Dr. Eliezer Gurarie

Quantitative Wildlife Ecologist

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Updated: October 25, 2019

Professional Experience (post PhD)

January 2014 - present, **University of Maryland**: Research scientist, Department of Biology.

September 2011 - 2015, **University of Washington**: Adjunct faculty and lecturer for Department of Statistics (College of Arts and Sciences), Center for Quantitative Sciences (College of the Environment) and U.W. Educational Outreach, University of Washington, Seattle. Affiliate faculty at the School of Environmental and Forest Sciences.

June - September 2013, **Centre of Excellence in Environmental Decisions** (CEED - Australia): Visiting fellow at Universities of Melbourne and Queensland.

December 2011 - present: Consulting biostatistician for Finnish Fish and Game Research Institute (RKTL), National Marine Mammal Lab (NMML) NOAA Fisheries, University of Washington School of Aquatic and Fisheries Sciences (SAFS), Great Lakes Fisheries Commission (GLFC), Government of Northwest Territories (GNWT), Government of Yukon.

November 2010 - November 2011: Post-doctoral fellow, National Marine Mammal Laboratory, NOAA Fisheries, Seattle, WA.

October 2008 - November 2010: Post-doctoral fellow, Metapopulation Research Group, Department of Biosciences, University of Helsinki, Finland.

Education

University of Washington, Seattle, USA.
Ph.D. in Quantitative Ecology and Resource Management. September, 2008.

- Dissertation title: *Mathematical models and analysis of animal movements: From individual tracks to mass dispersal*
- Supervisor: James J. Anderson
- Committee: Daniel Grünbaum, Parker MacCready, Julia Parrish, Richard Zabel,

Université d'Aix-Marseille III, Marseille, France.
D.E.A. (equivalent to M.S.) in Environmental Geosciences, 2000

- Thesis title: *Inferring the history of an Australian lateritic soil formation from analysis of radioactive cosmogenic nuclides in a quartz stone layer*
- Co-advisors: Fabrice Colin, Didier Bourlès

Case Western Reserve University, Cleveland, OH.
B.S. in Physics, B.A. in French, German and Comparative Literature, 1998

Publications

NB: *Italics* indicate authors who were official or *de facto* student mentees for the given study.

In review

Mainali, K., B. Shrestha, R. Sharma, A. Adhikari, **E. Gurarie**, M. Singer, C. Parmesan. (*in review*) Contrasting responses to climate change at Himalayan treelines revealed by population demographics of two dominant species. *Ecology and Evolution*.

Attias, N., **E. Gurarie**, W.F. Fagan, G. Mourao, (*in review*) Ecology and social biology of the southern three-banded armadillo. *Journal of Mammalogy*.

Barry, T., **E. Gurarie**, I. Kojola, *F. Cheraghi* and W.F. Fagan. (*revisions requested*) Is human infrastructure an acquired taste? Gray wolf habitat use before, during, and after dispersal. *Animal Behavior*.

Peer-reviewed articles

– 2019 –

Gurarie, E., M. Hebblewhite, K. Joly, A.P. Kelly, J. Adamczewski, S.C. Davidson, T. Davison, A. Gunn, M. Suitor, W.F. Fagan, and N. Boelman. (*in production*) Tactical departures and strategic arrivals: Divergent effects of climate and weather on caribou spring migrations. *Ecosphere*.

Joly, K., **E. Gurarie**, M. S. Sorum, P. Kaczensky, M. D. Cameron, A. F. Jakes, B. L. Borg, D. Nandintsetseg, J. G. C. Hopcraft, B. Buuveibaatar, P. F. Jones, T. Mueller, C. Walzer, K. A. Olson, J. C. Payne, A. Yadamsuren and M. Hebblewhite. 2019. Longest terrestrial migrations and movements around the world. *Scientific Reports*. 9: 1-10. Article 15333. DOI: 10.1038/s41598-019-51884-5.

Gurarie, E., *P. Thompson*, A.P. Kelly, N.C. Larter, W.F. Fagan, K. Joly. (*in press*) For Everything There is a Season: Estimating periodic hazard functions with the `cyclomort` R package. *Methods in Ecology and Evolution*.

Noonan, M.J., C.H. Fleming, T.S. Akre, J. Drescher-Lehman, **E. Gurarie**, A.-L. Harrison, R. Kays, J.M. Calabrese. (*in press*) Scale-insensitive estimation of speed and distance traveled from animal tracking data. *Movement Ecology*.

Cheraghi, F., M. R. Delavar, F. Amiraslani, K. Alavipanah, E. Gurarie, H. Jowkar, H, W.F. Fagan (2019). Inter-dependent movements of Asiatic Cheetahs *Acinonyx jubatus venaticus* and a Persian Leopard *Panthera pardus saxicolor* in a desert environment in Iran (Mammalia: Felidae). Zoology in the Middle East, 1-10.

Penteriani, V., A. Arias, M. Delgado, F. Dalerum, **E. Gurarie**, P. Torre, T. Corominas, V. Vázquez, P. García, A. Ordiz. (*in press*) Do brown bear females with cubs settle in risky areas in spatially confined populations? The case of the Cantabrian Mountains, Spain. *Ursus*.

Fagan, W.F., T. Hoffman, D. Dahiya, **E. Gurarie**, R.S. Cantrell, C. Cosner. (2019) Improved foraging by switching between diffusion and advection: Benefits from movement that depends on spatial context. *Theoretical Ecology*: 1-10.

He, K., Q. Dai, A. Foss-Grant, **E. Gurarie**, W.F. Fagan, M.A. Lewis, J. Qing, F. Huang, X. Yang, X. Gu, Y. Huang, H. Zhang, D. Li, X. Zhou, Z. Yang. (2019) Movement and activity of reintroduced giant pandas. *Ursus* 29(2) : 163-174.

Hurme, E., **E. Gurarie**, S. Greif, M.L. Gerardo Herrera; J.J. Flores Martinez, G. Wilkinson, Y. Yovel. (2019). Acoustic validation of behavioral states predicted from GPS tracking: a case study of a marine fishing bat. *Movement Ecology* 7(1) 21.

Bewick, S., **E. Gurarie**, J. Beattie, C. Davati, R. Flint, T. Mehoke, P. Thielen, F. Breitwieser, D. Karig, W.F. Fagan. (2019). Trait-Based Analysis of the Human Skin Microbiome. *Microbiome* 7(1) 101.

Boelman, N., G.E. Liston, **E. Gurarie**, A.J.H. Meddens, P.J. Mahoney, P.B. Kirchner, G. Bohrer, T.J. Brinkman, C.L. Cosgrove, J. Eitel, M. Hebblewhite, J.S. Kimball, S.D. LaPoint, A.W. Nolin, S.H. Pedersen, L.R. Prugh, A.K. Reinking, L. Vierling. (2019) Integrating snow

science and wildlife ecology in Arctic-boreal North America. *Environmental Research Letters*. 14: 010401 .

– 2018 –

Udell, B., J. Martin, R. J. Fletcher Jr., M. Bonneau, H. Edwards, T. Gowan, S.K. Hardy, **E. Gurarie**, C.S. Calleson, C.J. Deutsch. (2018) Integrating encounter theory with decision analysis to evaluate collision risk and determine optimal protection zones for wildlife. *Ecological Applications*: DOI 10.1111/1365-2664.13290.

Mahoney, P.J., S. LaPoint, **E. Gurarie**, B. Mangipane, A. Wells, T. Brinkman, J.U.H. Eitel, M. Hebblewhite, A.W. Nolin, N. Boelman, L.R. Prugh. (2018) Navigating snowscapes: scale-dependent responses of mountain sheep to snowpack properties. *Ecological Applications*.

Bracis, C., **E. Gurarie**, J. Rutter, R.A. Goodwin. (2018) Remembering the good and the bad: Memory-based mediation of the food–safety trade-off in dynamic landscapes. *Theoretical Ecology*, 11(3):305-309.

Cheraghi, F., M. Delavar, F. Amiraslani, K. Alavipanah, **E. Gurarie**, W.F.Fagan. (2018) State-space analysis of Asiatic cheetah movement and its spatio-temporal drivers. *Journal of Arid Environments, in production*.

Delgado, M., M. Miranda, S. Alvarez, **E. Gurarie**, W.F. Fagan, V. Penteriani, A. di Virgilio, J.M. Morales. (2018) The importance of individual variation in the dynamics of animal collective movements. *Philosophical Transactions of the Royal Society of London: B in production*.

Tucker, M., K. Böhning-Gaese, W. Fagan, ..., **E. Gurarie**, ..., T. Müller. (2018) Moving in the Anthropocene: Global reductions in terrestrial mammalian movements. *Science*, 359(6374):466-469.

– 2017 –

Gurarie, E., F. Cagnacci, W. Peters, C. Fleming, J. Calabrese, T. Müller, W. Fagan. (2017) A framework for analyzing animal range shifts and migrations: Asking whether, whither, when and will it return. *Journal of Animal Ecology*, 86: 943-959.

Gurarie, E., C. Fleming, J. Hernández-Pliego, K. Laidre, O. Ovaskainen, W. Fagan. (2017) Correlated velocity models as a fundamental unit of animal movement. *Movement Ecology*.

Fagan, W.F., **E. Gurarie**, S. Bewick, A. Howard, R.S. Cantrell and C. Cosner. (2017) Perceptual ranges, information gathering and foraging success in dynamic landscapes. *American Naturalist*, 189(5). doi:10.1086/691099

Fleming, C., D. Sheldon, **E. Gurarie**, W.F. Fagan, J.M. Calabrese. (2017) Kálmán filters for continuous-time movement models. *Ecological Informatics*, 40:8-21.

Meckley, T., **E. Gurarie**, J.R. Miller, C.M. Wagner. (2017) How do non-homing fishes find the shore? Evidence for orientation to bathymetry from migrating sea lamprey (*Petromyzon marinus*). *Canadian Journal of Fisheries and Aquatic Science*. doi:10.1139/cjfas-2016-0412.

– 2016 –

Gurarie, E., J.L. Bengtson, M. Bester, A.S. Blix, M. Cameron, H. Bornemann, E.S. Nordøy, J. Plötz, D. Steinhage, P. Boveng. (2016) Distribution, density and abundance of Antarctic ice seals off Queen Maud Land and the eastern Weddell Sea. *Polar Biology*, doi:10.1007/s00300-016-2029-4.

Kojola, I., V. Hallikainen, K. Mikkola, **E. Gurarie**, S. Heikkinen, S. Kaartinen, A. Nikula, 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.

Gurarie E., *C. Bracis*, M. Delgado, *T. Meckley*, I. Kojola and M. Wagner (2016) What is the animal doing? Tools for exploring behavioral structure in animal movements. *Journal of Animal Ecology*, 85(1): 69-84.

Cagnacci, F., S. Focardi, A. Ghisla, B. van Moorter, **E. Gurarie**, et al. (2016) How many routes lead to migration? Re-establishing the link between definitions, methods and movement patterns. *Journal of Animal Ecology*, 85(1): 54-68.

Calabrese, J.M., C.H. 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*. doi:10.1111/2041-210X.12559

– 2015 –

Bracis, C., **E. Gurarie**, B. van Moorter, A. Goodwin (2015) Memory Effects on Movement Behavior in Animal Foraging. *PLoS One* 10.8.

Martin, J., Q. Sabatier, T.A. Gowan, C. Giraud, **E. Gurarie**, C.S. Calleson, J.G. Ortega-Ortiz, C.J. Deutsch, A. Rycyk, S.M. Koslovsky. (2015) A quantitative framework for investigating risk of deadly collisions between marine wildlife and boats. *Methods in Ecology and Evolution* 7(1), 42-50.

Altukhov, A.V., R.D. Andrews, D.G. Calkins, T.S. Gelatt, **E. Gurarie**, T.R. Loughlin, E.G. Mamaev, V.S. Nikulin, P.A. Permyakov, S.D. Ryazanov, V.V. Vertyankin, V.V. Burkanov. (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. doi:10.1371/journal.pone.0127292

– 2014 –

Beyer, H., **E. Gurarie**, L. Börger, M. Panzacchi, M. Basile, I. Herfindal, B. van Moorter, S. Lele, J. Matthiopoulus. (2014) Quantifying the permeability of impedances to movement in the context of habitat preference. Invited paper for special issue of *Journal of Animal Ecology*, 85(1): 43-53

Meckley, T.D., C.M. Wagner, **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.

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

– 2013 –

Gurarie, E., O. Ovaskainen. 2013. Towards a general formalization of encounter rates in ecology. *Theoretical Ecology*. 6(2): 189-202

Trukhanova, I., **E. Gurarie**, R. Sagitov. 2013. Distribution of Hauled-Out Ladoga Ringed Seals (Pusa hispida ladogensis) in Spring 2012 (*Pusa hispida ladogensis*). *Arctic* 66(4):417 – 428.

Anderson, J., **E. Gurarie**, C. Bracis, B. Burke, K. Laidre. 2013. Modeling climate change impacts on phenology and population dynamics of marine migrating species. *Ecological Modelling*. 264: 83–97.

Laidre, K., E. Born, **E. Gurarie**, Ø. Wiig, R. Dietz, H. Stern. 2013. Females roam while males patrol: Divergence in breeding season movements of pack-ice polar bears (*Ursus maritimus*). *Proceedings of the Royal Society B*. 280(1752).

– 2005-2012 –

Gurarie, E., O. Ovaskainen. 2011. Characteristic spatial and temporal scales unify models of animal movement and fundamental ecological processes. *The American Naturalist*. 178:113-23.

Gurarie, E., J. Suutarinen, I. Kojola and O. Ovaskainen. 2011. Wolf (*Canis lupus*) movement and kill behaviors with respect to human-influenced habitat features in Finland. *Oecologia*, 165:891-903.

Burkanov, V.N., **E. Gurarie**, A. Altukhov, E. Mamaev, P. Permyakov, A. Trukhin, J. Waite, T. Gelatt. 2011. Environmental and biological factors influencing maternal attendance patterns of Steller sea lions (*Eumetopias jubatus*) in Russia. *Journal of Mammalogy*, 92:352-366.

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*, 73:1358-1377.

Gurarie, E., J.J. Anderson, R.W. Zabel. 2009. Continuous models of population-level heterogeneity incorporated in analyses of animal dispersal. *Ecology*, 90(8): 2233-2242.

Gurarie, E., R.A. Andrews, K.L. Laidre. 2009. A novel method for identifying behavioural changes in animal movement data. *Ecology Letters*, 12(5): 395-408.

Laidre, K.L., R.J. Jameson, **E. Gurarie**, S.J. Jeffries, and H. Allen. 2009. Spatial habitat use patterns of sea otters in coastal Washington. *Journal of Mammalogy*, 90(4): 906-917.

Anderson, J.J., **E. Gurarie**, R.W. Zabel. 2005. Mean free-path length theory of predator-prey interactions: Application to juvenile salmon migration. *Ecological Modelling* 186(2): 196-211

X.Y. Wang, J. Li, **E. Gurarie**, S. Fan, T. Kyu, M.E. Neubert, S.S. Keast, and C. Rosenblatt. 1998. Kinetics of Phase Transition in an Anticlinic Liquid Crystal Induced by a Uniform Temperature Field: Growth in One Dimension. *Physics Review Letters* 80:4478.

R packages

Gurarie, E., P. Thompson (2019) `cyclomort`: Tools for modeling periodic survival processes. GitHub: https://github.com/EliGurarie/cyclomort.

Gurarie, E. (2013) `bcpa`: Behavioral change point analysis of animal movement. CRAN: http://CRAN.R-project.org/package=bcpa

Gurarie, E. and F. Cheraghi (2017) `marcher`: Migration and Range Change Estimation in R. http://CRAN.R-project.org/package=marcher

Gurarie, E. (2017) `smoove`: Simulation and Estimation of Correlated Velocity Movement (CVM) Models. GitHub: https://github.com/EliGurarie/smoove.

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.

Reports and book translations

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.

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**).

Teaching

Full Courses: University of Maryland

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

Full Courses: University of Washington

2012-2016: *StatR 101: Introduction to Statistical Analysis with R*
StatR 301/503: Advanced R Programming and Graphics
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* - Center for Quantitative Science. 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. Computation course for upper level statistics majors.

2011, 2012, 2013: *STAT 311: Elements of Statistical Methods* - Department of Statistics. Large (180 student) service course fulfilling requirements in many majors.

2006, 2007: *QERM 598: Computational Methods in Quantitative Ecology* - Quantitative Ecology and Resource Management. Developed and taught this course specifically for first year graduate students in quantitative ecology.

Guest Lectures: University of Washington

Spring 2014: *BSTAT / STAT 111: Biostatistics Seminar* - statistics in the wildlife sciences.

Spring 2012 and 2013: *QERM 514: Analysis of Ecological and Environmental Data* - time series analysis in ecology.

Winter 2013: *ESRM 450: Wildlife Ecology and Conservation* - movement ecology and conservation.

Special Courses

July 2017: *Modern Tools in Conservation and Movement Analysis* - Workshop at the Society for International Congress of Conservation Biology (ICCB-2017), Cartagena, Colombia.

August 2016: *Animal Movement Analysis* - Intensive workshop at NOAA-Fisheries, Auke Bay, Juneau Alaska on analysis of animal movemnent data.

April 2014: *AniMove 2014* - One of six instructors in a two week intensive course on animal movement, remote sensing and conservation at Smithsonian Conservation Biology Institute, Front Royal, VA.

April 2012: *Mathematical Modeling of Spatial Processes in Ecology* - 1 week intensive course at the University of St. Petersburg, Russia.

April 2011: *Analyzing Wildlife Count Data With R* - 1 week intensive course at Institute of Ecology and Evolution in Moscow, Russia.

2008 - 2010: Series of short courses on computational methods, linear algebra in ecology, and movement modeling at the University of Helsinki, Finland.

Professional Activities

Editorial board member:

Movement Ecology

Society Membership

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

Invited Speaker

Univeridade Federal Mato Grosso do Sul - II Movement Ecology Brazil Meeting - June 2019.

China West Normal University - Nanchong, Sichuan - Wildlife Ecology Seminar - May 2016.

Case Western Reserve University - Mathematical Biology Seminar - March 2016.

Columbia University - Lamont Earth Observatory - Ecology and Environmental Science Groups Seminar - February 2016.

USGS Wetlands and Aquatic Research Center Weekly Seminar - Southeast Ecological Science Center, Gainesville, FL - November 2015.

Department of Fish, Wildlife and Conservation Biology Seminar - Colorado State University, Fort Collins, CO - October 2014.

Ecology and Biodiversity Seminar - Fondazione Edmund Mach, Trentino, Italy - April 2014.

Biodiversität und Klima Forschungs Zentrum seminar - Frankfurt, Germany - April 2014.

CSIRO Ecosciences seminar - Ecosciences Precinct, SCIRO, Brisbane, Australia - August 2013.

Environmental Decisions Science seminar - University of Queensland, Brisbane, Australia - July 2013.

Centre of Excellence for Environmental Decisions seminar - University of Melbourne, Australia - July 2013.

ORGANICS mathematical biology seminar - Swinburne University, Melbourne, Australia - June 2013.

Wildlife Sciences Department Seminar - University of Washington, Seattle, WA - October 2012.

Keynote speaker at telemetry symposium - American Fisheries Society Meeting, St. Paul, MN - August 2012.

Quantitative Fisheries Seminar - University of Washington - May 2011.

Keynote speaker at modeling workshop - 17th Biennial Marine Mammal Conference - Québec City, Canada, October 2009.

Department of Wildlife Biology seminar - University of Montana - September 2008.

Metapopulation Research Group seminar - University of Helsinki - May 2008.

Invited Working Groups

Understanding Northern Latitude Vegetation Greening and Browning - National Academies of Science, Engineering and Medicine, Washington, DC - 2018.

Spatial and movement ecology retreat - Smithsonian Conservation Biology Institute, Front Royal, VA - September 2018.

Spatial and movement ecology retreat - Smithsonian Conservation Biology Institute, Front Royal, VA - September 2014.

Workshop on uniting questions and tools in movement analysis - Hedmark University College, Norway - August 2012.

Movement modeling workshop - University of St. Andrews, Scotland - June 2012.

Movement modeling workshop - University of St. Andrews, Scotland - September 2011.

Conference Presentations

(first author / presenter only)

Gurarie, E., M. Hebblewhite, J. Adamczewski, A. Kelly, M. Suitor, others. "Large-scale synchrony and climate drivers of barrenground caribou migration across North America". American Geophyiscal Union annual meeting. Washington, DC, December 2018.

Gurarie, E., M. Hebblewhite, J. Adamczewski, A. Kelly, M. Suitor, others. "Large-scale synchrony and climate drivers of barrenground caribou migration across North America". North American Caribou Workshop. Ottawa, Canada, November 2018.

Gurarie, E., C. Bracis, A. Brilliantova, J. Suutarinen, O. Ovaskainen, I. Kojola, W. Fagan. "Who's afraid of the thinking wolf? Inferring Spatial Memory From Animal Movement Data". The Wildife Society annual meeting, Cleveland, OH. 2018.

Gurarie, E., C. Fleming and O. Ovaskainen. "The correlated velocity continuous time animal movement model: theory, estimation and applications". International Statistical Ecology Conference, Montpelier France. July 2014.

Gurarie, E. and O. Ovaskainen. "Encounter Rates, Movement Scales, and Ecological Consequences". International Statistical Ecology Conference, Sundvollen, Norway. July 2012.

Eldridge, W. and **Gurarie, E.**. "Movement and survival of stream fish across a habitat gradient". North American Benthological Society 2011 Annual Meeting. Providence, RI. May 2011.

Gurarie, E. *et al.*, "Characterizing three-dimensional helical movements of microorganisms from two-dimensional microvideographic tracking data". International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology. Vancouver, B.C. July 2009.

Gurarie, E. and J. Anderson, "Modeling of encounter rates for randomly moving individuals: Mathematical predictions and ecological consequences". International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology. Vancouver, B.C. July 2009.

Laidre, K. and **E. Gurarie**, "Spatial habitat use patterns of sea otters in coastal Washington.", Sea Otter Conservation Workshop VI. Seattle, WA. April 2009.

Gurarie, E., "Robust methods for interpreting animal movement data", Vth International Conference on Marine Mammals of the Holarctic. Odessa, Ukraine. October 2009.

Gurarie, E., "Identifying behavioral switches in gappy animal movement data", Ecological Society of America Annual Meeting. Milwaukee, WI. August 2008.

Gurarie, E. *et al.*, "A comparison of maternal attendance patterns on two Steller sea lion (Eumetopias jubatus) rookeries in Russia", 16th Biennial Conference on the Biology of Marine Mammals. St. Petersburg, Russia. September 2005.

Gurarie, E., "A spatially explicit, bioenergetically constrained, IBM of predator-prey interactions in a stream". Eighth Annual Swarm Users/Researchers Meeting. Ann Arbor, MI. May 2004.

Reviews

Reviewed manuscripts for many journals, including (but not limited to):

• *Animal Conservation* • *Behavioral Processes* • *Canadian Journal of Fisheries and Aquatic Sciences* • *Ecology* • *Ecology Letters* • *F1000 Research* • *Journal of Animal Ecology* • *Journal of Insect Behavior* • *Journal of the Royal Society Interface* • *Journal of Theoretical Biology* • *Ecological Modeling* • *Ecology and Evolution* • *Marine Ecology Progress Series* • *Methods in Ecology and Evolution* • *Movement Ecology* • *Oecologia* • *Nature Communications* • *Palaeontologia Electronica* • *PLOS-One* • *Proceedings of the Royal Society B* •

Reviewed proposals for:

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

Student Mentoring

Mentor and/or *de facto* project advisor to the following students:
Current:
University of Maryland

- Emma Grier - B.S.
- Chuyi Yang - B.S.
- Laura Berman - pre-Master's intern
- Meghan Chulok - B.S.

Other Institutions

- Lina Brilliantova - M.S. - Moscow State University
- Anton Pletenev - Ph.D. - Moscow State University

- Farid Cheraghi - Ph.D. - University of Tehran, Iran

Successfully completed:

- Jessica MacGregor - B.S.- University of Maryland
- Xiner Ning - B.S. - University of Maryland
- Tim Barry - B.S. - University of Maryland
- Andy Foss-Grant - Ph.D. - University of Maryland
- Chloe Bracis - Ph.D.- University of Washington
- Hannah Director - B.S. - University of Washington
- Trevor Meckley - Ph.D. - Michigan State University
- Irina Trukhanova - Ph.D. - St. Petersburg State University, Russia.

Awards and Grants

2017-2019: National Park Service, Alaska, Cooperative Ecosystems Studies Units grant: *Ecological Investigation of Western Arctic Herd Caribou* ($95,000).

2017-2018: Huyck Preserve Resarch Grants (co-PI Scott LaPoint): *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.

2016-2019: *Animals on the move: Remotely based determination of key drivers influencing movements and habitat selection of highly mobile fauna throughout the ABoVE study domain* under the Arctic-Boreal Vulnerability Experiment (ABoVE) NASA field campaign.

2015-2018: NSF Advances in Biological Informatics (Innovation) grant. *Advanced mathematical, statistical, and software tools to unlock the potential of animal tracking data.* (PI: J. Calabrese, co-PIs: W. Fagan, B. Hamidzadeh). $1,165,594 to UMD. I am senior personnel on this grant, which I helped to develop.

2013: Recipient of a CEED (Centre for Excellence in Environmental Decisions, Australia Research Council) Early Career Researcher Travel Grant.

Field work

Summer 2018: Participant in aerial survey of Bathurst and Bluenose East caribou calving grounds out of Kugluktuk, Nunavut.

Winter 2017, 2018: Intensive winter camera trap network and snow-tracking of fishers and coyotes in Huyck Natural Preserve, Rensellaerville, NY.

Summer 2014: Assisted in mude deer and white-tailed mule deer survival study in the Colville Reservation, Washington state.

Spring 2011: Participated in wolf capture, collaring and release in eastern Finland with Finnish Game and Fisheries Research Institute (RKTL).

Summers 2010, 2011, 2012: 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).

Autumn 2010: Tagging and monitoring of northern fur seals on the Pribilof Islands in Alaska with National Marine Mammal Lab (NMML, NOAA Fisheries).

Summer 2009, 2011: Participated in tracking studies of GPS collared wolves (*Canis lupus*) in Finland (RKTL).

Summers 2004, 2005 and 2007: 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 (*Eumotopias jubatus*) behavior during the reproductive season, (b) counts of sea lions and northern fur seals (*Callorhinus ursinus*) throughout their range in Asian waters, and (c) instrumentation of sea lions and northern fur seals with sattelite tags and other telemetric devices.

March 2006: Participated in a joint USGS-USFWS-ChukotNIRO (Russia) expedition surveying and deploying satellite tags on Pacific walruses (*Odobenus rosmarus*) in the Bering Sea during the ice-bound reproductive period.

2003-2008: Helped colleagues and peers on a variety of projects, including salmon carcass collections in Puget Sound rivers, trawling sampling trips on the Puget Sound and collection of flying squirrel traps in Olympic Peninsula.

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

Programming

- Expert knowledge of `R`, LaTeX, `knitr`, STAN. Experience building packages, integrating precompiled code, use of spatial/GIS analysis packages (`sp`, `maptools`, `rgdal`), Bayesian MCMC.
- Proficiency in `Mathematica`, `MatLab`, C++, `html`, SAS

Service and Communication

- 2018: Invited to give a press conference on caribou migrations at Amerrican 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.
- 2005-2010: Red Cross volunteer interpreter (Russian, Spanish and French).

Miscellaneous

- Classical / Gypsy Jazz / Folk / Rock Piano + Accordion
- Backpacking - Kayaking - Cross-country / Back-country skiing
- Dad