

# TIM ALAMENCIAK

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**Research interests:** Ecological restoration · Conservation policy and temporary conservation mechanisms · Knowledge graphs and ontologies for environmental evidence synthesis · Volunteer engagement and community-based conservation · Translational ecology · AI-assisted evidence synthesis

## RESEARCH POSITIONS

### Postdoctoral Fellow – Carleton University

2024 – Current

*Bennett Lab – Dr. Joseph Bennett*

- Collaborate with Ducks Unlimited to research the effectiveness of temporary conservation agreements over time.
- Plan quantitative and qualitative research approaches to measuring ecological and social outcomes of conservation agreements.
- Provide mentorship and guidance to students at the PhD, Masters and Honours undergraduate levels.

### Adjunct Associate Professor – University of Waterloo

2024 – Current

*School of Environment, Resources and Sustainability*

- Faculty liaison for the Society for Ecological Restoration student group.
- Provide mentorship and guidance to students at the PhD, Masters and Honours undergraduate levels, including sitting on thesis committees.
- Researcher with the Waterloo Data & Artificial Intelligence Institute.

### Research Fellow – St. Jerome's University

2024 – Current

*DRAGEN Lab – Dr. Steven Bednarski*

- Collaboratively design transdisciplinary research projects with Medieval environmental history scholars.
- Provide mentorship and instruction to graduate student historians from the perspective of ecology.
- Assist with technical development, including the implementation of AI technologies for text parsing and the development of knowledge graphs as a methodology.

### Senior Research Scientist – University of Victoria

2024 – Current

*Restoration Futures Lab – Nancy Shackelford*

- Lead the development of the Restoration and Conservation Ontology (RACOON).
- Oversee and plan the development of the Toolkit for Restoration Ecology Knowledge (TReK).
- Supervise and mentor students in the creation and maintenance of a community of practice.

## **Dissertation: "Volunteer Participation in Ecological Restoration"**

2019 – 2024

Advisor: Dr. Stephen D. Murphy

- Conducted a systematic map of literature analyzing the motivations of volunteers to participate in restoration and conservation using R.
- Executed and analyzed a survey of volunteers to assess the relationship between organizational factors and volunteer engagement using structural equation modeling.
- Interviewed volunteers for a community-based project and analyzed interview data using Atlas.Ti 9.

## **Research Associate – Ecological Restoration Knowledge Synthesis Project**

2020 – 2023

University of Victoria (in collaboration with University of Waterloo, Carleton University, and L'Université Laval). PI: Dr. Eric Higgs

- Conducted the first-ever systematic map of ecological restoration literature in Canada using R, Bibliometrix and Cadima.
- Research outputs include 1 published peer-reviewed paper, 3 conference presentations, and 1 national workshop.

## **Project Manager – Campus EcoMap, University of Waterloo**

2021 – 2022

- Secured \$20,000 in funding over two years from the Sustainability Action Fund to map ecological data.
- Supervised five undergraduate research associates in the creation of the map and accompanying report.
- Used ArcGIS and QGIS to create an index and map of available ecological research in the Borealis repository.

## **VISITING POSITIONS & RESIDENCIES**

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### **Visiting Researcher – Centre for Interdisciplinary Research (ZiF), Bielefeld University**

Sept 2024 – Feb 2025

Research group: "Mapping Evidence to Theory in Ecology" (invited by Dr. Tina Heger)

- Contributed to interdisciplinary working group on evidence synthesis and theory formation in ecology.
- Developed international collaborations with the Lamarr Institute for Machine Learning and AI and the Hasso Plattner Institute.

## **EDUCATION**

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### **PhD, Social and Ecological Sustainability, University of Waterloo**

2019 – 2024

Supervisor: Dr. Stephen D. Murphy

### **MA, Journalism, Toronto Metropolitan University**

2010 – 2012

Supervisor: Dr. Gene Allen

### **BA (Hons.), Peace and Conflict Studies, University of Waterloo**

2004 – 2010

## FUNDING AND AWARDS

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### Research Grants

- 2024 NSERC Alliance fund, "Evaluating the potential of temporary conserved areas for biodiversity conservation" with Ducks Unlimited Canada — **\$355,000** (co-lead with J. Bennett)
- 2021 – 2022 University of Waterloo Sustainability Action Fund — \$20,000 (PI)
- 2020 Ontario Trillium Fund, ecological restoration education with Ignatius Jesuit Centre — \$70,000 (co-applicant)
- 2025 University of Waterloo Sustainability Action Fund — \$20,000 (collaborator)
- 2020 Waterloo Environment Students Endowment Fund — \$1,000
- 2019 Waterloo Environment Students Endowment Fund — \$300

### Awards

- 2025 PSAC 77000 Postdoctoral Fellow Award — Finalist
- 2022 Certificate in University Teaching Award — \$1,000

## TEACHING EXPERIENCE

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### Supervisor, Honours thesis, Bachelor of Science

Fall 2025

Carleton University, Ottawa, Ontario. See resulting publication Alamenciak et al. 2026

### Group mentor, BIOL 5512 - Advances in Applied Ecology

Fall 2024

Carleton University, Ottawa, Ontario. See resulting publication Hodgson et al. 2025 (in press)

### Supervisor, Honours thesis (Logan Rehberg), Bachelor of Science

Spring 2024

Carleton University, Ottawa, Ontario. See resulting publication Alamenciak et al. 2025 (in press)

### Sessional lecturer, ERS 253 – Communities and sustainability

Winter 2024

University of Waterloo, School of Environment, Resources and Sustainability (38 students; in-person)

- Re-designed course including entirely new readings, structure, assignments, lectures and online space through LEARN.
- Incorporated inquiry-based learning and professional guest lectures into course materials.

### Teaching assistant, ERS 340 – Ecosystem assessment

Spring 2021

University of Waterloo (31 students; online)

### Teaching assistant, ERS 401 – Translational ecology

Winter 2021

University of Waterloo (40 students; online)

### Teaching assistant, ERS 335 – Ecological restoration

Fall 2020

University of Waterloo (40 students; online)

### Teaching assistant (multiple courses)

Sept 2019 – Aug 2020

University of Waterloo: ENVS 200, ERS 402, ERS 300

## WORK EXPERIENCE

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### Communications Manager – Reep Green Solutions

2021 – 2023

- Developed and executed engaging, accessible and effective communications strategies to increase knowledge of sustainability in community members.
- Mobilized knowledge through partnerships with university researchers around climate mapping and flood risk.

### Digital Media Producer – TVO

2015 – 2018

- Produced and directed Climate Watch Shorts, a series of short documentaries on the impacts of climate change in Ontario.
- Led the creation of TVO's first podcast (The #onpoli podcast).

### Staff Reporter – Toronto Star

2012 – 2015

- Covered major news stories including the Rob Ford scandal, Jian Ghomeshi's trial, and the impact of residential schools.
- Managed large-scale, multi-part feature reporting projects.

## PUBLICATIONS

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**2026** Ryan Y. Hodgson, Steven A. Robinson, Amélie C. Boutin, Felix K. Chan, Joseph R. Bennett, Rachel T. Buxton, J. Harry Caufield, Dalal E. L. Hanna, Tim Alamenciak. "Assessing the Effectiveness of Ontology-Grounded AI Term Extraction Using OntoGPT for Environmental Evidence Synthesis." *Environmental Evidence*. <https://link.springer.com/article/10.1186/s13750-026-00381-0>

**2026** Tim Alamenciak, Nancy Shackelford, Logan Rehberg, Ash Baron, Steven D. Murphy, Eric Higgs, Tina Heger, Alina Fisher, Bruno Travassos-Britto, Ryan Stephenson. "Paths to more quickly and effectively bridge science-practice gap in ecosystem restoration in Canada." *Socio-Ecological Practice Research*. <https://link.springer.com/article/10.1007/s42532-025-00243-y>

**2025** Lars Vogt, Birgitta König-Ries, Tim Alamenciak, Joshua I. Brian, Carlos Alberto Arnillas, Lotte Korell, Robert Frühstückl, Tina Heger. "A Framework for FAIR and CLEAR Ecological Data and Knowledge." *arXiv*. <https://doi.org/10.48550/arXiv.2508.08959>

**2025** Jeffrey O. Hanson, Jenny L. McCune, Tim Alamenciak, Joseph R. Bennett. "Increasing the credibility of conservation plans through citizen science." *Biological Conservation*. <https://doi.org/10.1016/j.biocon.2025.111552>

**2025** Josie South, Roxana Barbulescu, Rafael L. Macêdo, Camille L. Musseau, Simone Guareschi, Tim Alamenciak, et al.. "Parallels between biological invasions and human migration are flawed and undermine both disciplines. Response to Ahmed et al.." *BioScience*. <https://doi.org/10.1093/biosci/biaf073>

**2025** Tim Alamenciak, Elise Gornish, Stephen D. Murphy. "Dimensions of Effective Volunteer Restoration Techniques in North America." *Restoration Ecology*. <https://onlinelibrary.wiley.com/doi/full/10.1111/rec.70028>

- 2025** Tim Alamenciak, Carlos Alberto Arnillas, J. Harry Caufield, Katherine Compton, Kian Drew, Robert Frühstückl, Tina Heger, Birgitta König-Ries, Chris Mungall, Sierra Moxon, Justin Reese, Jordan Tardif, Lars Vogt. "Ecolink: Towards a Knowledge Graph Schema for Complex Environmental Systems." *New Trends in Theory and Practice of Digital Libraries*. [https://link.springer.com/chapter/10.1007/978-3-032-06136-2\\_33](https://link.springer.com/chapter/10.1007/978-3-032-06136-2_33)
- 2024** Tim Alamenciak, Stephen D. Murphy. "What makes a convivial community tool? Investigating grassroots ecological restoration." *Ecology & Society*. <https://doi.org/10.5751/ES-15258-290303>
- 2024** Tim Alamenciak, Stephen D. Murphy. "Motivations for Volunteers to Participate in Ecological Restoration: A Systematic Map." *Restoration Ecology*. <https://doi.org/10.1111/rec.14155>
- 2023** Tim Alamenciak, Dorian Pomezanski, Nancy Shackelford, Stephen D. Murphy, Steven J. Cooke, Line Rochefort, Sonia Voicescu, Eric Higgs. "Ecological Restoration Research in Canada: Who, What, Where, When, Why, and How?." *FACETS*. <https://doi.org/10.1139/facets-2022-0157>
- 2022** Sutherland, William J.; Jake M. Robinson; David C. Aldridge; Tim Alamenciak; Matthew Armes; Nina Baranduin; Andrew J. Bladon; et al.. "Creating Testable Questions in Practical Conservation." *Conservation Evidence Journal*. <https://doi.org/10.52201/CEJ19XIFF2753>
- 2020** Lazurko, Anita; Tim Alamenciak; Lowine Stella Hill; Ella-Kari Muhl; Augustine Kwame Osei; Dorian Pomezanski; Kyle Schang; Dilruba Fatima Sharmin. "What Will a PhD Look Like in the Future?." *World Futures Review*. <https://doi.org/10.1177/1946756720976710>

## SOFTWARE & RESEARCH TOOLS

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**EcoWeaver** — Semantic framework for synthesizing ecological data streams into accessible, practitioner-ready formats. [ecoweaver.hi-knowledge.org](http://ecoweaver.hi-knowledge.org)

**RACoon** — Restoration and Conservation Ontology (lead developer). An OWL ontology for standardizing ecological restoration concepts across research and practice.

**TReK** — Toolkit for Restoration Ecology Knowledge (project lead). A web platform for community-driven evidence synthesis in restoration ecology.

**Ecolink** — Knowledge graph schema for representing complex environmental relationships (see Alamenciak et al. 2025, TPD).

**rosettaR** — R package for bidirectional translation between structured KGX data and natural language using template-based rendering.

## PRESENTATIONS AND INVITED LECTURES

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**2025** Alamenciak, T.. "Three stories of restoration and conservation engagement." School of Environment, Resources and Sustainability Salon; Carleton BIOL 5534; Knowledge Mobilization Community of Practice; University of Waterloo PSCI 303.

**2025** Alamenciak, T.. "Toolkit for Restoration Ecology Knowledge (TReK)." AI Colloquium, Lamarr Institute, Dortmund, Germany.

- 2025** Alamenciak, T., Carlos Alberto Arnillas, J. Harry Caufield, Katherine Compton, Kian Drew, Robert Frühstückl, Tina Heger, Birgitta König-Ries, Chris Mungall, Sierra Moxon, Justin Reese, Jordan Tardif, Lars Vogt. "Ecolink: Towards a Knowledge Graph Schema for Complex Environmental Systems." EcoDL Workshop at the Theory and Practice of Digital Libraries conference, Tampere, Finland.
- 2025** Alamenciak, T.. "Mapping Evidence to Theory in Ecology." Workshop, University of Bielefeld.
- 2024** Alamenciak, T.. "How to recruit and retain more volunteers." Webinar for Carolinian Canada.
- 2024** Alamenciak, T.. "Fuzzy cognitive mapping using knowledge graphs for restoration ecology." Interdisciplinary Perspectives on Knowledge Synthesis in Ecology workshop, University of Bielefeld.
- 2024** Alamenciak, T., Ash Baron, Catherine Febria, Eric Higgs, Ryan Stephenson, Stephen Murphy, Nancy Shackelford. "Boots & Suits: Mobilizing knowledge in ecosystem restoration." Society for Ecological Restoration North American Conference, Vancouver.
- 2024** Alamenciak, T.. "Knowledge Graphs for Land-Based Knowledges: Encoding Restoration Ecology and Environmental History." Summer Research Institute, Quaker Institute for the Future.
- 2024** Alamenciak, T.. "Mapping and assessing evidence in ecological restoration." Geomatics and Landscape Ecology Lab (GLEL), Carleton University.
- 2024** Alamenciak, T.. "Mapping evidence to theory in ecology: Addressing the challenges of generalization and causality." Residency at Centre for Interdisciplinary Research (ZiF), Bielefeld University.
- 2024** Alamenciak, T. & Steffanie Scott. "Engaging instructors and students in transformative learning amid polycrisis." University of Waterloo Teaching and Learning Conference.
- 2024** Alamenciak, T.. "People-powered ecosystem restoration." University of Arizona, Gornish Lab.
- 2024** Alamenciak, T.. "Taming Complexity: AI Approaches to Knowledge Synthesis." University of Waterloo, SERS Salon.
- 2024** Alamenciak, T.. "Taming Complexity in Ecology." Workshop, Germany.
- 2024** Alamenciak, T.. "Lowering barriers, changing behaviours." Guest lecture (Invited by Dr. Christina Davy).
- 2024** Alamenciak, T.. "Volunteer engagement in ecological restoration." Guest lecture: ENVS 195 – Introduction to Environmental Studies.
- 2023** Alamenciak, T.. "Volunteer engagement in ecological restoration." Environment Graduate Students Association conference, Waterloo, Ontario.
- 2023** Alamenciak, T.. "Ecological Restoration Research in Canada: Who, What, Where, When, Why and How?" RE3 Conference: Reclaim, Restore, Rewild, Quebec City, Quebec.
- 2022** Alamenciak, T.. "Advocacy 101: How to talk about climate change with politicians." ClimateActionWR sector committee talk.
- 2022** Alamenciak, T.. "Guest speaker." Landscapes of Holistic Sustainability and Wellbeing Retreat, Wilfrid Laurier University.

- 2022** Alamenciak, T.. "Championing Change in the Field and Office." Designing Change for a Living Planet – World Wildlife Fund.
- 2022** Alamenciak, T.. "Comparing community-led tree planting programs." University of Waterloo, ERS 253.
- 2021** Alamenciak, T.. "Working Together and Giving Back: Building and sustaining volunteer motivation." Wholistic Restoration – Ignatius Jesuit Centre.
- 2021** Alamenciak, T.. "Decolonizing Worldviews: Unpacking nature and wilderness." Wholistic Restoration – Ignatius Jesuit Centre.
- 2021** Alamenciak, T., Elise Gornish, Stephen Murphy. "How to design techniques for volunteer ecological restoration." National Extension Conference on Volunteerism-Lite.
- 2021** Higgs, Eric, Tim Alamenciak, & Sonia Voicescu. "Ecological Restoration: Nature-Based Solutions for Climate Mitigation and Engaging Canadians with Nature." Living Within the Earth's Carrying Capacity Forum, Ottawa, Ontario.
- 2021** Alamenciak, T., & Dorian Pomezanski. "Analyzing Canadian ecological restoration literature with bibliometric analysis and a systematic map." Evidence Synthesis & Meta-Analysis in R Conference.
- 2021** Alamenciak, T. & Dorian Pomezanski. "Charting the evidence landscape: A systematic map and bibliometric analysis of ecological restoration in Canada." Society for Ecological Restoration Conference.
- 2021** Alamenciak, T.. "Facilitator." Food Systems Summit 2021: Green Growth Dialogue, Arrell Food Institute, University of Guelph.
- 2020** Alamenciak, T.. "Who gets to care for nature? Participation in ecological restoration." Guest Lecture – University of Waterloo PACS 310.
- 2020** Alamenciak, T.. "Assessment in restoration ecology." University of Waterloo, ERS 342.

## **WORKSHOPS AND CONFERENCES HOSTED**

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### **GLELxSciComm: A Day of Science Communication Learning**

2025

Full day workshop providing science communication training for 40 students and staff at Carleton.

### **From Abstract to Action**

2024

Series of three talks organized for members of the GLEL. Approximately 40 faculty and students attended each talk.

## **PROFESSIONAL SERVICE**

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### **Peer Reviews**

Restoration Ecology; Sustainability Science; Society & Natural Resources; Ecology & Society; People & Nature

## Grant Reviews

Digital Research Alliance – EDIA Champions Program; Earth Science Information Partners (ESIP) – Community Resilience RFP

## Service Roles

2025 – Current Member, Knowledge Mobilization Community of Practice (UW)  
2025 – Current Member, Natural Spaces Working Group (UW)  
2024 – Current Board Member at-large, Ecological Studies Association of Canada (ESAC)  
2024 – 2025 Land Stewardship Committee Member, Ignatius Jesuit Centre  
2024 – 2025 Board Member, Emerging Leaders for Biodiversity (ELB)  
2021 – 2022 Writing Café Organizer, Weekend Warriors Writing Café, University of Waterloo  
2020 – 2021 Board Member, Society for Ecological Restoration (Ontario)  
2019 – 2021 Member, Ecological and Environmental Advisory Committee, Region of Waterloo

## PROFESSIONAL TRAINING

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2025 MobilizeU Knowledge Mobilization Certificate, Simon Fraser University  
2024 Knowledge Graphs – Foundations and Applications, Hasso Plattner Institute, Potsdam, Germany  
2024 Mental Health Literacy Certificate Program, University of Waterloo  
2021 – 2022 Certificate in University Teaching, University of Waterloo  
2020 Ontario Master Naturalist Certificate, Lakehead University  
2020 Data-Driven Ecological Synthesis Summer School  
2019 Ontario Benthic Biomonitoring Network (OBBN) Certificate  
2019 Common Cause for Conservation Values-Based Communications Training