 2020

- Co-led the formation of an independent Ph.D. committee of 12 students to represent the needs specific to the Ph.D. community. Advocated for Ph.D. students’ educational, financial, and personal support due to COVID-19 disruptions.

**Elected member**, *Yale School of the Environment Student Affairs Committee* 2016 – 2018

- Elected Ph.D. representative for the Student Affairs Committee ‘Academic Affairs’ board. Served as a liaison between the student body and the school at large. Additionally, I organized monthly Ph.D. student socials and professional skill building events.

**Invited Reviewer:**

- *Heredity* (1), *Molecular Ecology* (1), *Human Dimensions of Wildlife* (1), *Journal of Zoology* (1)

**Professional Society Member:**

- Society for Conservation Biology

**SKILLS**

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***Research and Technical:***

- Field: Experience operating 4x4 manual transmission vehicles, basic mechanical knowledge, animal capture and handling, radio telemetry, GPS, transect surveys, camera trapping
- Laboratory: DNA extraction and sequencing for genomics, conservation genetics, and population genetics projects

***Software:***

- R, ArcGIS, QGIS, EarthRanger, Ecosphere, SMART, CyberTracker
- Languages: Kiswahili (elementary), Spanish (intermediate)

***Certifications:***

- First Aid & CPR
- QPR Gatekeeper Training for Suicide Prevention

***Workshops & Short Courses:***

- Landscape Genetics Distributed Graduate Seminar (DGS) – 2020
- Carl Zimmer Graduate Student Science Writing Workshop – 2017
- UCLA La Kretz Workshop in Conservation Genomics – 2017