Ecological Forecasting Initiative 2026 Conference
August 4-7, 2026

Fields Institute for Research in Mathematical Science
222 College Street
Toronto, Canada

Host: Canadian Ecological Forecasting Initiative Chapter (CEFI)
Conference website: https://bit.ly/efi2026

Code of Conduct

- EFI's Code of Conduct; Fields Institute's harassment policy, see the shortened version here.
    - Link to Incident Reporting Form
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Contents

Last modified: June 26, 2026

Schedule

Tuesday, August 4

8:45 am	Doors Open, Check-in (Fields Atrium)
9:15 am	Welcome and Kick-off (Room 230)
9:45 am	Working Group Morning Session
10:45 am	Break (Fields Atrium)
11:00 am	Working Group Morning Session continued
12:30 pm	Lunch and Networking (Fields Atrium; lunch provided toregistered attendees)
1:30 pm	Working Group Afternoon Session
3:15 pm	Break (Fields Atrium)
3:30 pm	Working Group Afternoon Session continued
5:00 pm	Downtime, Explore on Your Own
6:00 pm	Group dinner options at Kensington Market or Chinatown (self paid)

Wednesday, August 5

8:45 am	Doors Open, Check-in, Set up posters (Fields Atrium)
9:15 am	Welcome and Kick-off (Room 230)

Oral Presentations Session 1: Ecological Forecasting in Ocean Systems
Room: Fields 230

9:45 am	Allison Patterson (Environment and Climate Change Canada) - **Forecasting non-breeding distributions of thick-billed murre populations to inform conservation of Atlantic populations**
10:00 am	Hunter Milles (San Diego State University) - **Forecasts reveal divergent seasonal and regional responses of forage fish in a changing Northwest Atlantic Ocean**
10:15 am	Jerald McDermott (San Diego State University) - **Phenological shifts of marine top predators in a rapidly changing ocean region**

10:30 am Camrin Braun (Woods Hole Oceanographic Institute) - **Using interpretable AI to forecast species distributions and inform marine spatial planning**

10:45 am Break (Fields Atrium)

Oral Presentations Session 2: Forecasting in One Health & Emerging Disease Systems
Room: Fields 230

11:00 am Tiziana Gelmi Candusso (Lincoln Park Zoo) - **Forecasting disease occurrence by 2050 following urban densification, habitat connectivity loss, and climate change**

11:15 am Emily Beasley (Boston University) - **Meteorological conditions predict questing tick densities across the eastern United States**

11:30 am Lindsay Campbell (University of Florida) - **Toward comparative forecasting of zoonotic arbovirus systems**

11:45 am Keana Shahin (University of Guelph) - **From importation to transmission: Modelling the potential for autochthonous dengue virus transmission in Canada via imported travellers**

12:00 am Emma Coates (McMaster University) - **Attractor and transient periodicities are invariant to seasonal transmission patterns in epidemic models**

12:15 am Olaf Berke (University of Guelph) - **Another Rain Song: Evaluating the performance of zero-shot forecasting using a foundational AI model as a surveillance tool for the emerging One Health issue of Legionellosis in Ontario, 2013-2024**

12:30 pm Lunch and Early/Late Career Networking (Fields Atrium; lunch provided to registered attendees)

Keynote Talk
Room: Fields 230

1:30 pm Keynote Talk by Caroline Colijn (Simon Fraser University) - **Pandemic decision-making with modelling: the models and the data needs?**

Poster Session
2:30 pm 1-minute Poster Pitches (Room 230)

3:15 pm Break (Fields Atrium)

3:30 pm Poster Session - ***see the list of presenters below***
Room: Fields Atrium

5:00 pm Transition to the Welcome Reception (provided to registered attendees)

Thursday, August 6

8:45 am Doors Open

Oral Presentations Session 3: Decision & Communication
Room: Fields 230

9:30 am Irena Pabst (Public Health Agency of Canada) - **Exploring hypothetical-yet-plausible pandemic pathogens: a dual-model forecasting framework**

9:45 am Alessandro Filazzola (ApexRMS) - **Forecasting invasive insect spread and management outcomes for improved decision-making**

10:00 am Marie Colton (Hyrdos LLC) - **An Update on American Meteorological Society Ecological Forecasting Committee Activities – the Need for an Interdisciplinary Perspective**

10:15 am Abby Keller (University of California, Berkeley) - **Quantifying the cost of cultural bias in conservation decision making**

10:30 am Chris Jones (North Caroline State University) - **Spatial Resolution Shapes Forecast Utility for Decision-making**

10:45 am Break (Fields Atrium)

Oral Presentations Session 4: Spatiotemporal model evaluation
Room: Fields 230

11:00 am Josie Hughes (Environment and Climate Change Canada) - **Guidance and tools for quantitative and qualitative context-specific evaluations of species distribution models**

11:15 am Vihanga Gunadasa (Terrestrial Ecosystem Research Network; TERN) - **How much is enough? Optimizing Sampling thresholds for reliable ecological forecasts**

11:30 am Noah Wightman (McGill University) - **Where Climate Change and Sampling Bias Collide: Challenges of Predicting and Validating Biodiversity Change in Canada**

11:45 am Julie Turner (Biodiversity Pathways) - **When data deficiencies matter: a tale of forecasting two ecotypes of caribou**

12:00 am Kévan Rastello (University of Victoria) - **Forecasting Mountain Pine Beetle Infestations with Multi-Paradigm Models**

12:15 am Eliot McIntire (Natural Resources Canada) - **Predictive validation improves**

forecast quality: re-finding the best models for caribou movement

12:30 pm Lunch, Networking, and Spatiotemporal Discussion (Fields Atrium; lunch provided to registered attendees)

Keynote Talk
Room: Fields 230

1:30 pm Keynote Talk by James Clark (Duke University) - **Response velocity evaluates vulnerability through climate sensitivity combined with rates of climate change: applications to North American and European forests**

2:30 pm EFI Community Updates (Room 230)

3:15 pm Break (Fields Atrium)

Workshop Session 1

3:30 pm **Slow Data: Building intentionality and accessibility to environmental data science and forecasting**
Leads: Antoinette Abeyta[1], Rachel Torres[1]
[1]University of New Mexico, Gallup; [2]California State Polytechnic University, Humboldt

This workshop will share examples of slow data science - activities developed to build foundational data science skills to lay the groundwork for future ecological forecasting analyses. These activities make data science education more intentional and accessible for historically underrepresented students, thereby supporting a welcoming environment for all students.

Making Forecasts Usable: Open-Science Decision Support with SyncroSim
Lead: Alessandro Filazzola[1]
[1]ApexRMS

This workshop introduces SyncroSim as an open-science platform built for decision support. By reframing applied ecological forecasting around both communication and model complexity, this workshop will equip participants to bridge the gap between research and decision making.

Introducing the sdmModelEvaluationTool: an open source tool for soliciting and learning from expert evaluation of (bird) species distribution and abundance models
Leads: Josie Hughes[1], Elly Knight[2], Péter Sólymos[3], Juan Zuloaga[2], David Hope[1]
[1]Environment and Climate Change Canada; [2]University of Alberta; [3]Analythium Solutions Inc.

The Northern Ontario Bird Modeling Working Group is developing a tool to elicit, synthesize and learn from expert evaluations of (bird) species distribution models. This hands-on workshop will introduce the tool and invite discussion about further development.

5:00 pm Transition to the Social Dinner

5:30 pm Social Dinner at Snakes & Lattes (provided to registered attendees)

8:30 pm End of dinner

Friday, August 7

8:45 am Doors Open

Oral Presentations Session 5: From Continental to Local Terrestrial Forecasts
Room: Fields 230

9:30 am Christian Damgaard (Aarhus University) - **From national ecological monitoring to local forecasts and adaptive management**

9:45 am Shohel Ahmed (University of Alberta) - **When Behavior Matters: Linking Individual Behavior to Ecosystem Dynamics**

10:00 am Dominique Caron (Natural Resources Canada) - **Will climate change boost boreal forest's primary productivity? Continental-scale process-based forecasts for the Canadian boreal forest**

10:15 am Meng Lai (Boston University) - **Scalable Parameter Calibration for Land Surface Models Using Ensemble Kalman Inversion**

10:30 am Guillermo Gómez Peña (Doñana Biological Station, EBD-CSIC) - **Forecasting dryland resilience via resource-driven dung beetle facilitation**

10:45 am Break (Fields Atrium)

Workshop Session 2

11:00 am **Tools for forecasting populations and communities: A hands-on example from the NEON Forecasting Challenge using ground beetle abundance and richness**
Leads: Tera Del Prior[1], Eric Sokol[1], Wei Fang[2]
[1]National Ecological Observatory Network, Battelle; [2]Pace University

Participants in this workshop will learn about forecasting ground beetle abundance and richness across NEON terrestrial sites. The workshop will include code-along instructions to create and submit a simple forecast to the EFI RCN NEON forecasting challenge platform.

Tools for forecasting soil carbon fluxes: building an independent forecast challenge using NEON soil data products
Leads: John Zobitz[1], Eric Sokol[2], Tera Del Prior[2]
[1]Augsburg University; [2]National Ecological Observatory Network, Battelle

This workshop demonstrates how the cyberinfrastructure developed from NEON forecast challenges was adapted to create a forecast of soil carbon fluxes. It will highlight opportunities to contribute models to this emerging effort.

12:30 pm Lunch and Networking (Fields Atrium; lunch provided to registered attendees)

Oral Presentations Session 6: Uncertainty & Methods
Room: Fields 230

1:30 pm Quinn Thomas (Virginia Tech) - **A guided tour through the cyberinfrastructure that supports the NEON Ecological Forecasting Challenge**

1:45 pm Alexandre Belleflamme (Research Centre Jülich) - **Evaluation of the skill of probabilistic seasonal forecasts in predicting droughts with the hydrologic model ParFlow/CLM over central Europe**

2:00 pm Marc Coitnor (self-employed) - **Evolution of the National Weather Service Modeling Suite**

2:15 pm Timothée Poisot (Université de Montréal) - **Conformal Prediction quantifies the current and future uncertainty of Species Distribution Models**

2:30 pm CEFI & EFI Future Connections & ConferenceWrap Up

3:15 pm Break (Fields Atrium)

3:30 pm Optional social activity (self paid)

Poster Presenters

See the Abstract book for the complete list of co-authors, affiliations, and abstract details

1. Mary Alldred (SUNY Plattsburgh) - **Lessons learned from Jamaica Bay: Leveraging a decade of data to inform best practices in the design, monitoring, and management of urban salt marsh restorations**

2. Andrew Allyn (Gulf of Maine Research Institute) - **Building Predictive Confidence: Evaluating forecast reliability in spatio-temporal species distribution models**

3. Jose-Henrique Alves (Ocean Acidification Program (OAP), NOAA Research) - **The OA2O Project: Integrating Short-Term Ocean Acidification into NOAA's Operational Ocean and Weather Forecasting Systems**

4. Joseph Bahati (Anansoft Foundation) - **Integrating Community-Based Waste Management and Ecological Forecasting to Enhance Urban Resilience in Bukavu, DRC** *(cancelled)*

5. Sarah C. Bogen (Virginia Tech Center for Ecosystem Forecasting) - **Building an agent-based modeling framework to forecast freshwater phytoplankton blooms**

6. Liam Bogucki (Western University) - **Adding Biological Soil Crust Representation to the CLASSIC Terrestrial Biosphere Model to Improve Dryland Carbon Flux Predictions**

7. Jonathan Borrelli (Rensselaer Polytechnic Institute) - **The impact of trophic state and spatio-temporal scale on predictability of water quality**

8. Chris Brimacombe (University of Guelph) - **Evaluating the scientific output of long-term ecological monitoring programs using NSF grant records**

9. Emeli Susane Costa Gomes (Universidade Federal de Santa Catarina) - **Current and future distribution of timber species of the genus Manilkara Adans. in the Amazon region**

10. Evan Dadson (North Carolina State University) - **Analysis of Corn Earworm long-term monitoring data informs initial conditions uncertainty and predictability**

11. Devin de Zwaan (Environment and Climate Change Canada) - **Forecasting shifts in coastal distribution for a marine species-at-risk with seasonal ties to terrestrial habitat**

12. Mark Feinberg (North Carolina State University) - **Accounting for crop susceptibility and landscape context in biological invasion forecasts improves pest management treatment outcomes**

13. Kaila Frazer (University of New Hampshire) - **Forecasting range expansion of blue crabs in the Gulf of Maine using crowdsourced observations**

14. Leah Garvie (University of Guelph) - **Forecasting Highly Pathogenic Avian Influenza using Mallard Dynamics**

15. Constantino González-Salazar (Universidad Nacional Autónoma de México) - **Geoengineering the Climate: Modeling the Effects of Stratospheric Aerosol Injection on the Distribution of Disease Vectors and Public Health Risk**

16. Samantha Hopkins (Western University) - **Identifying the role peak productive days and/or growing season length play in the inter-annual carbon cycle variability of globally distributed drylands**

17. Eli Horner (North Carolina State University) - **Integrating generative AI into Log-Gaussian Cox Process species distribution models to help forecast emerging disease threats**

18. Jonathan Juarez (California State Polytechnic University, Humboldt) - **Lightning-Driven Wildfire Risk and Forest Loss in Six Rivers National Forest**

19. Robin Kurth (Helmut Schmidt University) - **A Digital Twin of a German Agricultural Landscape for Forecasting Avian Populations**

20. Mir Mehrdad Mirsanjari (Malayer University) - **Forecasting the Impacts of Climate Change on Coastal Ecosystems and Sustainable Tourism in the Caspian Sea Region**

21. Hannah O'Grady (University of Notre Dame) - **What can long-term data show us about uncertainties in forest models?**

22. Tatiana Petukhova (Ontario Veterinary College, University of Guelph) - **Bayesian Modeling Approach for Forecasting Eastern Equine Encephalitis Virus in Horses**

23. Luis Miguel Roldan Alzate (University of Guelph) - **Functional outlier detection for air quality forecasting: identifying anomalous PM2.5 daily patterns and their predictive value for special air quality statements in Ontario**

24. Muhammad Shulhan J (Universitas Diponegoro) - **Integration of SEEA Ecosystem Accounting with State-and-Transition Simulation Models for Policy-Oriented Coastal Ecosystem Forecasting: A Case Study of Central Java, Indonesia**

25. Marzieh Soltani (University of Guelph) - **An AI-Driven Decision Support System for Integrated Surveillance and Avian Influenza Outbreak Risk Prediction**

26. Joshua Tabh (Lund University) - **Energy first: Using thermodynamics to forecast consequences of environmental change on size and energy balance in birds**

27. Ofir Tal (Kinneret Limnological Institute, IOLR) - **Causal modelling of a freshwater ecosystem: many-to-one and one-to-many**

28. Rachel Torres (Cal Poly Humboldt) - **Comparing carbon flux dynamics in forest and grassland ecosystems**

29. Katie Tyrrell (Grand Valley State University) - **Understanding lake ecosystem dynamics using spatial synchrony**

30. Julián A. Velasco (Universidad Nacional Autónoma de México) - **A macroecological framework for assessing biodiversity risks under solar geoengineering**