Michela Dumas

CONTACT INFORMATION

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COMPETENCIES

- Excellent verbal and written communication skills in both French and English
- Strong data management and data processing skills
- Strong statistical analysis skills using R
- Advanced knowledge of reproducible reporting and analysis using Quarto
- Experience implementing multiple projects and prioritizing tasks to meet deadlines
- Experience in preparing progress and technical reports as well as presentations for supervisors, colleagues, students and the general public
- Ability to work independently and as part of a team in a dynamic environment, facilitate meetings, and mentor junior researchers
- Valid Ontario G2 license, awaiting G examination

WORK EXPERIENCE

Postdoctoral Research Fellow | October 2024 – present

- University of Ottawa, Ontario, Canada
- Objective: Conducting original research on the evolutionary consequences of sexual dimorphism in wild populations.

Tasks:

- Managing and analyzing long-term data (Marmot project: 60+ years of data; Swift project: 25+ years of data) using R
- Data processing, visualization, and mining, as well as quality assurance of the data set used for hypothesis testing
- Implementing advanced statistical modelling techniques using frequentist and Bayesian methods, such as linear and generalized linear mixed effects models, animal models integrating pedigree data, and climatic window analysis
- Ensuring reproducibility of results using Quarto and Github
- Disseminating research results thought peer-reviewed publications, conference presentations, and scientific outreach
- Mentoring undergraduate and graduate students
- Effective communication with collaborators to meet project milestones, produce deliverables, and achieve project goals in accordance with project timelines
- Facilitate weekly stand-up meetings with team members
- Stay up to date with new developments and advancements in the field by performing regular literature analyses
- Ensure compliance with animal welfare guidelines during fieldwork (permits, follow-up reports detailing ethical considerations)
- Identify research gaps and develop creative solutions to address those gaps when developing new research projects

RESEARCH HIGHLIGHTS

Publications:

- **Dumas MN,** Meier CM, Martin JGA, Bize P (2024). Who keeps the house after divorcing? Partner and nest fidelity in the long-lived Alpine swift. *Am Nat*. DOI: 10.1086/733307
- **Dumas MN,** Martin JGA, Bize P (2024). Temporal changes in sex-specific cryptic sexual dimorphism and allometric scaling in the long-lived Alpine swift Tachymarptis melba. OSF preprint. DOI: 10.31219/osf.io/7gc5b. Under review in J. Evol. Biol. (JEB-2024-00280)
- **Dumas MN,** Martin JGA, Bize P (2024). Shared genetic architecture and sex-specific fitness consequences of forked tails in the Alpine swift Tachymarptis melba. OSF preprint. DOI: 10.31219/osf.io/b4y2v. Under review in Evolution (EVO-24-0339).
- **Dumas MN**, St. Lawrence S, Masoero, G., Bize, P., Martin JGA (2024). Adult body mass is heritable, positively genetically correlated and under selection of differing shapes between the sexes in a bird with little apparent sexual dimorphism. *J Anim Ecol.* DOI: 10.1111/1365-2656.14064
- **Dumas MN**, St. Lawrence S, Petelle M, Blumstein DT, Martin JGA (2022). Sex-specific reproductive strategies in wild yellow-bellied marmots: senescence and genetic variance

Teaching Assistant | September 2020 – August 2024

- University of Ottawa, Ontario, Canada
- Courses taught (in French & English): BIO4558/BIO4158 Applied Biostatsitics; BIO3576/BIO3176 Animal Behaviour; BIO3537 Experiments in Animal Physiology; BIO3735 Experiments in Animal Behaviour; BIO1540 Plant Biology

Responsibilities:

- Prepared and demonstrated lab material
    - Instructed BIO3735 Experiments in Animal Behaviour students in experimental design principles, biological hypothesis construction, and the use of QGIS for animal telemetry (home range size analysis)
    - Instructed BIO4558/4158 Biostatistics students in statistical hypothesis testing and the use of advanced statistical tools such as mixed effects models using R
- Answered questions clearly in person, via email, and during regular office hours in French or English according to the students' preferred language of communication
- Graded assignments and exams
- Provided detailed and constructive feedback to facilitate the learning environment of undergraduate and graduate students
- Tactfully addressed issues or student complaints relating to grading while demonstrating a high level of understanding of diverse learning needs
- Met regularly with the supervising professor and other TAs to ensure consistency and team unity

Research Assistant | May – August 2022; May – August 2023

- Swiss Ornithological Institute, Sempach, Switzerland

Fieldwork:

- Monitored wild birds in various locations throughout Switzerland daily, which entailed daily organization and scheduling and adapting to environmental conditions (i.e., modifying the capture schedule during inclement weather)
- Collected and processed biological data according to establish protocols and wildlife handling permits
- Banded nestlings and adults using metal bands affixed to the bird's leg for future identification and data continuity
- Placed GLS loggers using specialized harnesses
- Blood sampling of nestling (brachial wing vein) and adults (medial metatarsal vein); implemented lab techniques for DNA extraction and pathology (e.g., blood smears)
- Data entry and quality assurance of the data

in annual reproductive success differ between the sexes. *Behav. Ecol. Sociobiol.* DOI: 10.1007/s00265-022-03191-9

Conferences:

- **Canadian Society for Ecology and Evolution** | Talk: Fitness is heritable and negatively genetically correlated between the sexes in yellow-bellied marmots (July 2025 [talk accepted])
- **Société Québécoise pour l'Étude Biologique du Comportement** | Talk: Who keeps the house after divorcing? Partner and nest (in)fidelity in the long-lived Alpine swift (Novembre 2024)
- **Joint Congress on Evolutionary Biology** | Talk: Shared genetic architecture and sex-specific fitness consequences of forked tails in the Alpine swift Tachymarptis melba. (July 2024)
- **European Ornithologists' Union** | Poster: Causes of variation and sexual conflict over body mass in the Alpine swift (April 2023)
- **Ottawa-Carleton Institute of Biology Symposium** | Talk: Causes of variation and sexual conflict over body mass in the Alpine swift (April 2023)

Guest Lecturer:

- "Writing Dynamic and Reproducible Documents" for the graduate course "Advanced Biostatistics and Open Science' (2025)

Research Assistant | January – August 2020

- Ethologische Station Hasli, University of Berne, Switzerland

Tasks:

- Conducted original research on mate choice in a cichlid fish
- Designed a full factorial experiment to test female mate preference for a male extended phenotype and implemented the experiment in collaboration with fellow research assistants and the team veterinarian to ensure animal welfare
- Compiled and analyzed behavioural data from videos using BORIS; used mixed effect models for hypothesis testing in R

Research Assistant | April – May 2019

- Université Sorbonne Paris Nord, Ile-de-France, France

Tasks:

- Designed and implemented an experiment to test for size assortative pairing in relation to the courtship behaviours of a marine polychaetae
- Analyzed data using R (mixed effect models)
- Maintained the stock population
- Disseminated results through publications and conferences

EDUCATION

Ph.D. in Biology | 2020-2024

- University of Ottawa, Ontario, Canada
- Specialization in evolutionary ecology with a thesis on sex-specific evolution in a wild bird using a state-of-the-art quantitative genetic analytical approach and long term data
- Thesis title: Sex-specific genetic architecture and fitness consequences of subtly dimorphic traits in the long-lived Alpine swift
- Supervisors: Dr. Julien Martin (University of Ottawa) and Dr. Pierre Bize (Swiss Ornithological Institute)
- Scholarships:
    - University of Ottawa Ph.D. Admission Scholarship (2020 – 2024)
    - Ontario Graduate Scholarship (2022 – 2023)
    - Ontario Graduate Scholarship (2023 – 2024)
    - University of Ottawa's Department of Biology Merit Scholarship (2023)
    - University of Ottawa Travel Grant (2023)
    - University of Ottawa Conference Grant (2023)

- "Causes of Variation and Sexual Conflict in Swifts" for the undergraduate course 'Social Evolution' (2023)
- "Sexual Selection and Mate Choice" for the undergraduate course 'Advanced Evolutionary Biology' (2022)

Co-supervised students in the completion of their theses

- 2 Honours B.Sc. students
- 1 M.Sc. student

Peer-Reviewed for the journals**:**

- *Avocetta* (2 publications)
- *Proceedings of the Royal Society B* (1 publication)
- *Scientific Reports* (1 publication)

REFERENCES

Julien Martin | Associate Professor

University of Ottawa, Canada

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Pierre Bize | Head of the Human Impact Research Unit

Swiss Ornithological Institute, Switzerland

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M.Sc. in Ethology (with honours) | 2018-2020

- Université Sorbonne Paris Nord, Ile-de-France, France
- Course-based with two (2- and 6-month) research internships
- Scholarships: Merit Scholarship from the Cité International Universitaire (2019 – 2020)

Honours B.Sc. Biology (*Cum Laude*) | 2012-2017

- University of Ottawa, Ontario, Canada
- Specialization in Ecology, Evolution, and Behaviour, with a minor in Psychology.
- Scholarships: French Studies Bursary (2012)
- Relevant courses include: BIO3115 Conservation Biology; BIO4158 Applied Biostatistics

OTHER ACTIVITIES

I'm passionate about the natural world and its conservation. One of my main hobbies is long distance backpacking, which has prepared me to face the challenging conditions inherent with fieldwork such as inclement weather. I engage with the public through short articles and outreach events and enjoy combining these activities with my love for wildlife photography.

- **Content creator** for the student-lead multimedia magazine BioMatters, including "My Introduction to Birding" (Volume 2 Issue 2) and "Plants and (a few) of their many uses" (Volume 6 Issue 3)
- Embarked on self-guided **backpacking** expeditions spanning the majestic vistas of the Pacific Crest Trail (2017) and the rugged terrain of the Tour du Mont Blanc (2023).
- Dedicated a summer to **eco-volunteering** with the Jaguar Rescue Centre & La Ceiba Release Centre, Costa Rica (2018).
- Researched, compiled and presented information on European wildlife conservation status to the public during the Cité de la Paix **outreach** event hosted by the Cité International Universitaire de Paris (CIUP), France, which earned me the CIUP Merit Scholarship (2019).
- Completed a 10-week **photography** course at the School of Photographic Arts of Ottawa studying digital photography under David Barbour (2018).