

Mark St. John

H: (613) 509–1074 | M: (613) 282–7056
mark@msjsci.com | <http://msjsci.com>

Education

<u>Ph. D., Ecology</u> . Colorado State University, Fort Collins, CO, USA.	2005
<u>M. Sc., Biology</u> . Laurentian University, Sudbury, ON, Canada.	1998
<u>H. B. Sc., Biology</u> . Carleton University, Ottawa, ON, Canada.	1994

Experience

Data scientist, 2012–present, independent consultant, Ottawa, ON.

- Developed algorithms for iKizmet.com that automatically generate on-demand business-intelligence metrics and visualizations, for hundreds of independent businesses, using technologies such as R, PostgreSQL and Python. These include:
 - Model-selection algorithms that search for trends and patterns in millions of historical sales records and fit custom models in order to produce instant revenue forecasts.
 - Data-crunching algorithms that generate customer retention, churn and long-term value metrics based on customer behaviour.
 - Visualizations of industry-wide trends in promotions, customer acquisition and year-over-year growth based on data merged from over 400 businesses.
- Co-developed a data warehouse and analytic platform for the management and analysis of global-scale species datasets (described in Ramirez, St. John et. al. 2015. *Frontiers in Ecology and Evolution* 30).
- Analyzed and published data-intensive primary research using R (e.g., Orwin, St. John et. al. 2015. *Oecologia* 180). Statistical techniques included structural equation modeling, model selection, ordination, multiple regression, regression trees and more.
- Advised and trained researchers at Colorado State University and University of Alaska in data collection, management and analysis.
- Updated data analytic skills, earning certificates with distinction for *The Data Scientist's Toolbox*, *R Programming*, *Getting and Cleaning Data*, *Exploratory Data Analysis*, *Reproducible Research*, *Statistical Inference* and *Regression Models* from Johns Hopkins University.
- Trained in the use of international data standards and tools as a contributor to the Global Biodiversity Information Facility's (GBIF) open and accessible data warehouse system.

Scientist, 2007–2012, Landcare Research, Christchurch, New Zealand.

- Led a quantitative environmental research program. Published twelve reports, articles, and book chapters resulting from my research and data analyses (e.g., St. John, et. al. 2012. *Journal of Ecology* 100).
- Managed databases (MySQL) of field-collected data. Mined tens of thousands of historical records (using tools such as R and ArcGIS) to identify priority study areas. Merged these

data with multiple new data streams to conduct novel analyses of pest impacts on ecosystem properties (e.g., carbon sequestration, biodiversity).

- Affected national resource conservation policies through effective reporting of my research to government representatives at the Department of Conservation.
- Presented talks at local and international scientific conferences (e.g., Ecological Society of New Zealand and Ecological Society of America) and at community outreach events (e.g., as a Team Leader for BioBlitz).
- Won a \$500 000 NZD grant by defending it in front of a selection committee composed of scientists, economists, administrators and government partners. The CEO of Landcare Research proclaimed that it was the best presentation the panel had seen that funding year.
- Tirelessly sought to improve data quality (e.g., developed R code to automate the detection of data anomalies) and data-collection efficiency.
- Managed multiple, concurrent projects and limited resources (e.g., equipment, budgets and staff) to meet project objectives and deadlines. Trained and mentored assistants.

Instructor & consultant, 2004–2007, Nipissing University and Laurentian University, ON.

- Conducted data analyses for the Sudbury Soil Study ecological risk assessment (The SARA Group. 2009. *Sudbury Soils Study. Volume III: Ecological Risk Assessment*. Report for Ontario Ministry of the Environment, Sudbury District).
- Advised clients (e.g., The SARA Group, Vale-Inco, the City of Greater Sudbury, Ontario Ministry of the Environment and Colorado State University) on best practices for data collection and analysis.
- Invited to speak at the Society of Environmental Toxicology and Chemistry's 11th annual general meeting, Sudbury, Ontario.
- Developed and taught undergraduate and graduate courses. Awarded the highest instructor-evaluation scores at Nipissing University in 2006.

Graduate research assistant, 1999–2004, Colorado State University, Fort Collins, CO.

- Awarded a \$300 000 USD National Science Foundation Fellowship at the Cary Institute of Ecosystem Studies, NY to train in advanced analytics including model selection, Bayesian statistics and predictive modeling. Modeled soil and ecosystem properties using Python.
- Collected data on the biodiversity of a prairie ecosystem, managed tens of thousands of data records. Published analytical findings in international journals (e.g., St. John, et. al. 2006. *Ecology* 87).
- Presented analytical results at international conferences (e.g., Ecological Society of America and Soil Ecology Society).
- Invited to speak at a workshop organized by the Scientific Committee on Problems of the Environment (SCOPE) in Estes Park, CO.