Michael J. Noonan

Curriculum Vitae

Citizenship: Canadian
Address: 3466 Torrey Pines Court, Kelowna, B.C., Canada
Telephone: 01 250-258-1118
Email: michael.noonan@ubc.ca
h-index: 13; Total citations 763
Google scholar profile: Michael J Noonan.

Education

2012 — 2016	Dphil in Zoology	Wildlife Conservation Research Unit (WildCRU), University of Oxford, Oxford, UK. PIs: David Macdonald, Chris Newman
2008 — 2011	BSc in Honours Ecology (1^{st} Honours)	Concordia University, Montreal, Canada. PI: James Grant
2005 — 2008	Diploma of Collegial Studies Pure & Applied Science	Vanier College, Montreal, Canada.

Professional Appointments

2020 — Present	Assistant Professor, Tenure Track	Department of Biology, University of British Columbia, BC, Can.
2016 — 2020	Postdoctoral Fellow	Quantitative Ecology Lab, Smithsonian Cons. Biol. Inst., VA, USA, & University of Maryland, MD, USA. PIs: Justin Calabrese, William Fagan

Publications

27. Ford AT, **Noonan MJ**, Bollefer K, Gill R, Legebokow C, and Serrouya R. The post-captive movement ecology of endangered mountain caribou. *Animal Conservation*, Subm. 27-Feb-2021, Manuscript ID: ACV-02-21-OM-070.

26. Fleming CH, Dresher-Lehman J, **Noonan MJ**...(27 other authors)..., and Calabrese JM. A comprehensive framework for handling location error in animal tracking data. *Ecological Monographs*, Subm. 02-Apr-2020, Manuscript ID: ECM20-0044.

25. **Noonan MJ**...(11 other authors)..., and Calabrese JM. Estimating encounter location distributions from animal tracking data. *Methods in Ecology and Evolution*, Accepted. DOI: 10.1101/2020.08.24.261628.

24. Ferraz MAMM, Nagashima JB, **Noonan MJ**, Crosier AE, & Songsasen N. Oviductal extracellular vesicles improve red wolf and cheetah sperm function post-thawing. *International Journal of Molecular Science*, 21(10), 3733; DOI: 10.3390/ijms21103733.

23. Calabrese JM, Fleming CH, **Noonan MJ**, & Dong X. Point-and-click AKDE home range estimation with ctmmweb *Wildlife Society Bulletin*, in press DOI: 10.1002/wsb.1154.

22. Ferraz MAMM, Fujihara M, Nagashima JB, **Noonan MJ**, Inoue-Murayama M & Songsasen N. (2020) Cat follicular extracellular vesicles contain proteins regulating cell signaling pathways that enhance meiotic resumption of vitrified oocytes. *Scientific Reports*, 10, 8619; DOI: 10.1038/s41598-020-65497-w.

21. **Noonan MJ**, Fleming CH, ...(76 other authors)..., and Calabrese JM. (2020) Effects of body size on estimation of mammalian area requirements. *Conservation Biology*, 34(3), 1017–1028; DOI: 10.1111/cobi.13495.

20. **Noonan MJ***, Fleming CH*, Akre T, Dresher-Lehman J, Gurarie E, Harrison AL, Kays R & Calabrese JM. (2019) Scale-insensitive estimation of speed and distance travelled from animal tracking data. *Movement Ecology*, 7(35), 1–15; DOI: 10.1186/s40462-019-0177-1.
*co-first authors

19. **Noonan MJ***, Tinnesand HV*, Müller CT, Rosell F, Macdonald DW, & Buesching CD. (2019) Knowing me, knowing you: anal gland secretion of European badgers (*Meles meles*) codes for individuality, sex and social group membership. *Journal of Chemical Ecology*, 45, 823–837; DOI: 10.1007/s10886-019-01113-0.
*co-first authors

18. Fleming CH, **Noonan MJ**, Medici E, & Calabrese, JM. Overcoming the challenge of small effective sample sizes in home-range estimation. (2019) *Methods in Ecology and Evolution*, 10(10), 1679–1689; DOI: 10.1111/2041-210X.13270.

17. Ishii H, Yamazaki K, **Noonan MJ**, Buesching CD, Newman C, & Kaneko Y. (2019) Testing cellular-phone enhanced GPS tracking technology for urban carnivores. *Animal Biotelemetry*, 7(19), 1–13; DOI: 10.1186/s40317-019-0180-8.

16. Ferraz MAMM, Carothers A, Dahal R, **Noonan MJ**, & Songsasen N. (2019) Oviductal extracellular vesicles interact with the spermatozoon's head and mid-piece and improves its motility and fertilizing ability in the domestic cat. *Scientific Reports*, 9(9484), 1–12; DOI: 10.1038/s41598-019-45857-x

15. Tucker M, ... **Noonan MJ** (with 62 other authors)..., & Mueller T. (2019) Large birds travel farther in homogeneous environments. *Global Ecology and Biogeography*, 28(5), 1–12; DOI: 10.1111/geb.12875.

14. **Noonan MJ**, ...(53 other authors)..., and Calabrese JM. (2019). A comprehensive analysis of autocorrelation and bias in home range estimation. *Ecological Monographs*, 89(2):e01344; DOI: 10.1002/ecm.1344.

13. **Noonan MJ**, Newman C, Markham A, Buesching CD, Bilham K, & Macdonald DW. (2018) *In situ* behavioral plasticity as compensation for weather variability: implications for future climate change. *Climatic Change*, 149(3-4), 457–471; DOI: 10.1007/s10584-018-2248-5.

12. Winner K*, **Noonan MJ***, Fleming CH, Olson KA, Mueller T, Sheldon D, & Calabrese JM. (2018) Statistical inference for home range overlap. *Methods in Ecology and Evolution*, 9(7), 1679–1691; DOI: 10.1111/2041-210X.13027.
*co-first authors

11. **Noonan MJ**, Tinnesand HV, & Buesching CD. (2018) Normalizing Gas-Chromatography–Mass Spectrometry Data: Method Choice can Alter Biological Inference. *BioEssays*, 40(6), 1–12; DOI: 10.1002/bies.201700210.

10. Bilham K, Newman C, Buesching CD, **Noonan MJ**, Boyd AC, Smith AL, & Macdonald DW. (2018) The effects of weather conditions on oxidative stress, oxidative damage and antioxidant capacity in a wild-living mammal, the European badger (*Meles meles*). *Physiological and Biochemical Zoology*, 91(4), 987–1004; DOI: 10.1086/698609

9. Fleming CH, Sheldon D, Fagan WF, Leimgruber P, Mueller T, Nandintsetseg D, **Noonan MJ**, Olson KA, Setyawan E, Sianipar A, & Calabrese JM. (2018) Correcting for missing and irregular data in home-range estimation, *Ecological Applications*, 28(4), 1003–1010; DOI: 10.1002/eap.1704.

8. Johnson PJ*, **Noonan MJ***, Kitchener A, Harrington LA, Newman C, & Macdonald DW. (2017) Rensching Cats and Dogs: Feeding ecology and fecundity trends explain variation in the allometry of sexual size dimorphism. *Royal Society Open Science*, 4(6): 170453; DOI: 10.1098/rsos.170453.
*co-first authors

7. **Noonan MJ***, Johnson PJ*, Kitchener A, Harrington LA, Newman C, & Macdonald DW. (2016) Sexual size dimorphism in musteloids: An anomalous allometric pattern is explained by feeding ecology. *Ecology and Evolution*, 6(23): 8495–8501; DOI: 10.1002/ece3.2480.
*co-first authors

6. Tinnesand HV, Buesching CD, **Noonan MJ**, Newman C, Zedrosser A, Rosell F, & Macdonald DW. (2015) Will Trespassers Be Prosecuted or Assessed According to Their Merits? A Consilient Interpretation of Territoriality in a Group-Living Carnivore, the European Badger (*Meles meles*). *PLoS One*, 10(7), e0132432; DOI: 10.1371/journal.pone.0132432.

5. **Noonan MJ**, Newman C, Buesching CD, & Macdonald DW. (2015) Evolution and function of fossoriality in the Carnivora: implications for group-living. *Frontiers in Ecology and Evolution*, 3(116), 1–14; DOI: 10.3389/fevo.2015.00116.

4. **Noonan MJ**, Abidur Rahman M, Newman C, Buesching CD, & Macdonald DW. (2015) Avoiding verisimilitude when modelling ecological responses to climate change: The influence of weather conditions on trapping efficiency in European badgers (*Meles meles*). *Global Change Biology*, 21(20), 3575–3585; DOI: 10.1111/gcb.12942.

3. **Noonan MJ**, Markham A, Newman C, Trigoni N, Buesching CD, Ellwood SA, & Macdonald DW. (2015) A new Magneto-Inductive tracking technique to uncover subterranean activity: What do animals do underground? *Methods in Ecology and Evolution*, 6(5), 510–520; DOI: 10.1111/2041-210X.12348.

2. **Noonan MJ**, Markham A, Newman C, Trigoni N, Buesching CD, Ellwood SA, & Macdonald DW. (2014) Climate and the Individual: Inter-Annual Variation in the Autumnal Activity of the European Badger (*Meles meles*). *PloS One*, 9(1), e83156; DOI: 10.1371/journal.pone.0083156.

1. **Noonan MJ**, Grant JWA, & Jackson CD. (2012) A quantitative assessment of fish passage efficiency. *Fish and Fisheries*, 13(4), 450–464; DOI: 10.1111/j.1467-2979.2011.00445.x.

Grants and Awards

Under review - NSERC – PGS-M (Named PI, National level MSc Fellowship, Canada)	$17,500 CAD
Under review - Curricular and Teaching Innovation Grant (co-applicant, International Award)	$6,420 CAD
Under review - Health Innovation Funding Investment (HIFI) Awards (International Award)	$25,000 CAD
Under review - NSERC Discover Grant (National level academic grant, Canada)	$392,000 CAD
Under review - Canada Foundation for Innovation (National level academic grant, Canada)	$327,953 CAD
2021 National Geographic Society Early Career Grant (co-applicant)	$6,500 CAD
2020 Rufford Small Grants for Nature Conservation (co-applicant)	$10,036 CAD
2020 University of British Columbia Startup funds	$100,000 CAD
2018 Smithsonian Institution Fellowship (International award)	$150,306 CAD
2018 Conservation Ecology Centre Award (Institutional grant, Smithsonian Institution)	$6,960 CAD
2018 Scholarly Studies Award (Institutional grant, Smithsonian Institution)	$94,323 CAD
2012 Rhodes Scholarship (International scholarship)	ca. $150,000 CAD
2012 NSERC – PGS-M (National level academic grant, Canada)	$17,500 CAD
2011 NSERC – USRA (National level academic grant, Canada)	$4,000 CAD
2010 NSERC – USRA (National level academic grant, Canada)	$4,000 CAD
Total	$1,291,748 CAD

Invited Lectures

2019 University of British Columbia, Biology Dept. seminar series, Kelowna, Canada.
2019 McGill University, Parasitology Dept. seminar series, Sainte-Anne-de-Bellevue, Canada.
2019 Concordia University, Biology Dept. seminar series, Montreal, Canada.
2018 Smithsonian Institution, SCBI *Meet the Scientist* series, Front Royal, VA, U.S.A.
2017 Smithsonian Institution, SCBI seminar series, Front Royal, VA, U.S.A.

Conference Presentations

Noonan MJ, Fleming CH, and Calabrese JM. (2018) The fast and the spurious: Scale-free estimation of speed and distance travelled from animal tracking data. *The Wildlife Society Annual Conference*. Cleveland, Ohio.
Noonan MJ, Fleming CH, Tucker MA, Mueller T and Calabrese JM. (2017) What home-range estimator should I use? An analysis of autocorrelation and bias in home-range estimation. *ESA Annual Meeting*. Portland, Oregon.
*__Noonan MJ__ (2014) The socio-ecological functions of fossoriality in the European badger (*Meles meles*). *The Mammal Society 60th Spring Conference*, at Aston University.
*__Noonan MJ__, Markham A, Ellwood SA, & Macdonald DW (2013) From RFID to magneto-inductive tracking: revealing the cryptic lives of badgers. *Wild Musteloid Conference*, at the University of Oxford.
Noonan MJ, Grant JWA, & Jackson CD (2012) A quantitative assessment of fish passage efficiency. *65th Canadian Conference for Fisheries Research*, in Moncton, New Brunswick.

*Awarded best student presentation

Teaching

Instructor, Statistical Modelling for Biological Data **2021 - Present**
University of British Columbia, Kelowna, Canada
Prepared and presented lecture material and class activities for a graduate level course focused on the analysis of biological data. All course material is openly accessible via the course website.

Instructor, Introduction to Continuous-Time Mov. Mod. for Anim. Track. Data **Oct – 2020**
The Wildlife Society Annual Conference, Remote
Prepared and presented lecture material and class activities for two one-day graduate and professional short courses focusing on the analysis of animal tracking data for >100 international participants.

Instructor, Statistics for Animal Tracking Data **May – 2019**
Instituto de Pesquisas Ecológicas (IPE), Campo Grande, Brasil
Prepared and presented lecture material and class activities for a one-week graduate and professional short course focusing on the analysis of animal tracking data for 16 international students.

Instructor, AniMove: Statistics for Animal Tracking Data **Feb – 2019**
Smithsonian Mason School of Conservation, George Mason University
Prepared and presented lecture material and class activities for a one-week graduate and professional short course focusing on the analysis of animal tracking data for 20 international students.

Instructor, AniMove Movement Analysis Course **September – 2018**
Max Planck Institute for Ornithology, Radolfzell, Germany
Prepared and presented lecture material and class activities for a two-week graduate and professional short course focusing on the analysis of animal tracking data for 20 international students.

Undergraduate tutor, Animal Behaviour **2014 – 2016**
University of Oxford, Oxford, U.K.

Prepared reading material, assigned and graded essays, and engaged in dynamic academic discourse with undergraduate students according to the Oxford style tutorial system.

Highly Qualified Personnel (HQP) Training

Stefano Mezzini **2021 - Present**
Masters Student, University of British Columbia, Kelowna, Canada
Beginning his MSc research on the relationship between environmental stochasticity and animal movement.

Referee for

Fish and Fisheries, PLoS One, Journal of Zoology, Science of the Total Environment, River Research and Applications, North American Journal of Fisheries Management, Ecological Indicators, BioEssays, Journal of Agricultural, Biological, and Environmental Statistics, and Ethology Ecology and Evolution, Ecology and Evolution, Hydrobiologia.

Editorial Activities

2020 — Present	Review Editor	Frontiers in Conservation Science, Animal Conservation

Community Involvement/Outreach

2016 Public lecture — Shropshire Badger Group, Shrewsbury, Shropshire, U.K.
2016 Public lecture — Mid Derbyshire Badger Group, Cromford, Derbyshire, U.K.
2016 Public lecture — Lancashire Badger Group AGM, Preston, Lancashire, U.K.
2015 Public lecture — Yorkshire Mammal Group, York, Yorkshire, U.K.
2015 Public lecture — Badger Trust Annual Conference, University of Essex, Colchester, U.K.
2014 Public lecture — Suffolk Mammal Conference, Bury St Edmunds, Suffolk, U.K.
2013 Public lecture — Badger Trust Annual Conference, Swanwick, Derbyshire, U.K.
2013 Public lecture — Wiltshire Wildlife Trust, Royal Wootton Basset, Wiltshire, U.K.

Related Experience

Supervisory support of two undergraduate projects, University of Oxford/University of Sheffield and one diploma student, University of Oxford.
Contributing member of the continuous-time movement modeling (`ctmm`) initiative for providing easy access to cutting-edge methods in movement analysis (biology.umd.edu/movement) via open source, user friendly software, including the graphical `ctmm` webapp (ctmm.shinyapps.io/ctmmweb), and the `ctmm R` package (cran.r-project.org/web/packages/ctmm).
Developer of the `R` package (`HRcorrect`), an open access web application that allows users to correct home range estimates for a focal species' mass specific bias. Available at: (hrcorrect.shinyapps.io/HRcorrect).
Provided expertise on statistical modelling at the NSF funded cross-disciplinary workshop: Linking remote animal detection and movement data with macro-system environmental datasets and networks. October 22–23, 2018; Front Royal, VA.
Research Assistant for Prof. James Grant, investigating the effect of climate change on endangered species in Canada, Concordia University, Montreal.
Work featured in the pop science book: Cheshire, J., & Uberti, O. 2017 Where the Animals Go: Tracking Wildlife with Technology in 50 Maps and Graphics. W. W. Norton & Company.

Quantitative Skills

Linear & Generalized Linear Models, Linear & Nonlinear Least Squares, Linear & Nonlinear Quantile Regression, Hierarchical Regression Models (including phylogenetically controlled regression models), Weighted & Generalized Least Squares Regression, Model Selection & Averaging, Experimental Design & ANOVA/ANCOVA, Permutation Tests, Error Propagation, Principal Components Analysis, Random Forest Regression, Survival Analysis, Time-series Methods, Gas-Chromatography–Mass-Spectrometry Data Normalisation, Bootstrapping, Cluster analysis, Discrete-time Markov Chains, Divergence Estimation, Social Network Analysis, Kernel Density Estimation.

Programming and Technical Environments

`R`, `R Shiny`, Git/Github, LaTeX, Bash Shell

Languages

English (C2); French (C1); Portuguese (A1)