
Veronica F. Frans

Center for Systems Integration and Sustainability
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OBJECTIVE: *To use my international experience, cultural sensitivity, and quantitative background to develop conservation management tools and advance ecological theory for global sustainability.*

QUALIFICATIONS:

- Quantitative ecologist with extensive training in spatial and statistical modeling (e.g., species distribution models, generalized linear mixed models, Bayesian hierarchical models, population models, system dynamics, time series, meta-analysis), expert opinion-based methods, data wrangling, text mining, and text analysis.
- Professional experience in ecological and biological research (domestic and abroad).
- Worldwide training in identification and handling of fish, birds, and marine mammals.
- Worked in various conditions, including international, marine, and harsh climates, and remote, isolated communities.
- Excellent interpersonal skills, gained through relations with key stakeholders and decision-makers, international collaborations, and interviews to elicit knowledge.

COMPUTER SKILLS: **Geographic Information Systems** (ArcGIS, ArcPro, Python, R, QGIS, SAGA GIS); **Data Management** (R, Excel, ATLAS); **Statistics** (R, Python, C++, STATISTICA); **Ecological/Social System Modeling** (R, Maxent, STELLA, Python, Mathematica, JAGS, WinBUGS, NetLogo, RAMAS Metapop, HexSim); **Agent-Based Modeling** (Python, NetLogo); **Data Visualization** (R, ArcGIS, ArcPro, Python, Mathematica, BioRender, Adobe InDesign, Inkscape); **Cloud and Hyper Computing** (Microsoft Azure, MSU High Performance Computing Center)

DEGREES:

Dual PhD: Fisheries & Wildlife/Ecology, Evolutionary Biology & Behavior
Michigan State University, expected May 2024, East Lansing, MI; GPA 3.99/4.0

Dual Master of Science: International Nature Conservation
Georg-August-Universität-Göttingen, Jan. 2015, Göttingen, Germany; GPA 4.0/4.0
Lincoln University, Jan. 2015, Christchurch, New Zealand; GPA 4.0/4.0

Bachelor of Science: Environmental Science (Spanish minor) · Bachelor of Arts: French
Messiah College, May 2007, Mechanicsburg, PA; GPA 3.64/4.0

CERTIFICATES:

Community Engaged Scholarship
Michigan State University, expected May 2023, East Lansing, MI; GPA 3.99/4.0

Environmental & Social System Modeling
Michigan State University, College of Social Sciences, Dec. 2020, MI; GPA 3.99/4.0

Spatial Ecology
Michigan State University, College of Natural Resources, Dec. 2019, MI; GPA 3.99/4.0

Environmental Analyst
Au Sable Institute of Environmental Studies, Aug. 2008, Mancelona, MI; GPA 3.60/4.0

STUDY ABROAD:

NILS Japanese Language School, Fukuoka, Japan, Jan. - Mar. 2011; Feb. - Mar. 2012

Bishop Heber Au Sable Institute, Tiruchirappalli, India, Dec. - Jan. 2006; GPA 4.0/4.0

Universidad San Francisco de Quito, Quito, Ecuador, Aug. - Dec. 2005; GPA 3.80/4.0

Université Marc Bloch - Institut International d'Études Françaises, Strasbourg, France, Jan. - May 2005; GPA 3.94/4.0

LANGUAGES: Proficient in **English** (native), **Spanish** (DELE-B2), and **French** (DELFB2)
Advanced **Brazilian Portuguese**
Intermediate in **Japanese** (JLPT-N4) and **German**

**RELATED WORK
EXPERIENCE:**

ASSOCIATE PROFESSOR

AU SABLE INSTITUTE OF ENVIRONMENTAL STUDIES

Mancelona, Michigan

Jun. 2021 - present

- Instructor for the GIS portion of *Land Resources*, an accredited 4-credit summer intensive undergraduate-level course offered to students attending private Christian colleges and universities across the US and Canada.
- Introduced students to Geographic Information Systems, global positioning systems, and spatial data analysis and visualization, using ESRI ArcPro.

CONSERVATION CONSULTANT

NEW ZEALAND DEPARTMENT OF CONSERVATION

Wellington, New Zealand (remote)

Feb. 2019 - Jun. 2019

- Initiated and completed a project creating an integrated species distribution modeling database for decision-making and management of the New Zealand sea lion (*Phocarctos hookeri*).

NATIONAL MARINE FISHERIES SERVICE (NMFS) OBSERVER

SALTWATER, INC.

Anchorage, AK, USA Apr. 2009 - Nov. 2013; Apr. - Jun. 2015; Aug. 2016 - Dec. 2017

- Certified for sampling in the U.S. North Pacific Groundfish Fisheries Program.
- Sampled for species composition on commercial longline, trawl, pot, and factory vessels throughout the Gulf of Alaska and Bering Sea (> 800 sea days).
- Constructed sound sampling designs to sort, weigh and collect specimens for species of interest and estimate total catch, sending data via ATLAS for analysis.

MARINE SPATIAL PLANNING (MSP) RESEARCH ASSISTANT

SOUTH ATLANTIC ENVIRONMENTAL RESEARCH INSTITUTE

Stanley, Falkland Islands

Aug. 2015 - Jun. 2016

- Collated, mapped, and compared historical and contemporary occurrence data on baleen whales in the Falkland Islands' waters.
- Interviewed locals and marine users for anecdotal evidence on whale presence.
- Modeled baleen whale distribution for MSP and government decision-making.
- Mapped locations became the world's first Key Biodiversity Areas for whales.
- Wrote grant proposals and successfully received a grant for MSP research.
- Assisted in GPS-tagging and tracking of black-browed albatross, whale stranding data collection (necropsies), and writing and editing scientific manuscripts.

RESEARCH INTERN

HONG KONG DOLPHIN CONSERVATION SOCIETY

Hong Kong, SAR China

Nov. 2012 - Feb. 2013

- Conducted line-transect vessel surveys for distribution/abundance of the Indo-Pacific Humpback Dolphin (*Sousa chinensis*) and Finless Porpoise (*Neophocaena phocaenoides*), as well as acoustic surveys and land-based theodolite tracking.
- Recorded effort data and took photos for individual photo-identification.
- Submitted a weekly report of activities and maintained the internship blog website.

PROGRAM ASSOCIATE

SUN MOUNTAIN INTERNATIONAL (SMIC)

Quito, Ecuador

Aug. 2005 - Jan. 2006; Oct. 2006; Jun. 2007

- Prepared proposals, workshops on environmental impact assessments, meeting minutes and final reports for non-profit organizations (e.g., CARE, USAID/LAC, Save the Children, World Vision), and translated documents (Spanish-English).

MANAGER'S ASSISTANT

VERTE VALLÉE: LA GRIVELIÈRE

Vieux-Habitants, Guadeloupe

Jan. 2007

- Assisted in ecotourism management and restaurant service on a coffee plantation.
- Translated for tours (French-English).

RESEARCH ASSISTANT

MESSIAH COLLEGE BIOLOGY DEPARTMENT

Mechanicsburg, PA, USA

Sep. - Dec. 2004

- Studied the effects of *Bt* corn pollen on lacewing (*Chrysoperla plorabunda*) reproduction rates.

MESSIAH COLLEGE BIOLOGY DEPARTMENT

Mechanicsburg, PA, USA

Jan. - May; Sep. - Dec. 2004

- Studied Panama golden frog (*Atelopus zeteki*) morphology and photo identification.

UNIVERSITY OF BELIZE INSTITUTE OF MARINE STUDIES

Calabash Caye and Belize City, Belize

Jun. - Aug. 2004

- Collected, separated and dried leaf litter of 3 mangrove species on 4 islands in Ambergris Caye, Belize for CARICOMP calculations.

GRANTS AND AWARDS:

Cloud Computing Fellowship

Institute for Cyber-Enabled Research, Michigan State University

Aug. 2021

training + \$200 USD

Kellogg Biological Station Long Term Ecological Research (LTER) Fellowship

Kellogg Biological Station, Michigan State University

Apr. 2020

\$6,500 USD

Au Sable Graduate Research Fellowship

Au Sable Institute of Environmental Studies

Apr. 2020 - 2023

\$800 USD

National Science Foundation (NSF) Graduate Research Fellowship

National Science Foundation Graduate Research Fellowship Program

Aug. 2018 - 2023

\$138,000 USD

Michigan State University (MSU) Enrichment Fellowship

Michigan State University Graduate School

May 2018 - 2023

\$73,600 USD

Modelling Complex Ecological Dynamics (MCED) Award

1st Prize (Master's/Bachelor's category)

2017 Ecology Across Borders Conference - Ecological Society of Germany, Austria & Switzerland (http://www.mced-ecology.org/?page_id=1151)

Dec. 2017

€250 EUR

NASA-MSU Professional Enhancement Award

2016 US International Association of Landscape Ecology Conference

Feb. 2016

\$800 USD

Falkland Islands Government Environmental Studies Budget

Predicting baleen whale distributions for management using species distribution modelling

Oct. 2015

£3,860 FKP

PUBLICATIONS:

JOURNAL ARTICLES

- **Frans VF**, Augé AA, Fyfe J, Zhang Y, McNally N, Edelhoff H, Balkenhol N, Engler JO (2021). Integrated SDM database: enhancing the relevance and utility of species distribution models in conservation management. [Methods in Ecology and Evolution](#).

- Wang Z, Li X, Li Y, **Frans VF**, Yan J, Zhang L (2020). A network perspective for mapping freshwater service flows at the watershed scale. [Ecosystem Services](#) 45:101129. [5 citations]
- Wang J, Chen X, Liu Z, **Frans VF**, Xu Z, Qiu X, Xu F, Li Y (2019). Assessing the water and carbon footprint of hydropower stations at a national scale. [Energy Policy](#) 676:595-612. [6 citations]
- Augé AA, Otley H, Rendell N, **Frans VF** (2018). Spatial distribution of cetacean strandings in the Falkland Islands to define monitoring opportunities. [Journal of Cetacean Research and Management](#) 19:1-7. [1 citation]
- **Frans VF**, Augé AA, Edelhoff H, Erasmi S, Balkenhol N, Engler JO (2018). Quantifying apart what belongs together: a multi-state species distribution modelling framework for species using distinct habitats. [Methods in Ecology and Evolution](#) 9:98-108. [18 citations - [Altmetrics](#): 43 (top 5%)]
- **Frans VF**, Augé AA (2016). Use of local ecological knowledge to investigate endangered baleen whale recovery in the Falkland Islands. [Biological Conservation](#) 202:217-137. [25 citations; 4 news mentions (e.g. [Popular Science](#)) - [Altmetrics](#): 61 (top 5%)]

GOVERNMENT REPORTS

- **Frans VF** (2019). Suitable habitats for New Zealand sea lions: mapping and restoration. Prepared for: [New Zealand Department of Conservation](#), Wellington, New Zealand.

MASTER THESIS

- **Frans VF** (2015). Recolonization of the New Zealand sea lion (*Phocarctos hookeri*): using predictive niche models to identify suitable breeding habitats for management. **MSc. Thesis**, Göttingen, Germany.

PRESENTATIONS: INVITED TALKS

- **Frans VF** (2021). Unexpected neighbors: biodiversity and us. **BioLogos Creation Care Summit**, Grand Rapids, Michigan.
- **Frans VF** (2020). What local ecological knowledge can tell us about whales in the Falkland Islands. Biology Seminar Series. **Anglia Ruskin University**, Cambridge, England.
- **Frans VF** (2020). Student Keynote. **State of the ASA 2020**, American Scientific Affiliation, Summer Something Series 2020.
- **Frans VF** (2016). A whale of a tale: using local ecological knowledge to investigate baleen whale recovery and distribution around the Falkland Islands. **University of Alaska Fairbanks**, Fairbanks, Alaska.

CONFERENCES

- **Frans VF** (2020). New era, new niche, new theory: revising ecological niche theory to account for human influence in the Anthropocene. **Kellogg Biological Station LTER Graduate Fellow Lightning Talks**, KBS LTER, Hickory Corners, Michigan.
- **Frans VF** (2019). New Zealand sea lion habitat mapping: final report. **Conservation Services Programme (CSP) and New Zealand sea lion Threat Management Plan (TMP) - Technical Working Group (October 2019)**, New Zealand Department of Conservation, Wellington, New Zealand.
- **Frans VF** (2019). Finding suitable habitats for the recolonizing New Zealand sea lion. **CSP and New Zealand sea lion TMP - Technical Working Group (March 2019)**, New Zealand Department of Conservation, Wellington, New Zealand.
- **Frans VF** (2018). Kickstarting a literature review with R. **R and Data Science Lightning Talks**, R-Ladies East Lansing, East Lansing, Michigan.
- **Frans VF**, Augé AA, Engler JO, Edelhoff H (2016). A whale of a tale: using local knowledge to predict baleen whale distribution around the Falkland Islands. **International Association of Landscape Ecology**, Asheville, North Carolina.

- **Frans VF**, Augé AA, Engler JO, Edelhoff H, Chilvers BL, Erasmi S, Balkenhol N (2015). Recolonization of the New Zealand sea lion (*Phocarcctos hookeri*): using Maxent to identify suitable breeding habitats for management. **International Association of Landscape Ecology World Congress**, Portland, Oregon.

PUBLIC

OUTREACH:

ORAL PRESENTATIONS

- **Frans VF** (2016). Return of the whales in the Falkland Islands' waters. **Chamber of Commerce**, Stanley, Falkland Islands.
- **Frans VF** (2015). From a big city to a big world: opportunities in science. **Geospatial Data Visualization Workshop for High School Students (Fall 2015)**, City University of New York, Manhattan, New York.
- **Frans VF** (2012). アラスカの漁業 [Alaska Fishing]. **Friends of Fukuoka**. Fukuoka, Japan.

PANEL DISCUSSIONS/ORAL INTERVIEWS

- **Frans VF**, Bouma-Prediger S, Stump J (2021). Are humans above nature? [BioLogos Creation Care Summit](#), Grand Rapids, Michigan.

NEWSPAPER ARTICLES

- **Frans VF** (2016). Recuperación de las ballenas en las Falklands, y una explosión de avistamientos. [Merco Press](#). May 11, 2016.
- **Frans VF** (2016). Whale recovery in Falklands and an explosion of sightings. [Merco Press](#). May 4, 2016.
- **Frans VF** (2016). Whales returning indicates survey. [Penguin News](#) 27(42):7-7.
- **Frans VF** (2015). Mapping historical whale sightings. [Penguin News](#) 27(6):8-8.

WEB BLOGS

- Engler JO, **Frans VF**, Augé AA (2017). Multi-state species distribution models: what to do when species need multiple habitats. [Methods Blog](#). Sep. 4, 2017.
- **Frans VF** (2016). Marine Spatial Planning: Mapping historical whale sightings to manage the future! [SAERI Blog](#). May 3, 2016.
- **Frans VF** (2015). Marine Spatial Planning: Mapping historical whale sightings to help manage the future. [SAERI Blog](#). Nov. 20, 2015.

TV/NEWS BROADCASTS

- *Falklands in Focus*, [Falkland Islands TV \(FITV\)](#), Stanley, Falkland Islands. May 16, 2016. Television. Topic: washed up sei whale at Cape Dolphin.

NEWS/NEWSLETTER INTERVIEWS

- Veronica Frans: seeking answers around the world, [BioLogos](#), Feb. 03, 2021.
- Profile of transformation: Veronica Frans, [Newsletter of the American Scientific Affiliation and Canadian Scientific and Christian Affiliation](#), Summer 2020, 62(2):6.
- Traveling scientist pursues PhD. [The Bridge](#), Summer 2018, 10(1):27.

WORKSHOPS:

DATA AND CODING IN R

- Data viz 2.0, [R-Ladies East Lansing](#), East Lansing, MI. Feb. 23, 2020.
- Data wrangling and visualization, [R-Ladies East Lansing](#), East Lansing, MI. Oct. 21, 2019.
- Data visualization in R (intermediate), **Social Science Data Analytics Initiative**, East Lansing, MI, June 24, 2019.
- Introduction to data visualization: GGLOT2, **R-Ladies East Lansing**, East Lansing, MI. Oct. 8, 2018.
- Introduction to tidy data with R, **R-Ladies East Lansing**, East Lansing, MI. Nov. 5, 2018.

CAREER MENTORSHIP

- Growing in your vocation as a science professional, Online Student & Early Career Mini-Conference, **American Scientific Affiliation & Emerging Scholars Network**, Jul. 2020.
- Falling for God through your vocation. **Christian Women in Science**, Oct. 2020.

PEER REVIEW:

Austral Ecology (1); Biodiversity and Conservation (2); Biological Conservation (2); Ecography (1); Ecological Applications (2); Environmental Management (1); Journal of Applied Ecology (2); Journal of Avian Biology (12); Methods in Ecology and Evolution (1)

PROFESSIONAL MEMBERSHIPS:

American Scientific Affiliation (ASA); Society for Conservation Biology; International Association of Landscape Ecology (IALE); British Ecological Society; American Association for the Advancement of Science (AAAS); International Biogeography Society (IBS)

PROFESSIONAL DEVELOPMENT:

ATTENDED CONFERENCES

- BioLogos Creation Care Summit 2021; ASA Summer Something Series 2020; ASA Meeting 2019; IALE 2016; IALE 2015

ATTENDED WORKSHOPS

- **Bayesian additive regression tree (BART) species distribution models** **Apr. 2021**
The International Biogeography Society (virtual)
- **Broader impacts of research conference** **Mar. 2021**
Michigan State University, Lansing, Michigan (virtual)
- **Spatial capture-recapture modeling (oSCR)** **Aug. 2020**
USGS Patuxent Wildlife Research Center (virtual)
- **Introduction to Generalized Additive Models (GAM) with R and mgcv** **Jul. 2020**
Institute of Environmental Change and Society, University of Regina (virtual)
- **Summer Intensive on Community-Engaged Scholarship** **Jul. 2018**
Michigan State University, Lansing, Michigan
- **Model Data Preparation Workshop** **Apr. 2016**
US-IALE Conference 2016, Asheville, North Carolina
- **Introduction to HexSim Workshop** **Jul. 2015**
Species Distribution Modeling (SDM) Workshop
IALE World Congress 2015, Portland, Oregon

GRADUATE-LEVEL COURSES IN MODELING AND STATISTICS

- **Michigan State University** **2018 - present**
Geosimulation (agent-based modeling in Python) • Introduction to meta-analysis in ecology • Modeling natural resource systems • Spatial data analysis • Spatial ecology • Statistical methods in ecology and evolution I & II • Theoretical population and community ecology • Modern statistical models in ecology • Statistical methods in temporal ecology • Bayesian inference Monte Carlo
- **Georg-August-University Göttingen** **2012 - 2015**
Biodiversity and ecosystem functioning • Ecological modeling • Ecological models - from populations to networks
- **Lincoln University** **2012 - 2015**
Advanced geographic information systems • Research methods in ecology

LEADERSHIP POSITIONS:

PROFESSIONAL SOCIETIES

- Board Member, **Christian Women in Science (ASA Affiliate)** **2021 - present**

CAMPUS ACTIVITIES

- Fisheries & Wildlife Representative, **Council of Graduate Students** **2019 - present**
- Associate, **Social Science Data Analytics Initiative** **2019 - 2021**
- Workshop Co-organizer, **R-Ladies East Lansing** **2018 - 2020**

- Director, **Statistics in the Community**

2019 - 2020

COMMUNITY ENGAGEMENT & MINISTRY

- Science Advisor, **The Cross Impact**, Lagos, Nigeria
- President, **Every Nation @ MSU**, East Lansing, MI

2019 - present

2019 - 2021