

Maximiliane Jousse

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EDUCATION

PhD. Quantitative Life Sciences (QLS)

McGILL UNIVERSITY

GPA: 4.00

Montreal, Canada | Sep 2022 - Present

BSc. Mathematics and Biology

McGILL UNIVERSITY

GPA: 3.80

Montreal, Canada | Sep 2018 - Dec 2021

A Level Physics, Math, Chemistry, Biology, French, Spanish

SHARNBROOK ACADEMY

GPA: A,A,A,A,A*,B

Sharnbrook, UK | Sep 2016 - Jun 2018

RESEARCH EXPERIENCE

LIVING DATA PROJECT | WORKING GROUP

Toronto, Canada | Jun 2024

Assessing sensitivity and robustness of the Living Planet Index

- Investigated the robustness of the LPI and its sensitivity to different methodological choices
- Investigated the treatments of zero values in the time series and the sensitivity to outliers
- Investigated the sensitivity to temporal representation and short or sparse time-series
- Elaborated methods for calculating confidence intervals
- Collaborated with 17 graduate students, professors, post-docs and professionals from WWF, ZSL, University of British Columbia, McGill, and Université de Montréal

POLLOCK LAB | RESEARCH ASSISTANTSHIP

McGill University, Quebec Government | Sept 2023 - Dec 2023

Plan Nature: recommending biodiversity indicators to the Quebec government

- Reviewed and evaluated current headline and complementary (GBF) biodiversity indicators
- Collaborated with stakeholders (provincial government and organisations) and academics to recommend suitable and measurable indicators
- Organised and led workshops bringing together scientists and stakeholders

LIVING DATA PROJECT | INTERNSHIP

Zoological Society of London | July 2023 - Aug 2023

Canadian species extinction risk assessments data

- Cleaned IUCN and modified-IUCN conservation assessment data.
- Developed a protocol in R to clean, check, and aggregate data in a reproducible way that will be used by the ZSL to aggregate and clean all their conservation assessment data.

POTVIN LAB | PHD. ROTATION 3, PART 2

McGill University, Canada | Jun 2023 - Aug 2023

Analysis of tree biodiversity and population structure in the old growth forest of the Darien region of Panama

- Described a 10 hectare old growth forest observatory established in 2019 in the Darien forest of Panama.
- Analysed the forest structure, diversity and conservation status.
- Compared this plot to all other ForestGEO plots in Panama.

POTVIN LAB | PHD. ROTATION 3, PART 1

STRI, Panama | May 2023 - Jun 2023

Monitoring carbon in reforested areas of indigenous communities: bridging the technological divide

- Developed and led a workshop in Spanish on carbon accounting in the reforested areas of the Embera indigenous community of Piriati, Panama
- Taught mobile LiDAR to indigenous participants as a tool to monitor reforested areas
- Developed a carbon calculator that can be used by participants with limited technological knowledge
- Improved estimates of above ground biomass for Central American tropical trees using local data
- Collaborated with the indigenous participants to create a protocol suited to their skills and needs which would allow them to independently measure the carbon stored in their lands

POLLOCK LAB | PHD. ROTATION 2

McGill University, Canada | Jan 2023 - Present

Big data: north American bird distribution and climate patterns

- Analysed large data sets to look at patterns between avian distributions and climate

- Investigated climate niche tracking between different trophic guilds

GUICHARD LAB | PHD. ROTATION 1

McGill University, Canada | Sep 2022 – Dec 2022

Modelling ecosystem engineering and nutrient flows in a simple food web

- Elaborated and analysed a differential equation model to investigate non-trophic effects of ecosystem engineers on simple food chain dynamics in the context of nutrient recycling

BONSALL LAB | RESEARCH ASSISTANT

Oxford University, UK | Jan 2022 – April 2022

Investigating the effects of delayed germination on apparent competition

- Elaborated and analysed a delay-differential equation model to investigate at the effect of delayed germination and seed banks on the relationship between two primary producers and a shared consumer

GUICHARD LAB | UNDERGRADUATE THESIS

McGill University, Canada | Sep 2021 – Dec 2021

Non-resource effects of sediment accumulation in a simple nutrient-producer system, a mathematical model

- Elaborated and analysed a differential equation model to investigate the destabilising effects of sediment accumulation in a simplified representation of a mussel-centric benthic ecosystem.

GUICHARD LAB | FIELD RESEARCH ASSISTANT

McGill University, Canada | May 2021 – Aug 2021

The effects of multi-stressors on Biodiversity Ecosystem Functions in Mytilus sp.

- Participated in a multi-disciplinary graduate research project on the ecology, physiology, and microbiology of Mytilus sp. on the St-Laurent intertidal shores
- Collected environmental, biodiversity, chlorophyll, and respiratory data as part of a team following scientific protocols.

WORK EXPERIENCE

SHARNBROOK SPORTS CLUB | BARTENDER

Sharnbrook, UK | Feb 2022 - Aug 2022

- Worked as part of a team in a local business
- Customer service
- Participated in stimulating the local community

MCGILL UNIVERSITY | LAB TECH

Montreal, Canada | Oct 2021 - Nov 2021

- Disposed of hazardous waste safely following a simple protocol and in accordance with lab safety measures
- Responsible for lab waste disposal

QUEBEC CENTER FOR BIODIVERSITY SCIENCE | ADMINISTRATIVE ASSISTANT Montreal, Canada | Feb 2019 - Dec 2021

- Worked during summers (full-time 2019 & 2020, part-time 2021) and semesters (part-time) to finance undergraduate studies
- Researched, synthesized, and wrote up monthly newsletter and annual report
- Organized, prepared, and translated (English to and from French) official documents and awards
- Assisted in organizing and running the annual symposia
- Charged with keeping the official QCBS website up to date

AMBRIERES CENTRE EQUESTRE | SUMMER AIDE

Ambrieres-les-vallees, France | Summers 2014-2019

- Led a team of riding aides
- Responsible for ensuring the wellbeing of the horses, customer experience, and the efficient delivery of riding and theory lessons
- Planned and delivered theory lessons to young children
- Supervised and coordinated horse care across the center

PRIZES AND AWARDS

CSEE EQUITY FUND | CANADIAN SOCIETY OF ECOLOGY AND EVOLUTION (CSEE)

\$275 | Mar 2025

BIOBLITZ CHAMPION GRANT (PARTICIPANT) | QUEBEC CENTER FOR BIODIVERSITY SCIENCE

\$1000 | Jun 2025

BIOBLITZ AWARD QUEBEC CENTER FOR BIODIVERSITY SCIENCE	\$1000 Apr 2025
BCI 100 AWARD SMITHSONIAN TROPICAL RESEARCH INSTITUTE	\$300 Jun 2024
CEF AWARD CENTRES DES ETUDES DE LA FORET	\$1,800 Jun 2024
QLS TRAVEL AWARD MCGILL UNIVERSITY	\$500 Feb 2024
LIVING DATA PROJECT AWARD CIEE	\$6,500 Aug 2023
GRADUATE MOBILITY AWARD MCGILL UNIVERSITY	\$1,700 Apr 2023
GRAD EXCELLENCE AWARD MCGILL UNIVERSITY	\$8,000 Jul 2022
QLS GRAD AWARD MCGILL UNIVERSITY	\$20,000 Jul 2022
ROBIN GRUBER SCIENCE UNDERGRADUATE RESEARCH AWARD MCGILL UNIVERSITY	\$ 7,000 May 2021
ENRICHED EDUCATION OPPORTUNITY AWARD MCGILL UNIVERSITY	\$3,000 May 2020
ALMA MATER SCHOLARSHIP MCGILL UNIVERSITY	\$ 3,000 Sep 2018

SKILLS

Programming: Java, Python, R, \LaTeX , github, Mathematica, Matlab
Software: mobile LiDAR, Adobe indesign, Wordpress, all Microsoft products
Languages: English (Native), French (Native), Spanish (Intermediate), Japanese (Beginner), German (Beginner), Hawaiian (Beginner)
Certificates: ECDL (Microsoft suite)

COURSEWORK

Graduate:
 - AI and Ecology (Ohio State University, ABC course)
 - Advances in Community Ecology (McGill University, BIOL 510)
 - Hierarchical Models in Life Sciences (Universite de Sherbrooke, QCBS Summer School)
 - Statistical Inference (McGill University, MATH 682)
 - Recent advances in Biology 2 (McGill University, BIOL 651)
Undergraduate: Nonlinear Dynamics and Chaos (McGill University, MATH 326), Mathematical Methods in Biology (McGill University, MATH 437), ecological dynamics (McGill University, BIOL 308), discrete mathematics (McGill University, MATH 340), conservation biology (McGill University, BIOL 465), ODEs (McGill University, MATH 315), PDEs (McGill University, MATH 319), Biodiversity and Ecosystems (McGill University, BIOL 310), Intro to Ecology and Evolution (McGill University, BIOL 215) Foundations of Programming (McGill University, COMP 202), Calculus 3 (McGill University, MATH 222), Linear Algebra (McGill University, MATH 223), Methods in Biology of Organisms (McGill University, BIOL 206), Analysis 1 (McGill University, MATH 242), First Level Japanese (McGill University, EAST 240), Analysis 2 (McGill University, MATH 243), Advanced Calculus (McGill University, MATH 314), Numerical Analysis (McGill University, MATH 317), Probability (McGill University, MATH 323), Intro to Computer Science (McGill University, COMP 250), Independent Research Project (McGill University, BIOL 468)

LEADERSHIP & INVOLVEMENT

BIOLOGY GRADUATE STUDENT ASSOCIATION DATA ANALYST	McGill University, Canada Sep 2025 - Present
UNDERGRADUATE MENTOR MENTOR	McGill University, Canada May 2024 - Aug 2024
QLS BUDDY MENTOR	McGill University, Canada Apr 2024 - Present
INTRAMURAL VOLLEYBALL TEAM CO-CAPTAIN	McGill University, Canada Jan 2024 - Aug 2024
UNDERGRADUATE MENTOR MENTOR	McGill University, Canada Sep 2023 - Apr 2024
UNDERGRADUATE MENTOR MENTOR	McGill University, Canada May 2023 - Aug 2023
QLS STUDENT COUNCIL (QUALSA) VP SOCIAL	McGill University, Canada May 2023 - Apr 2024
INTRAMURAL SOCCER TEAM CAPTAIN	McGill University, Canada Sept 2023 - Dec 2023
SCIENTISTA MENTORSHIP PROGRAM MENTOR	McGill University, Canada Sep 2022 - Apr 2023

MEMBERSHIPS

CANADIAN SOCIETY FOR ECOLOGY AND EVOLUTION (CSEE) STUDENT MEMBER	2025-2026
SMITHSONIAN TROPICAL RESEARCH INSTITUTE (STRI) TEMPORARY	April 2023 - Present
ARTIFICIAL INTELLIGENCE AND BIODIVERSITY CHANGE GLOBAL CLIMATE CENTER (ABC) DOCTORAL STUDENT	Sep 2024 - Present
CENTRE FOR FOREST RESEARCH (CEF) DOCTORAL STUDENT	Sep 2023 - Present
QUEBEC CENTER FOR BIODIVERSITY SCIENCE (QCBS) STUDENT MEMBER	Sep 2022 - Present

CONFERENCE PRESENTATIONS, POSTERS AND WORKSHOPS

R SYMPOSIUM WORKSHOP LEAD <i>Intro to R</i> Quantitative Life Sciences-McGill initiative in Computational Medicine (QLS-MiCM)	Montreal, Canada Oct 2025
CSEE 2025 10MIN TALK <i>Feast or Famine: Using trophic networks to better predict predator range shift</i> Canadian Society for Ecology and Evolution	Sherbrooke, Canada Jul 2025
CSEE 2025 STUDENT MODERATOR <i>Community Complexity Session</i> Canadian Society for Ecology and Evolution	Sherbrooke, Canada Jul 2025
IMAGEOMICS ALL-HANDS 15MIN TALK <i>Linking biodiversity variables with Koa trees restoration stage in Hawai'i</i> Imageomics & Ai and Biodiversity Center (ABC)	Columbus, USA April 2025
PLANT RESILIENCE AND CONSERVATION FOR A CHANGING CLIMATE MODERATOR <i>Conserving endemic species in the face of habitat loss and long-term shifts in climate.</i> Botanical Society of America	Online Nov 2024
PLANT RESILIENCE AND CONSERVATION FOR A CHANGING CLIMATE 15MIN TALK <i>The Bacurú Drõa plot: Participation Action Research for a Forest Plot</i> Botanical Society of America	Online Nov 2024
BCI 100 SYMPOSIUM 10MIN TALK <i>Insights into the forests of Darién, Panama, from the new 10 ha Bacurú Drõa plot established through participatory methods within an Emberá territory</i> Smithsonian Tropical Research Institute	Gamboa, Panama Jun 2024
MONITORING BIODIVERSITY FOR ACTION POSTER <i>Using Technology to Monitor Carbon Stocks in Indigenous communities in Panama</i> GEOBON	Montreal, Canada Oct 2023
MONITORING BIODIVERSITY FOR ACTION WORKSHOP LEAD <i>Finding the spatio-temporal gaps in biodiversity indicator science</i> GEOBON	Montreal, Canada Oct 2023

OTHER PRESENTATIONS, POSTERS AND WORKSHOPS

QLS-MICM COMPUTATIONAL BIOLOGY WORKSHOP <i>Intro to R</i> Quantitative Life Sciences-McGill initiative in Computational Medicine (QLS-MiCM)	Montreal, Canada Jul 2025
AI FOR BIODIVERSITY AND CLIMATE CHANGE OUTREACH WORKSHOP <i>Learning biological traits from images using knowledge guided machine learning</i> ABC Center	Hilo, Hawaii Jan 2025
COMMUNITY ECOLOGY SYMPOSIUM 10MIN TALK <i>Integrating mechanisms of community assembly into species distribution predictions</i>	Montreal, Canada Dec 2024

McGill University, Dr Andrew Gonzalez

EEL SPEED TALK | 5MIN TALK

Calculating Biodiversity Indicators in Canada

McGill Biology Graduate Student Association

Montreal, Canada | Jan 2024

QLS DEPARTMENT DAY | 10MIN TALK

The Bacaru Droa Permanent Plot

Quantitative Life Sciences Department

Montreal, Canada | Jan 2024

INDICATORS FOR QUEBEC | WORKSHOP LEAD

Meeting with stakeholders to finalise indicator list for Quebec

Montreal, Canada | Nov 2023

INDICATORS FOR QUEBEC | WORKSHOP LEAD

Meeting with stakeholders to evaluate indicator list for Quebec

Quebec, Canada | Nov 2023

3MT | 3MIN TALK

Quantitative Life Sciences Department

Montreal, Canada | Jul 2023

MONITORING CARBON STOCKS | WORKSHOP LEAD

Developing an applicable and relevant protocol to monitor carbon stocks in resforested areas

Piriati, Panama | May 2023

3MT | 3MIN TALK

Quantitative Life Sciences Department

Montreal, Canada | Dec 2022

PUBLICATIONS - IN REVIEW

Biotic interactions in conservation decision making

Book chapter for *Biotic Interactions across Gradients and Scales*

Maximiliane Jousse, Pierre Rogy, Laura J. Pollock

in review.

Navigating methodological decisions: Balancing rigor and data volume of the Canadian Living Planet Index

Jessica Currie¹, Sarah M Ravoth², Valentina Marconi³, Louise McRae³, Maria I Arce-Plata⁴, Sandra Emry², Robin Freeman³, Maximiliane Jousse⁵, Gaëlle Mével⁶, Shuaishuai Li⁵, Cristian A Cruz-Rodríguez⁴, David AGA Hunt⁵, Philippa Oppenheimer³, Lauren Gill², Janaina Serrano⁵, Stefanie Deinet³*

In Review at Facets.

Insights into the forests of Darién, Panama, from the new 10 ha Bacurú Drõa plot established through participatory methods within an Emberá territory

Maximiliane Jousse, Salomon Aguilar, Hector Barrios, Davilio Chami, Daisy H. Dent, Iran Dogirama, Homilia Flaco, Matthias Kunz, Joseph Levitan, Edison Degaiza, Wiyan Valdespino, David Mitre, Edilberto Mosquera, Helene C. Muller-Landau, Alexis Ortega, Rolando Perez, Jorge Valdes, Juan-Carlos Villareal, Catherine Potvin

In Review at Conservation Science and Practice.

Birds Don't Play by the Rules: Consequences of seasonality for North American bird biogeography

Dominique Caron, Maximiliane Jousse, Morgan W. Tingley, Dirk N. Karger, Dominique Gravel, and Laura J. Pollock.

Submitted to Global Ecology and Biogeography.

PUBLICATIONS

Scaling up Multi-Sensor Monitoring of Forest Restoration with Computer Vision and Deep Learning: A Case Study from Hawai'i

Yuyan Chen, Valentin Gabeff, Maximiliane Jousse, Ted Zolotarev, Ekatarina Neopvinnykh, Micheal Long, Dan Rubenstein.

Oct 2025. CV4E - Non-Archival.

Optimizing Image Capture for Computer Vision-Powered Taxonomic Identification and Trait Recognition of Biodiversity Specimens

East, Alyson; Campolongo, Elizabeth; Meyers, Luke; Rayeed, S M; Stevens, Samuel; Zarubiieva, Iuliia; E. Fluck, Isadora; Girón, Jennifer; Jousse, Maximiliane; Lowe, Scott; Perry, Kayla; Betancourt, Isabelle; Charney, Noah; Donoso, Evan; Fox, Nathan; Landsbergen, Kim; Nepovinnykh, Ekaterina; Ramirez, Michelle; Singh, Parkash; Thapa-Magar, Khum; Thompson, Matthew; Waite, Evan; Berger-Wolf, Tanya; Lapp, Hilmar; Mabee, Paula; Taylor, Graham; Record, Sydne

Aug 2025. Methods in Ecology and Evolution.

<https://doi.org/10.1111/2041-210X.70140>

Selecting indicators to track progress towards the Global Biodiversity Framework: A case study of Quebec's 2030 Nature Plans

Katherine Hébert, Dagoberto Hernandez Acevedo, Sabrina Courant, Caroline Daguét, Andrew Gonzalez, Dominique Gravel, Jean Huot, **Maximiliane Jousse**, Janaína Serrano, Anouk Simard, Laura Pollock
June 2025. FACETS.

<https://www.facetsjournal.com/doi/10.1139/facets-2024-0357>

Five recommendations to fill the blank space in indicators at local and short-term scales

Katherine Hébert, **Maximiliane Jousse**, Janaína Serrano, Dirk Nikolaus Karger, F. Guillaume Blanchet, Laura J. Pollock
Feb 2024. Biological Conservation.

<https://doi.org/10.1016/j.biocon.2025.111007>.

TEACHING

Teacher Assistant (TA): Neotropical Environments MCGILL UNIVERSITY (BIOL 533) taught by Dr. Anna Hargreaves

Winter 2025, Panama

Teacher Assistant (TA): Neotropical Environments MCGILL UNIVERSITY (BIOL 533) taught by Dr. Catherine Potvin and Dr. Anna Hargreaves

Winter 2024, Panama