

# Eliezer (Elie) Gurarie

## *curriculum vitae*

PROFESSOR OF QUANTITATIVE WILDLIFE ECOLOGY  
DEPARTMENT OF ENVIRONMENTAL BIOLOGY  
SUNY, COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY

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<https://www.esf.edu/faculty/gurarie/>

(last updated February 2, 2022)

## Professional Experience

- 2021-present **Assistant Professor**, Department of Environmental Biology, SUNY – ESF.
- since 2019 **Adjunct faculty**, Department of Forest and Wildlife Ecology, University of Wisconsin, Madison WI.
- 2014-2021 **Senior research scientist and lecturer**, Department of Biology, University of Maryland, College Park, MD.
- since 2010 **Consulting biostatistician**, Finnish Fish and Game Research Institute (RKTL), National Marine Mammal Lab (NMML) NOAA Fisheries, Great Lakes Fisheries Commission (GLFC), Government of Northwest Territories (GNWT), Government of Yukon, Environment and Climate Change Canada.
- 2013 **Visiting fellow**, Centre of Excellence in Environmental Decisions (CEED), Universities of Melbourne and Queensland, Australia.
- 2011 - 2015 **Adjunct faculty and lecturer**, Department of Statistics (College of Arts and Sciences), Center for Quantitative Sciences (College of the Environment), affiliate faculty at School of Environmental and Forest Sciences, University of Washington, Seattle, WA.
- 2008 - 2010 **Post-doctoral fellow**, Metapopulation Research Group, Department of Biosciences, University of Helsinki, Finland.

## Education

- 2008 **Ph.D.**, *Quantitative Ecology and Resource Management*, University of Washington, Seattle, WA.  
 o Dissertation: Mathematical models and analysis of animal movements: From individual tracks to mass dispersal
- 2000 **D.E.A. (equivalent to M.S.)**, *Environmental Geosciences*, Université d'Aix-Marseille III, Marseille, France.  
 o Thesis: Inferring the history of an Australian lateritic soil formation from analysis of radioactive cosmogenic nuclides in a quartz stone layer
- 1998 **B.S./B.A.**, Case Western Reserve University, Cleveland, OH.  
 o Physics (B.S.), French, German, Comparative Literature (B.A.)

## Editor

- since 2020 *Frontiers in Ecology and Evolution*. Co-editor, special topic on “Cognitive Movement Ecology”.
- since 2019 *Movement Ecology*. Editorial Board

## Publications

(*Italics* indicate authors who were official or *de facto* student or post-doctoral mentees.)

– 2022 –

1. **E Gurarie**, C Bracis, A Brilliantova, I Kojola, J Suutarinen, O Ovaskainen, S Potluri, and W Fagan (2022). Spatial memory drives foraging strategies of wolves, but in highly individual ways. *Frontiers in Ecology and Evolution* (*in press*).

– 2021 –

1. Roslin, T, L Antão, M Hällfors, E Meyke, C Lo, G Tikhonov, M Delgado, **E Gurarie**, ..., and O Ovaskainen (2021). Abiotic change, consumers and producers slide apart as springs shift earlier and autumns later. *Nature Climate Change*. 1-8.
2. Joly, K, **E Gurarie**, D Hansen, and M Cameron (2021). Seasonal patterns of spatial fidelity and temporal consistency in the distribution and movements of a migratory ungulate. *Ecology and Evolution*.
3. Mar Delgado, M del, T Roslin, G Tikhonov, E Meyke, C Lo, **E Gurarie**, ..., and O Ovaskainen (2021). Differences in spatial versus temporal reaction norms for spring and autumn phenological events. *Proceedings of the National Academy of Sciences* **117**(49), 31249–31258.
4. Lewis, M, W Fagan, M Auger-Méthé, J Frair, J Fryxell, C Gros, **E Gurarie**, S Healy, and J Merkle (2021). Learning and animal movement. *Frontiers in Ecology and Evolution*.
5. Kauffman, M, F Cagnacci, S Chamaillé-Jammes, ..., and **E Gurarie** (2021). Mapping out a future for ungulate migrations. *Science* **372**(6542), 566–569.
6. Joly, K, A Gunn, SD Côté, M Panzacchi, J Adamczewski, MJ Suitor, and **E Gurarie** (Jan. 2021). Caribou and reindeer migrations in the changing Arctic. *Animal Migration* **8**(1), 156–167.

– 2020 –

1. Delgado, M, T Roslin, G Tikhonov, E Meyke, C Lo, **E Gurarie**, ..., and O Ovaskainen (2020). Differences in spatial versus temporal reaction norms for spring and autumn phenological events. *Proceedings of the National Academy of Sciences*.
2. Davidson, S, G Bohrer, **E Gurarie**, ..., *E Grier*, *O Couriot*, ..., and M Hebblewhite (2020). Ecological insights from three decades of animal movement tracking across a changing Arctic. *Science* **370**(6517), 712–715.
3. Joly, K, **E Gurarie**, M Sorum, P Kaczensky, M Cameron, A Jakes, B Borg, D Nandintsetseg, J Hopcraft, B Buuveibaatar, and P Jones (2020). Longest terrestrial migrations and movements around the world (vol 9, 15333, 2019). *Scientific Reports* **9**(15333).
4. Casas, F, **E Gurarie**, W Fagan, K Mainali, R Santiago, I Hervás, C Palacín, E Moreno, and J Viñuela (2020). Are trellis vineyards avoided? Examining how vineyard types affect the distribution of great bustards. *Agriculture, Ecosystems & Environment* **289**, 106734.
5. Oliver, R, P Mahoney, **E Gurarie**, N Krikun, B Weeks, M Hebblewhite, G Liston, and N Boelman (2020). Behavioral responses to spring snow conditions contribute to long-term shift in migration phenology in American robins. *Environmental Research Letters* **15**(4).
6. Joly, K, O Couriot, M Cameron, and **E Gurarie** (2020). Behavioral, Physiological, Demographic and Ecological Impacts of Hematophagous and Endoparasitic Insects on an Arctic Ungulate. *Toxins* **12**(5), 334.
7. *T Barry*, **E Gurarie**, *F Cheraghi*, I Kojola, and W Fagan (2020). Does dispersal make the heart grow bolder? Avoidance of anthropogenic habitat elements across wolf life history. *Animal Behaviour* **166**, 219–231.
8. Fagan, W and **E Gurarie** (2020). Spatial Ecology: Herbivores and Green Waves—To Surf or Hang Loose? *Current Biology* **30**(17), R991–R993.
9. *N Attias*, **E Gurarie**, W Fagan, and G Mourão (2020). Ecology and social biology of the southern three-banded armadillo (*Tolypeutes matacus*; Cingulata: Chlamyphoridae). *Journal of Mammalogy*.
10. **E Gurarie**, *PR Thompson*, A Kelly, N Larter, W Fagan, and K Joly (2020). For everything there is a season: Analysing periodic mortality patterns with the cyclomort R package. *Methods in Ecology and Evolution* **11**(1), 129–138.
11. Penteriani, V, A Zarzo-Arias, M del Mar Delgado, F Dalerum, **E Gurarie**, P Torre, T Corominas, V Vázquez, P García, and A Ordiz (2020). Female brown bears use areas with infanticide risk in a spatially confined population. *Ursus* **2020**(31e2), 1.
12. Ovaskainen, O, E Meyke, C Lo, G Tikhonov, M del Mar Delgado, T Roslin, **E Gurarie**, M Abadonova, O Abduraimov, O Adrianova, et al. (2020). Chronicles of nature calendar, a long-term and large-scale multitaxon database on phenology. *Scientific Data*.
13. Mainali, K, B Shrestha, R Sharma, A Adhikari, **E Gurarie**, M Singer, and C Parmesan (2020). Contrasting responses to climate change at Himalayan treelines revealed by population demographics of two dominant species. *Ecology and Evolution* **10**(3), 1209–1222.

– 2019 –

1. He, K, Q Dai, A Foss-Grant, **E Gurarie**, W Fagan, M Lewis, J Qing, F Huang, X Yang, X Gu, Y Huang, H Zhang, D Li, X Zhou, and Z Yang (2019). Movement and activity of reintroduced giant pandas. *Ursus* **29**(2), 163.
2. Fagan, W, T Hoffman, D Dahiya, **E Gurarie**, R Cantrell, and C Cosner (2019). Improved foraging by switching between diffusion and advection: benefits from movement that depends on spatial context. *Theoretical Ecology* **13**(2), 127–136.
3. Bewick, S, **E Gurarie**, J Weissman, J Beattie, C Davati, R Flint, P Thielen, F Breitwieser, D Karig, and W Fagan (2019). Trait-based analysis of the human skin microbiome. *Microbiome* **7**(1).

4. *E Hurme*, **E Gurarie**, S Greif, J Flores-Martínez, G Wilkinson, and Y Yovel (2019). Acoustic evaluation of behavioral states predicted from GPS tracking: a case study of a marine fishing bat. *Movement Ecology* **7**(1).
5. *Cheraghi F*, M Delavar, F Amiraslani, K Alavipanah, **E Gurarie**, H Jowkar, L Hunter, S Ostrowski, and W Fagan (2019). Inter-dependent movements of Asiatic Cheetahs *Acinonyx jubatus venaticus* and a Persian Leopard *Panthera pardus saxicolor* in a desert environment in Iran. *Zoology in the Middle East* **65**(4), 283–292.
6. Joly, K, **E Gurarie**, M Sorum, P Kaczensky, M Cameron, A Jakes, B Borg, D Nandintsetseg, G Hopcraft, B Buuveibaatar, P Jones, T Mueller, C Walzer, K Olson, J Payne, A Yadamsuren, and M Hebblewhite (2019). Longest terrestrial migrations and movements around the world. *Scientific Reports* **9**(1).
7. **E Gurarie**, M Hebblewhite, K Joly, A Kelly, J Adamczewski, S Davidson, T Davison, A Gunn, M Sutor, W Fagan, and N Boelman (2019). Tactical departures and strategic arrivals: Divergent effects of climate and weather on caribou spring migrations. *Ecosphere* **10**(12).
8. Udell, B, J Martin, R Fletcher Jr, M Bonneau, H Edwards, T Gowan, S Hardy, **E Gurarie**, C Calleson, and C Deutsch (2019). Integrating encounter theory with decision analysis to evaluate collision risk and determine optimal protection zones for wildlife. *Journal of Applied Ecology* **56**(5), 1050–1062.
9. Noonan, M, C Fleming, T Akre, J Drescher-Lehman, **E Gurarie**, A Harrison, R Kays, and J Calabrese (2019). Scale-insensitive estimation of speed and distance traveled from animal tracking data. *Movement Ecology* **7**(1).
10. Boelman, N, G Liston, **E Gurarie**, A Meddens, P Mahoney, P Kirchner, G Bohrer, T Brinkman, C Cosgrove, J Eitel, and M Hebblewhite (2019). Integrating snow science and wildlife ecology in Arctic-boreal North America. *Environmental Research Letters* **14**(1), 010401.

– 2018 –

1. *F Cheraghi*, M Delavar, F Amiraslani, S Alavipanah, **E Gurarie**, and W Fagan (2018). Statistical analysis of Asiatic cheetah movement and its spatio-temporal drivers. *Journal of Arid Environments* **151**, 141–145.
2. *Bracis, C*, **E Gurarie**, J Rutter, and R Goodwin (2018). Remembering the good and the bad: memory-based mediation of the food–safety trade-off in dynamic landscapes. *Theoretical Ecology* **11**(3), 305–319.
3. Mahoney, P, G Liston, S LaPoint, **E Gurarie**, B Mangipane, A Wells, T Brinkman, J Eitel, M Hebblewhite, A Nolin, and N Boelman (2018). Navigating snowscapes: scale-dependent responses of mountain sheep to snowpack properties. *Ecological Applications* **28**(7), 1715–1729.
4. Delgado, M, M Miranda, S Alvarez, **E Gurarie**, W Fagan, V Penteriani, A di Virgilio, and J Morales (2018). The importance of individual variation in the dynamics of animal collective movements. *Transactions of the Royal Society B* **373**(1746), 20170008.
5. Tucker, M, K Böhning-Gaese, W Fagan, J Fryxell, B Van Moorter, ..., **E Gurarie**, and ... (2018). Moving in the Anthropocene: Global reductions in terrestrial mammalian movements. *Science* **359**(6374), 466–469.

– 2017 –

1. **E Gurarie**, J Bengtson, M Bester, A Blix, M Cameron, H Bornemann, E Nordøy, J Plötz, D Steinhage, and P Boveng (2017). Distribution, density and abundance of Antarctic ice seals off Queen Maud Land and the eastern Weddell Sea. *Polar Biology* **40**(5), 1149–1165.

2. *TD Meckley*, **E Gurarie**, J Miller, and C Wagner (2017). How fishes find the shore: evidence for orientation to bathymetry from the non-homing sea lamprey. *Canadian Journal of Fisheries and Aquatic Sciences* **74**(12), 2045–2058.
3. **E Gurarie**, F Cagnacci, W Peters, C Fleming, J Calabrese, T Mueller, and M Fagan (2017). A framework for modelling range shifts and migrations: asking when, whither, whether and will it return. *Journal of Animal Ecology* **86**(4), 943–959.
4. Fagan, W, **E Gurarie**, S Bewick, A Howard, R Cantrell, and C Cosner (2017). Perceptual ranges, information gathering, and foraging success in dynamic landscapes. *The American Naturalist* **189**(5), 474–489.
5. Fleming, C, D Sheldon, **E Gurarie**, W Fagan, S LaPoint, and J Calabrese (2017). Kálmán filters for continuous-time movement models. *Ecological Informatics* **40**, 8–21.
6. **E Gurarie**, C Fleming, W Fagan, K Laidre, J Hernández-Pliego, and O Ovaskainen (2017). Correlated velocity models as a fundamental unit of animal movement: synthesis and applications. *Movement Ecology* **5**(1).

– 2016 –

1. Martin, J, Q Sabatier, T Gowan, C Giraud, **E Gurarie**, C Calleson, J Ortega-Ortiz, C Deutsch, A Rycyk, and S Koslovsky (2016). A quantitative framework for investigating risk of deadly collisions between marine wildlife and boats. *Methods in Ecology and Evolution* **7**(1), 42–50.
2. Kojola, I, V Hallikainen, K Mikkola, **E Gurarie**, S Heikkinen, S Kaartinen, A Nikula, and V Nivala (2016). Wolf visitations close to human residences in Finland: the role of age, residence density, and time of day. *Biological Conservation* **198**, 9–14.
3. **E Gurarie**, C Bracis, M Delgado, T Meckley, I Kojola, and C Wagner (2016). What is the animal doing? Tools for exploring behavioural structure in animal movements. *Journal of Animal Ecology* **85**(1), 69–84.
4. Calabrese, J, C Fleming, and **E Gurarie** (2016). ctmm: an R package for analyzing animal relocation data as a continuous-time stochastic process. *Methods in Ecology and Evolution* **7**(9), 1124–1132.
5. Beyer, H, **E Gurarie**, L Börger, M Panzacchi, M Basille, I Herfindal, B Van Moorter, S Lele, and J Matthiopoulos (2016). ‘You shall not pass!’: quantifying barrier permeability and proximity avoidance by animals. *Journal of Animal Ecology* **85**(1), 43–53.
6. Cagnacci, F, S Focardi, A Ghisla, B Van Moorter, E Merrill, **E Gurarie**, M Heurich, A Mysterud, J Linnell, M Panzacchi, and R May (2016). How many routes lead to migration? Comparison of methods to assess and characterize migratory movements. *Journal of Animal Ecology* **85**(1), 54–68.

– 2014-2015 –

1. Altukhov, A, R Andrews, D Calkins, T Gelatt, **E Gurarie**, T Loughlin, E Mamaev, V Nikulin, P Permyakov, S Ryazanov, and V Vertyankin (2015). Age specific survival rates of Steller sea lions at rookeries with divergent population trends in the Russian Far East. *PLoS One* **10**(5), e0127292.
2. *C Bracis*, **E Gurarie**, B Van Moorter, and R Goodwin (2015). Memory effects on movement behavior in animal foraging. *PloS one* **10**(8), e0136057.
3. Meckley, T, C Wagner, and **E Gurarie** (2014). Coastal movements of migrating sea lamprey (*Petromyzon marinus*) in response to a partial pheromone added to river water: implications for management of invasive populations. *Canadian Journal of Fisheries and Aquatic Sciences* **71**(4), 533–544.

4. Delgado, M, V Penteriani, J Morales, **E Gurarie**, and O Ovaskainen (2014). A statistical framework for inferring the influence of conspecifics on movement behaviour. *Methods in Ecology and Evolution* **5**(2), 183–189.

## – 2011-2013 –

1. Laidre, K, E Born, **E Gurarie**, O Wiig, R Dietz, and H Stern (2013). Females roam while males patrol. *Proceedings of the Royal Society B. Biological Sciences* **280**(1752), 20122371.
2. *IS Trukhanova*, **E Gurarie**, and R Sagitov (2013). Distribution of hauled-out Ladoga ringed seals (*Pusa hispida ladogensis*) in spring 2012. *Arctic* **66**(4).
3. Anderson, J, **E Gurarie**, C Bracis, B Burke, and K Laidre (2013). Modeling climate change impacts on phenology and population dynamics of migratory marine species. *Ecological Modelling* **264**, 83–97.
4. **Gurarie E** and O Ovaskainen (2013). Towards a general formalization of encounter rates in ecology. *Theoretical Ecology* **6**(2), 189–202.
5. **Gurarie E**, D Grünbaum, and M Nishizaki (2011). Estimating 3D movements from 2D observations using a continuous model of helical swimming. *Bulletin of Mathematical Biology* **73**(6), 1358–1377.
6. Burkanov, V, **E Gurarie**, A Altukhov, E Mamaev, P Permyakov, A Trukhin, J Waite, and T Gelatt (2011). Environmental and biological factors influencing maternal attendance patterns of Steller sea lions (*Eumetopias jubatus*) in Russia. *Journal of Mammalogy* **92**(2), 352–366.
7. **Gurarie E**, J Suutarinen, I Kojola, and O Ovaskainen (2011). Summer movements, predation and habitat use of wolves in human modified boreal forests. *Oecologia* **165**(4), 891–903.
8. **Gurarie E** and O Ovaskainen (2011). Characteristic spatial and temporal scales unify models of animal movement. *The American Naturalist* **178**(1), 113–123.

## – PRE-2011 –

1. **Gurarie, E**, J Anderson, and R Zabel (2009). Continuous models of population-level heterogeneity inform analysis of animal dispersal and migration. *Ecology* **90**(8), 2233–2242.
2. Laidre, K, R Jameson, **E Gurarie**, S Jeffries, and H Allen (2009). Spatial habitat use patterns of sea otters in coastal Washington. *Journal of Mammalogy* **90**(4), 906–917.
3. **Gurarie E**, R Andrews, and K Laidre (2009). A novel method for identifying behavioural changes in animal movement data. *Ecology letters* **12**(5), 395–408.
4. Anderson, J, **E Gurarie**, and R Zabel (2005). Mean free-path length theory of predator–prey interactions: Application to juvenile salmon migration. *Ecological Modelling* **186**(2), 196–211.
5. Wang, X, J Li, **E Gurarie**, S Fan, T Kyu, M Neubert, S Keast, and ... (1998). Kinetics of phase transition in an anticlinic liquid crystal induced by a uniform temperature field: growth in one dimension. *Physical review letters*.

## – REPORTS AND TRANSLATIONS –

*For territorial governments and First Nations resource boards in Canada:*

1. **Gurarie, E**, A Gunn, *O Couriot*, A Guile. (*in submission*). Winter range overlaps between the Bluenose East, Bathurst and Beverly/Ahiak migratory tundra caribou herds. Technical report for: Wek’èezhì Renewable Resources Board, Yellowknife, NT, Canada.



2. **Gurarie, E**, M Hebblewhite. (*in production*) Porcupine caribou in the Yukon North Slope: Seasonal and inter-annual dynamics of habitat use and resource selection 2014 - 2019. Technical report for: Department of Environment, Government of Yukon. Whitehorse, YK, Canada.
3. **Gurarie, E**, J Hodson, A Kelly. (*in production*) Burn severity and boreal caribou habitat use. Technical report for: Government of Northwest Territories. Yellowknife, NT, Canada.
4. DeMars, C, J Hodson, A Kelly, E Lamontagne, L Smith, K Groenewegen, T Davidson, S Behrens, D Cluff, **E Gurarie**. (*in production*). Influence of land cover, fire and human disturbance on habitat selection by boreal caribou in the NWT. Technical report for: Government of Northwest Territories. Yellowknife, NT, Canada.

*Other:*

1. Wackernagel, M, C Monfreda, D Deumling, **E Gurarie**, S Friedman, A Linares, M Sanchez, I. Falfán. (2002) “The Ecological Footprint”, in *Living Planet Report: 2002* ed. Jonathan Loh. World Wide Fund For Nature, Gland, Switzerland.
2. G.I. Ruban. (2005). *The Siberian sturgeon* *Acipenser baerii* Brandt: *Species structure and ecology*. In: Special Publication Series - World Sturgeon Conservation Society, no. 1. 203 p. (translated from the Russian: **E Gurarie**)

### – R PACKAGES –

1. **Gurarie, E**, P Thompson (2020) **cyclomort**: Tools for modeling periodic survival processes. CRAN: <https://CRAN.R-project.org/package=cyclomort>
2. **Gurarie, E** (2014) **bcpa**: Behavioral change point analysis of animal movement. CRAN: <http://CRAN.R-project.org/package=bcpa>
3. **Gurarie, E** and F Cheraghi (2017) **marcher**: Migration and Range Change Estimation in R. <http://CRAN.R-project.org/package=marcher>
4. **Gurarie, E** (2017) **smoove**: Simulation and Estimation of Correlated Velocity Movement (CVM) Models. GitHub: <https://github.com/EliGurarie/smoove>.
5. **Gurarie, E**, P Mahoney, S Davidson (2017) **above**: Functions and methods for Animals on the Move (ABOVE - NASA). GitHub: <https://github.com/ABOVE-AotM/above>.
6. Fleming, C, J Calabrese and **E Gurarie** (2020) **ctmm**: Continuous time movement modeling. CRAN: <https://CRAN.R-project.org/package=ctmm>

## Teaching

### – FULL COURSES –

- Winter 2017, **BIOL709/BSCI339: Data Analysis and Modeling in Ecology and Environmental Life Sciences**, Department of Biology, U. Maryland.
- 2018
    - Applied probability and statistical modeling techniques for graduate students, including advanced regression, mixed models, time-series and spatial analysis, likelihood maximization and Bayesian modeling.

- 2012-2016 **StatR 101: Introduction to Statistical Analysis with R | StatR 301/503: Advanced R Programming and Graphics**, Professional and Continuing Education, U. Washington.
- Probability theory, statistical analysis, data visualization and advanced graphics, and programming with R. This was a three quarter certificate course for professionals from technical, biomedical, environmental and social research fields. Designed by myself and a co-instructor for UW Professional and Continuing Education in conjunction with the departments of Statistics and Applied Mathematics at UW.
- 2012 **QSCI 381: Introduction to Probability and Statistics**, School of the Environment, U. Washington.
- This course was part of the College of the Environment and geared towards advanced undergraduates in Environmental Science, Forestry, Fisheries and other Life Science majors.
- 2012 **STAT 302: Statistical Software and Its Applications**, Department of Statistics, U. Washington.
- Statistical computation (R and SAS) for upper level statistics majors.
- 2011, 2012, 2013 **STAT 311: Elements of Statistical Methods**, Department of Statistics, U. Washington.
- Large (180 student) service course fulfilling requirements in many majors.
- 2006, 2007 **QERM 598: Computational Methods in Quantitative Ecology**, Quantitative Ecology and Resource Management, U. Washington.
- Developed and taught this course specifically for first year graduate students in quantitative ecology.

### – SHORT COURSES –

- July 2019 **II Movement Ecology Brazil – Movement Ecology Course**, Universidade Federal de Mato Grosso do Sul, Brazil.
- One of four instructors leading an intensive movement ecology course and analysis workshop.
- July 2017 **Modern Tools in Conservation and Movement Analysis**, Society for International Congress of Conservation Biology (ICCB-2017), Cartagena, Colombia.
- Intensive workshop at on analysis of animal movement data.
- August 2016 **Animal Movement Analysis**, NOAA-Fisheries, Auke Bay, Juneau Alaska .
- Intensive workshop at on analysis of animal movement data.
- April 2014 **AniMove 2014**, Smithsonian Conservation Biology Institute, Front Royal, VA.
- One of six instructors in a two week intensive course on animal movement, remote sensing and conservation.



- April 2012 **Mathematical Modeling of Spatial Processes in Ecology**, University of St. Petersburg, Russia.  
 ○ 1 week intensive course in advanced topics in spatial ecology
- April 2011 **Analyzing Wildlife Count Data With R**, Severtsov Institute of Ecology and Evolution, Moscow, Russia.  
 ○ 1 week intensive course in estimating abundances
- 2008 - 2010 **Short courses**, University of Helsinki, Finland.  
 ○ ... on computational methods, linear algebra in ecology, and movement modeling for the Metapopulation Research Group.

## – MENTORING –

### Graduate students and post docs:

Official or *de facto* mentor, committee member (\*), or project advisor to the following students and post-docs:

Ophélie Couriot	post-doc	University of Maryland / SESYNC
YenHua Huang*	Ph.D.	University of Wisconsin
Amélie Dolfi*	Ph.D.	University of Wisconsin
Megan Morrison	M.S.	University of Wisconsin
Edward Hurme	Ph.D. (2020)	University of Maryland
Nina Attias*	Ph.D. (2019)	U. de Mato Grosso do Sul, Brazil
Farid Cheraghi	Ph.D. (2019)	University of Tehran, Iran
Laura Berman	pre-Master's (2018)	University of Maryland
Lina Brilliantova	M.S. (2018)	Moscow State University, Russia
Anton Pletenev	M.S. (2018)	Moscow State University, Russia
Trevor Meckley	Ph.D. (2016)	Michigan State University
Irina Trukhanova	Ph.D. (2016)	St.Petersburg State University, Russia
Chloe Bracis	Ph.D. (2014)	University of Washington

### Undergraduate research assistants (U. Maryland):

current:	Mannat Singh, Srita Potluri, Keemie Titus, Rutvi Patel	
graduated:	Emma Grier*	(B.S. 2020)
	Peter Thompson*, Chuyi Yang	(B.S. 2019)
	Meghan Chulok, Xiner Ning, Ashley Eskalis	(B.S. 2018)
	Tim Barry*, Jessica MacGregor	(B.S. 2017)

★ – *published co-authors*

## Professional Activities

### – INVITED SPEAKER –

- Oct 2019 Forest and Wildlife Ecology Seminar Speaker. University of Wisconsin, Madison, WI
- Jun 2019 Plenary Speaker. Brazil Move II Conference, Campo Grande, Brazil

- May 2016 Department Seminar. China West Normal University, Nanchong, Sichuan, China
- Mar 2016 Mathematical Biology Seminar. Case Western Reserve University, Cleveland, OH
- Feb 2016 Ecology and Environmental Science Groups Seminar. Lamont Earth Observatory, Columbia University
- Nov 2015 Wetlands and Aquatic Research Center Weekly Seminar. USGS Southeast Ecological Science Center, Gainesville, FL
- Oct 2014 Department of Fish, Wildlife and Conservation Biology Seminar. Colorado State University, Fort Collins, CO
- Apr 2014 Ecology and Biodiversity Seminar . Fondazione Edmund Mach, Trentino, Italy
- Apr 2014 Biodiversität und Klima Forschungs Zentrum seminar . Frankfurt, Germany
- Aug 2013 CSIRO Ecosciences seminar. Ecosciences Precinct, SCIRO, Brisbane, Australia
- Jul 2013 Environmental Decisions Science seminar. University of Queensland, Brisbane, Australia
- Jul 2013 Centre of Excellence for Environmental Decisions seminar. University of Melbourne, Australia
- Jun 2013 ORGANICS mathematical biology seminar. Swinburne University, Melbourne, Australia
- Oct 2012 Wildlife Sciences Department seminar. University of Washington, Seattle, WA
- Aug 2012 Keynote speaker at telemetry symposium. American Fisheries Society Meeting, St. Paul, MN
- May 2011 Quantitative Fisheries seminar. University of Washington, Seattle, WA
- Oct 2009 Keynote speaker. 17th Biennial Marine Mammal Conference, Québec City, Canada
- Sep 2008 Department of Wildlife Biology seminar. University of Montana, Missoula, MT
- May 2008 Metapopulation Research Group seminar. University of Helsinki, Finland

#### – INVITED WORKING GROUPS –

- 2018 Understanding Northern Latitude Vegetation Greening and Browning. National Academies of Science, Engineering and Medicine, Washington, DC
- 2014, 2018 AniMove Spatial and movement ecology retreat. Smithsonian Conservation Biology Institute, Front Royal, VA
- 2012 Workshop on uniting questions and tools in movement analysis. Hedmark University College, Norway
- 2011, 2012 Movement modeling workshop. University of St. Andrews, Scotland

#### – RECENT AWARDS AND GRANTS –

- National Park Service, Alaska, Cooperative Ecosystems Studies Units grant: *Ecological Investigation of Western Arctic Herd Caribou* (PI). \$145,000. 2017-2021.
- NSF: IIBR Informatics #1915347: *Data integration to improve population distribution*

- estimation with animal tracking data*; co-PI: \$760,000. 2019-2022.
- NSF: DMS #1853465: *Modeling Animal Dispersal: Linking the Ideal to the Real*; co-PI: \$180,000. 2019-2022.
  - Huyck Preserve Research Grants: *Mammal watching: inferring carnivore behavior and abundance via snow tracking and cameras traps*. Funding obtained for a field project on camera-trapping and snow-tracking small carnivores in a upstate New York. 2017-2018.
  - NASA ABoVE: *Animals on the Move: Remotely based determination of key drivers influencing movements and habitat selection of highly mobile fauna throughout the ABoVE study domain*. (PI: N. Boelman, I was senior personnel). 2016-2019.
  - NSF: ABI #1458748. *Advanced mathematical, statistical, and software tools to unlock the potential of animal tracking data*. (PI: J. Calabrese, co-PIs: W. Fagan, B. Hamidzadeh, I was senior personnel on this grant, which I helped to develop). \$1,165,594. 2015-2018.
  - Australian Research Council Recipient of a CEED (Centre for Excellence in Environmental Decisions, Australia Research Council) Early Career Researcher Travel Grant.

#### – REVIEWER: JOURNALS –

*Animal Conservation* • *Behavioral Processes* • *Canadian Journal of Fisheries and Aquatic Sciences* • *Ecology* • *Ecology and Evolution* • *Ecology Letters* • *Ecological Modeling* • *Ecological Monographs* • *Journal of Animal Ecology* • *Journal of Insect Behavior* • *Journal of the Royal Society Interface* • *Journal of Theoretical Biology* • *Marine Ecology Progress Series* • *Methods in Ecology and Evolution* • *Movement Ecology* • *Oecologia* • *Nature Communications* • *Palaeontologia Electronica* • *PLoS-One* • *Proceedings of the Royal Society B* • more

#### – REVIEWER: PROPOSALS –

North Pacific Research Board • International Fund for Science (Sweden) • Swiss National Science Foundation • Canada Foundation for Innovation

#### – SOCIETY MEMBERSHIP –

The Wildlife Society • American Geophysical Union • Society for Conservation Biology

### Field Work

- |              |   |
|--------------|---|
| Summer 2018  | Aerial survey of Bathurst and Bluenose East <b>caribou</b> calving grounds out of Kugluktuk, Nunavut.                                       |
| Winter 17-18 | Intensive winter camera trap network and snow-tracking of <b>fishers</b> and <b>coyotes</b> in Huyck Natural Preserve, Rensselaerville, NY. |
| Summer 2014  | <b>Mule</b> and <b>white-tailed deer</b> survival study in the Colville Reservation, Washington State..                                     |
| Spring 2011  | <b>Wolf</b> capture, collaring and release in eastern Finland with Finnish Game and Fisheries Research Institute (RKTL).                    |

- Summers 10-12 Coastal surveys of **sea otter** populations on the outer coast of the Olympic Peninsula in Washington State with Washington Department of Fish and Wildlife (WDFW).
- Fall 2010 Tagging and monitoring of **northern fur seals** on the Pribilof Islands in Alaska with National Marine Mammal Lab (NMML, NOAA Fisheries).
- Summer 09, 11 Field tracking of GPS collared **wolves** in Finland (RKTL).
- Summers 04-05,07 Participated on several NMML and Russian Academy of Sciences joint expeditions in the Kuril Islands, Kamchatka and northern Sea of Okhotsk. Work entailed: (a) several month periods of observing **Steller sea lion** behavior during the reproductive season, (b) counts of sea lions and northern fur seals throughout their range in Asian waters, and (c) instrumentation of sea lions and **northern fur seals** with satellite tags and other telemetric devices..
- March 2006 Participated in a joint US-Russian expedition to survey and satellite tag **Pacific walrus** in the Bering Sea during the ice-bound reproductive period.
- 2003 - 2008 Salmon carcass collections in Puget Sound rivers, trawling sampling trips on the Puget Sound and collection of flying squirrel traps in Olympic Peninsula.

## Programming

- Expert knowledge of **R**, **L<sup>A</sup>T<sub>E</sub>X**, **knitr**, **rmarkdown**, **STAN**. Experience building packages, integrating precompiled code, use of spatial/GIS analysis packages (**sp**, **maptools**, **rgdal**), Bayesian MCMC, version control.
- Proficiency in **QGIS**, **MatLab**, **Mathematica**, **C++**, **html**, Google Earth Engine (javascript)

## Service, Communication and Media

- 2020: Interviewed for *New Scientist*, [Mongabay.com, BBC World Service, Smithsonian, Scientific American, Berliner Zeitung and other outlets on climate change affecting animal movements in the Arctic.
- 2019: Interviewed for *Arctic Today*, *The Wildlife Society*, *Phys.org* and other outlets on the influence of insects on caribou migrations.
- 2018: Popular science press conference on caribou migrations at American Geophysical Union - Annual Meeting 2018: <https://www.youtube.com/watch?v=HeFssUZBaug>
- 2010-2012: Pacific Science Center, Seattle - Communication Fellow. Active participant in annual *Polar Science Weekend* - developed and ran an interactive activity for children on studying arctic marine mammals.

## Languages

- Native fluency in **Russian**, with extensive interpretation and translation experience.
- Near-native fluency in **French** and **German**
- High proficiency in **Spanish**
- Reading knowledge of **Portuguese**, **Italian**, **Ukrainian**, **Dutch**
- Former Red Cross volunteer interpreter (Russian, Spanish and French).

## Miscellaneous

- Classical / Gypsy Jazz / Folk - Piano / Accordion / Penny Whistle
- Backpacking - Kayaking - Cross-country skiing
- Father