

Willian Vieira

PhD Candidate

<  +  > Quantitative ecologist | I love to automate stuff

EDUCATION

Current
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2017

PhD. Candidate, Ecology

Integrative Ecology Lab - Université de Sherbrooke, Canada

- Developing demographic models to better understand how trees will face climate change
- Integral Projection Models | mathematical modeling | Hierarchical models | Bayesian statistics | Quantitative techniques

2016
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2015

Masters 2, Agroecology and Resource Management

École Nationale Supérieure des Sciences Agronomiques de Bordeaux (BSA), Bordeaux, France

- Thesis: "Modelling the dispersion of weed species in agricultural landscapes"
- Process-based modelling | R | Sensitivity analysis

2015
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2010

BSc in Agronomy



Universidade Federal de Santa Catarina, Florianópolis, Brazil

CONSULTING EXPERIENCE

2022
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2020

Biostatistician

Environment and Climate Change Canada (ECCC)

- Boreal Optimal Sampling Strategy for birds monitoring in Quebec
- Scripting spatial analysis | spatially stratified sampling | R
- Code: , Report: 

RESEARCH EXPERIENCE

2018

Research visiting

National Research Institute for Agriculture, Food and Environment **INRAe** - EcoSystèmes et Sociétés En Montagne

 Grenoble, France

- Collaboration on the mathematical formulation of how forest management affect forest dynamics
- Analytical analysis | Modelling | ShinyApp | R package

2017

Mitacs Internship

Ouranos


 Montréal, CA

- Forest dynamic models | Climate change models

2016

Master 2 internship

French National Institute for Agricultural Research (**INRA** - UMR 1347 Agroecologie)

 Dijon, France

- Modelling weed dispersion in agricultural landscapes to improve the sustainable management of weeds


CONTACT

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 [Publications](#)

QUANTITATIVE SKILLS

Bayesian statistics, Hierarchical models, Random Forest, Mathematical modelling, Regression

PROGRAMMING SKILLS

Data analysis:

R, Python, Stan, HPC, QGIS

Data base: SQLite

Automation/reports:

markdown, pandoc, Quarto, LaTeX, bash, makefile

Web: HTML/CSS, ShinyApp

DevOps (CI/CD):

Git, GitHub, Docker, GitHub Actions

LANGUAGES

Portuguese Native

French Full Professional

English Full Professional

Made with **pagedown**.

The source code is available at github.com/willvieira/cv.

Last updated on 2024-06-15.

 [Download a PDF of this CV](#)

- 2015
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2014

● **Undergraduate Researcher**
Group of Research in Tropical forests
(**NPFT** - Universidade Federal de Santa Catarina)
 - Characterize the dynamics of tropical forest
 - Data analysis | Statistics | R | data management | field work

📍 Florianópolis, Brazil

- 2014
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2012

● **Undergraduate Researcher**
Laboratory of Plant Developmental Physiology and Genetics
(**LFDGV** - Universidade Federal de Santa Catarina)
 - Quantify the genetic diversity of tropical trees
 - Lab work | PCR | microsatellites markers | genotyping

📍 Florianópolis, Brazil

TEACHING EXPERIENCE

- 2021

● **Biodiversity Modelling Summer School**
Bios² summer school
 - Teaching assistant and lectured for graduate students
 - Evaluating ecological models using Bayesian statistics

📍 Sherbrooke, CA

- 2020
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2019

● **Methods in computational ecology**
BIO500 - Département de biologie, Université de Sherbrooke
 - Teaching assistant and lectured for undergraduate students
 - Tools for reproducible science | SQL | Git | R | LaTeX | Markdown | Makefile

📍 Sherbrooke, CA

- 2020

● **Software and Data Carpentry workshop**
Bios² training for graduate students
 - The Unix Shell
 - Data Management with SQL for Ecologists

📍 Online

- 2019
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2018

● **QCBS R Workshops**
Université de Sherbrooke & Université du Québec à Rimouski
 - Instructor to graduate students
 - **Workshops:** Introduction to R | Data management | Data Visualization | Control flow | Linear models

📍 Sherbrooke & Rimouski, CA

- 2019

● **Probability and statistics**
GCI145 - Faculté de génie, Université de Sherbrooke
 - Teaching assistant and lectured for undergraduate students
 - Probability theory | Distribution | Descriptive statistics | Hypothesis testing | Linear models

📍 Sherbrooke, CA

- 2018
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2017

● **Soil ecology**
Département de biologie - Université de Sherbrooke
 - Teaching assistant and lectured for undergraduate students
 - Lab | Covered methods to determine soil texture

📍 Sherbrooke, CA

- 2018

● **Modelisation de la dynamique forestier du Quebec face au changement climatique**
Département de biologie, Université de Sherbrooke
 - Guest lecturer in Plant Ecology (**Presentation**) to undergraduate students
 - Covered modelling approaches in ecology | model construction and applications

📍 Sherbrooke, CA


- 2018 ● **Introduction to scientific programming**
BIO109 - Département de biologie, Université de Sherbrooke 📍 Sherbrooke, CA
• Teaching assistant for undergraduate students
• Programming concepts | Data management | Control flow | R language

☀ TRAINING





- 2022 ● **Data visualization and biodiversity modelling**
Summer school - Bios² 📍 Magog, CA
• Business intelligence | data user profiles | Conceptualize interactive dashboard | Figma
- 2020 ● **Mathematical Modelling in Ecology and Evolution**
Workshop - Bios² 📍 Remote
• Developing equations | Finding equilibria | analyzing stability | Maxima
- 2019 ● **Stage-based demographic models in ecology, evolution and conservation biology**
NERC Advanced Training - University of Oxford 📍 Oxford, UK
• Theory and practice | Matrix population models | Integral Projection Models
- 2019 ● **Biodiversity Modelling**
Summer school - Université de Sherbrooke 📍 Magog, CA
• Theory and practice on different biodiversity modelling techniques
• Statistics | Differential equations | Stochastic simulations | Climate change models | uncertainty tracking
- 2017 ● **Data-driven ecological synthesis**
DDES summer school - Université de Montréal 📍 Montréal, CA
• Good practices in scientific computing
• Data management | Mathematical tools | Data analysis tools | Parallel computing | Reproducible science
- 2017 ● **Bayesian Statistics for Ecologists**
Summer school - Université de Sherbrooke 📍 Magog, CA
• Theory and practice using Stan | Probability theory | Likelihood | MCMC | Hierarchical modelling | Model comparison

📖 PUBLICATIONS

- 2023 ● **Paying colonization credit with forest management could accelerate the range shift of temperate trees under climate change**
Under review. Preprint hosted on 
[Vieira, W.](#), Boulangeat, I., Brice, M.H., Bradley, R.L., Gravel, D.
- 2020 ● **Moderate disturbances accelerate forest transition dynamics under climate change in the temperate–boreal ecotone of eastern North America**
Global Change Biology 
• Brice, M.H., Vissault, S., [Vieira, W.](#), Gravel, D., Legendre, P., Fortin, M.J.

- 2020 ● **Genetic and demographic aspects of *Varronia curassavica* Jacq. in a heterogeneous coastal ecosystem**
Anais da Academia Brasileira de Ciências 
• Hoeltgebaum, M.P., Lauterjung, M.B., Montagna, T., Candido-ribeiro, R., Vieira, W., Bernardi, A.P., Cristofolini, C., Reis, M.S.D.

SELECTED TALKS AND POSTERS

- 2020 ● **Lab: {STManaged} R package**
Biodiversity Modelling summer school  Magog, CA
• Demonstration of my R package to be used during the intensive course ([Presentation](#))
- 2019 ● **Using Integral Projection Models to assess how Contemporary Niche Theory predicts trees range limits**
British Ecological Society Annual Meeting  Belfast, UK
• ([Poster](#))
- 2018 ● **The effect of forest management on forest distribution under climate change**
QCBS annual symposium  Montréal, CA
• ([Presentation](#))
- 2017 ● **Can forest management help increase the rate of forest migration northward to follow climate change?**
European Geosciences Union General Assembly  Vienna, AT
• ([Poster](#))