

KYLE G. HORTON

Colorado State University

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APPOINTMENTS

Colorado State University	Fort Collins, Colorado
Assistant Professor, Fish, Wildlife, and Conservation Biology	2019–present
Cornell University	Ithaca, New York
Edward Rose Postdoctoral Fellow, Cornell Lab of Ornithology	2017–2019

EDUCATION

University of Oklahoma	Norman, Oklahoma
Ph.D., Ecology and Evolutionary Biology	2014–2017
Dissertation – <i>Using radar to reveal large-scale in-flight behaviors of migratory birds</i> . Advisor: Jeffrey F. Kelly	
University of Delaware	Newark, Delaware
M.S., Wildlife Ecology	2012–2013
Thesis – <i>Examining songbird migration along the Delaware Bay: A comprehensive approach</i> . Advisor: Jeffrey J. Buler	
Canisius College	Buffalo, New York
B.S., Biology	2007–2011

PEER-REVIEWED PUBLICATIONS (47 PUBLICATIONS, 1498 CITATIONS)

47. Deng, Y., M. C. T. Belotti, W. Zhao, Z. Cheng, G. Perez, E. Tielens, V. F. Simons, D. R. Sheldon, S. Maji, J. F. Kelly, and **K. G. Horton**. *In press*. Quantifying long-term phenological patterns of aerial insectivores roosting in the Great Lakes region using weather surveillance radar. *Global Change Biology*. †Graduate student lead author.
46. Haas, E. K., F. A. La Sorte, H. M. McCaslin, M. C. T. Belotti, and **K. G. Horton**. 2022. The correlation between eBird community science and weather surveillance radar-based estimates of migration phenology. *Global Ecology and Biogeography*. 1–12. doi: org/10.1111/geb.13567. †Undergraduate student lead author.
45. Cohen, E. B., J. J. Buler, **K. G. Horton**, S. R. Loss, S. A. Cabrera-Cruz, J. A. Smolinsky, and P. P. Marra. 2022. Using weather radar to help minimize wind energy impacts on nocturnally migrating birds. *Conservation Letters*. 15:e12887: 1–10.
44. La Sorte, F. A., **K. G. Horton**, A. Johnston, D. Fink, and T. Auer. 2022. Seasonal associations with light pollution trends for nocturnally migrating bird populations. *Ecosphere*. 13(6): 1–12.
43. La Sorte, F., M. Aronson, C. Lepczyk, **K. G. Horton**. 2022. Assessing the combined threats of artificial light at night and air pollution for the world’s nocturnally migrating birds. *Global Ecology and Biogeography*.
42. Dezfuli, A., **K. G. Horton**, B. Zuckerberg, S. D. Schubert, and M. G. Bosilovich. 2022. Continental patterns of bird migration linked to climate variability. *Bulletin of the American Meteorological Society*. <https://doi.org/10.1175/BAMS-D-21-0220.1>

41. Clipp, H. L., J. J. Buler, J. A. Smolinsky, **K. G. Horton**, A. Farnsworth, and E. B. Cohen. 2021. Winds aloft over three water bodies influence spring stopover distributions of migrating birds along the Gulf of Mexico coast. *Ornithology*. 138: 1–11.
40. Nilsson, C., F. A. La Sorte, A. Dokter, **K. G. Horton**, B. M. Van Doren, J. J. Kolodzinski, J. Shamoun-Baranes, and A. Farnsworth. 2021. Bird strikes at commercial airports explained by citizen science and weather radar data. *Journal of Applied Ecology*. 58: 2029–2039.
39. Van Doren, B., M., D. E. Willard, M. Hennen, **K. G. Horton**, E. F. Stuber, D. Sheldon, A. H. Sivakumar, J. Wang, A. Farnsworth, and B. M. Winger. 2021. Drivers of fatal bird collisions in an urban center. *PNAS*. 118: 1–8.
38. Sivakumar†, A. H., D. Sheldon, K. Winner, C. S. Burt, and **K. G. Horton**. 2021. A weather surveillance radar view of Alaskan avian migration. *Proceedings of the Royal Society B*. 288: 1–10. Cover article. †High school student lead author.
37. **Horton, K. G.**, B. M. Van Doren, H. J. Albers, A. Farnsworth, and D. Sheldon. 2021. Near-term ecological forecasting for dynamic aeroconservation of migratory birds. *Conservation Biology*. 35: 1777–1786.
36. Elmore, J. A., C. S. Riding, **K. G. Horton**, T. J. O’Connell, A. Farnsworth, and S. R. Loss. 2021. Predicting bird-window collisions with weather radar. *Journal of Applied Ecology*. 58: 1593–1601.
35. La Sorte, F. A., and **K. G. Horton**. 2021. Seasonal variation in the effects of artificial light at night on the occurrence of nocturnally migrating birds in urban areas. *Environmental Pollution*. 270: 1–8.
34. Cohen, E. B., **K. G. Horton**, P. P. Marra, H. L. Clipp, A. Farnsworth, J. A. Smolinsky, D. Sheldon, and J. J. Buler. 2021. A place to land: spatiotemporal drivers of stopover habitat use by migrating birds. *Ecology Letters*. 24: 38–49.
33. Keenan, E. L., K. J. Odom, M. Araya-Salas, **K. G. Horton**, M. Strimas-Mackey, M. A. Meatte, N. I. Mann, P. J. B. Slater, J. J. Price, and C. N. Templeton. 2020. Breeding season length predicts duet coordination and consistency in Neotropical wrens (Troglodytidae). *Proceedings of the Royal Society B*. 287: 1–9.
32. La Sorte, F. A., M. F. J. Aronson, C. A. Lepczyk, and **K. G. Horton**. 2020. Area is the primary correlate of annual and seasonal patterns of avian species richness in urban green spaces. *Landscape and Urban Planning*. 203: 1–10.
31. Covino, K. M., **K. G. Horton**, and S. R. Morris. 2020. Seasonally specific changes in migration phenology across 50 years in the Black-throated Blue Warbler. *Auk*. 1–11.
30. Clipp, H. L., E. B. Cohen, J. A. Smolinsky, **K. G. Horton**, A. Farnsworth, and J. J. Buler. 2020. Broad-Scale Weather Patterns Encountered during Flight Influence Landbird Stopover Distributions. *Remote Sensing*. 12: 1–21.
29. **Horton, K. G.**, F. A. La Sorte, D. Sheldon, T-Y. Lin, K. Winner, G. Bernstein, S. Maji, W. M. Hochachka, and A. Farnsworth. 2020. Phenology of nocturnal avian migration has shifted at the continental scale. *Nature Climate Change*. 10: 63–68. Cover article.
28. Newcombe†, P. B., C. Nilsson, T-Y Lin, K. Winner, G. Bernstein, S. Maji, D. Sheldon, A. Farnsworth, and **K. G. Horton**. 2019. Migratory flight on the Pacific Flyway: strategies and tendencies of wind drift compensation. *Biology Letters*. 15: 1–6. † High school student lead author.

27. Lin, T-Y, K. Winner, G. Bernstein, A. Mittal, A. M. Dokter, **K. G. Horton**, C. Nilsson, B. M. Van Doren, A. Farnsworth, F. A. La Sorte, S. Maji, and D. Sheldon. 2019. Mist-Net: Measuring historical bird migration in the US using archived weather radar data and convolutional neural networks. *Methods in Ecology and Evolution*. 10: 1908–1922.
26. **Horton, K. G.**, C. Nilsson, B. M. Van Doren, A. M. Dokter, and A. Farnsworth. 2019. Bright lights in the big cities: migratory birds' exposure to artificial light at night at a continental scale. *Frontiers in Ecology and the Environment*. 17: 209–214.
25. **Horton, K. G.**, B. M. Van Doren, F. A. La Sorte, E. B. Cohen, H. Clipp, J. J. Buler, D. Fink, J. F. Kelly., and A. Farnsworth. 2019. Holding steady: little change in intensity or timing of bird migration over the Gulf of Mexico. *Global Change Biology*. 25:1–13. Cover article.
24. La Sorte, F. A., **K. G. Horton**, C. Nilsson, and A. M. Dokter. 2018. Projected changes in wind assistance under climate change for nocturnally migrating bird populations. *Global Change Biology*. 25:589–601.
23. Van Doren, B. M. and **K. G. Horton**. 2018. A continental system for forecasting bird migration. *Science*. 361:1115–1118.
22. **Horton, K. G.**, B. M. Van Doren, F. A. La Sorte, D. Fink, D. Sheldon, A. Farnsworth, and J. F. Kelly. 2018. Navigating north: how body mass and winds shape avian flight behaviors across a North American migratory flyway. *Ecology Letters*. 21:1055–1064. Cover article.
21. Tegeler, A. K., **K. G. Horton**, and S. R. Morris. 2018. Is flight calling behavior influenced by age, sex, and/or energetic condition? *Animal Behaviour*. 138:123–129.
20. Nilsson, C., **K. G. Horton**, A. M. Dokter, B. M. Van Doren, and A. Farnsworth. 2018. Aeroecology of a solar eclipse. *Biology Letters*. 14: 1–5. DOI: 10.1098/rsbl.2018.0485.
19. Bauer, S., C. Nilsson, A. Farnsworth, J. F. Kelly, D. Reynolds, A. M. Dokter, J. Krauel, L. Pettersson, **K. G. Horton**, and J. Chapman. 2018. The grand challenges of migration ecology that radar aeroecology can help answer. *Ecography*. DOI: 10.1111/ecog.04083.
18. Van Doren, B. M.*, **K. G. Horton***, H. Klinck, S. B. Elbin, and A. Farnsworth. 2017. High-intensity urban light installation dramatically alters nocturnal bird migration. *PNAS*. 114:11175–11180. *contributed equally to this work.
17. **Horton, K. G.**, B. M. Van Doren, P. M. Stepanian, A. Farnsworth, and J. F. Kelly. 2016. Where in the air? Seasonal habitat use by airborne migrants. *Biology Letters*. 12: 1–5. DOI: 0.1098/rsbl.2016.0591.
16. Stepanian, P. M., **K. G. Horton**, V. M. Melnikov, D. S. Zrnić, and S. A. Gauthreaux Jr. 2016. A biologist's guide to NEXRAD dual-polarization radar products. *Ecosphere*. 7(11):e01539. 10.1002/ecs2.1539.
15. Stepanian, P. M., **K. G. Horton**, D. Hillie, C. E. Wainwright, and J. F. Kelly. 2016. Extending bioacoustic monitoring of nocturnally migrating birds through flight call localization. *Ecology and Evolution*. 6:7039–7046. DOI: 10.1002/ece3.2447.
14. Shamoun-Baranes, J., A. Farnsworth, B. Aelterman, J. A. Alves, K. Azijn, G. Bernstein, S. Branco, P. Desmet, A. M. Dokter, **K. G. Horton**, S. Kelling, J. F. Kelly, H. Leijnse, J. Rong, D. Sheldon, W. Van Den Broeck, J. K. Van Den Meersche, B. M. Van Doren, and H. Van Gasteren. 2016. Innovative visualizations shed light on nocturnal migration. *PLoS ONE*. DOI: 10.1371/journal.pone.0160106.

13. Kelly, J. F., **K. G. Horton**, P. M. Stepanian, K. deBeurs, S. Pletschet, T. Fagin, E. S. Bridge, P. B. Chilson. 2016. Novel measures of continental-scale avian migration phenology related to proximate environmental cues. *Ecosphere*. DOI: 10.1002/ecs2.1434.
12. **Horton, K. G.**, B. M. Van Doren, P. M. Stepanian, A. Farnsworth, and J. F. Kelly. 2016. Seasonal variation in migrant landbird flight strategies. *The Auk*. 133:761–769.
11. Kelly, J. F. and **K. G. Horton**. 2016. Toward predictive macrosystems framework for migration ecology. *Global Ecology and Biogeography*. DOI: 10.1111/geb.12473.
10. **Horton, K. G.**, W. G. Shriver, and J. J. Buler. 2016. An assessment of spatio-temporal relationships between nocturnal bird migration traffic rates and diurnal bird stopover density. *Movement Ecology*. 4:1–10.
9. **Horton, K. G.**, B. M. Van Doren, P. M. Stepanian, W. M. Hochachka, A. Farnsworth, and J. F. Kelly. 2016. Nocturnally migrating songbirds drift when they can and compensate when they must. *Scientific Reports*. 6:1–8.
8. Morris, S. R., **K. G. Horton**, A. K. Tegeler and M. Lanzone. 2016. Characterizing individual flight calling behavior in warblers. *Animal Behaviour*. 114:241–247.
7. Van Doren, B. M., **K. G. Horton**, P. M. Stepanian, D. S. Mizrahi, and A. Farnsworth. 2016. Wind drift explains the reoriented morning flights of songbirds. *Behavioral Ecology*. 1–10.
6. Wainwright, C. E., P. M. Stepanian, and **K. G. Horton**. 2016. The role of the USA Great Plains low-level jet in nocturnal migrant behaviour. *International Journal of Biometeorology*. 1–12.
5. Bridge, E. S., S. M. Pletschet, T. Fagin, P. B. Chilson, **K. G. Horton**, K. Broadfoot, J. F. Kelly. 2016. Continental distribution and persistence of Purple Martin roosts quantified via weather surveillance radar. *Landscape Ecology*. 31:43–53.
4. Stepanian, P. M., and **K. G. Horton**. 2015. Extracting migrant flight orientation profiles using polarimetric radar. *IEEE Transactions on Geoscience and Remote Sensing*. 53:6518–6528.
3. **Horton, K. G.**, P. M. Stepanian, C. E. Wainwright, and A. K. Tegeler. 2015. Influence of atmospheric properties on detection of wood-warbler nocturnal flight calls. *International Journal of Biometeorology*. 59:1385–1394.
2. **Horton, K. G.**, W. G. Shriver, and J. J. Buler. 2015. A comparison of traffic estimates of nocturnal flying animals using radar, thermal imaging, and acoustic recording. *Ecological Applications*. 25:390–401.
1. **Horton, K. G.**, and S. R. Morris. 2012. Estimating mass change of migrant songbirds during stopover: comparison of three different methods. *Journal of Field Ornithology*. 83:411–418.

BOOK CHAPTERS

Kelly, J. F., **K. G. Horton**, P. M. Stepanian, K. deBeurs, S. Pletschet, T. Fagin, E. S. Bridge, P. B. Chilson. 2018. The Pulse of The Planet: Measuring and Interpreting Phenology of Avian Migration. In *Aeroecology*. 401–425. Springer International Publishing.

POPULAR PRESS

La Sorte, F. A. and **K. G. Horton**. 2021. Cities can help migrating birds on their way by planting more trees and turning lights off at night. *The Conversation*.

Farnsworth, A. and **K. G. Horton**. 2018. The deadly lure of city lights. *New York Times Opinion*.

GRANTS AWARDED

2022 Lyda Hill Foundation, subaward (\$50,000)

2022 National Science Foundation, Growing Convergence Research subaward (\$266,000)

2021 National Science Foundation, Growing Convergence Research (\$1,547,064)

2021 National Aeronautics and Space Administration, New (Early Career) Investigator Program (NIP) in Earth science (\$385,733)

2021 National Aeronautics and Space Administration, Biodiversity (\$780,396)

2020 National Science Foundation, Macrosystems Biology and NEON-enabled Science (\$534,135)

2019 American Wind Wildlife Institute (\$21,500)

2017-2019 Edward Rose Postdoctoral Fellowship (\$122,000)

Total \$3,706,828

SELECT PRESENTATIONS

Conference

2022 Modeling avian seasonal stopover distributions across the contiguous United States using weather surveillance radar data. Society for Conservation GIS. Virtual.

2022 Can improved ecological forecasting accelerate sustainability transformation in urban lighting? American Ornithological Society. San Juan, Puerto Rico.

2021 Near-term ecological forecasting for dynamic aeroconservation of migratory birds. American Ornithological Society. Virtual.

2020 Phenology of nocturnal avian migration has shifted at the continental scale. North American Ornithological Conference. Virtual.

2020 Taking the pulse of avian aerial passage in North America. North American Congress for Conservation Biology. Virtual.

2019 Phenology of nocturnal avian migration has shifted at the continental scale. International Aeroecology Radar Conference. Zhengzhou, China.

2019 Bright lights in the big cities: migratory birds' exposure to artificial light. International Aeroecology Radar Conference. Nanjing, China.

2019 Bright lights in the big cities: migratory birds' exposure to artificial light. American Ornithological Society. Anchorage, Alaska. *James G. Cooper Young Professional Award Plenary.

2018 From individuals to macrosystems, understanding how artificial light at night impacts migratory birds. North American Congress for Conservation Biology. Toronto, Ontario.

2018 Shifted phenologies of seasonal avian migration apparent at continental scales. International Ornithological Congress. Vancouver, British Columbia.

2018 Taking the pulse of aerial passage in North America. Ecological Society of America. New Orleans, Louisiana.

Invited

2022 Warnell School of Forestry and Natural Resources, University of Georgia (Virtual)

2022 Audubon Rockies (Virtual)

2022 Evergreen Audubon Society (Virtual)

2022 National Park Service (Virtual)
2021 Aiken Audubon Society (Virtual)
2021 Colorado Field Ornithologists (Virtual)
2021 Denver Audubon Society (Virtual)
2021 Emerging Issues in Conservation, Society for Conservation Biology (Virtual)
2020 Desert Rivers Audubon, Phoenix Arizona (Virtual)
2020 Department of Zoology & Physiology, University of Wyoming, Laramie, WY
2019 British Ornithological Society. Warwick, United Kingdom. Plenary
2019 Georgia Ornithological Society. Tybee, Georgia. Keynote
2018 The College at Brockport. Brockport, New York
2018 Smithsonian Migratory Bird Center. Washington, District of Columbia
2018 Onodaga Audubon Society. Syracuse, New York

TEACHING

Colorado State University

Fall Design of Fish and Wildlife Projects (FW 370)
Spring, Even Years Spatial Ecology (FW 380)
Spring, Odd Years Applications in Landscape Ecology (ECOL 620)

Cornell University

Summer 2019 Taking Flight: An Introduction to the World of Birds

WORKSHOP LECTURES

2022 Ecological forecasting In *Bird Migration & Light Pollution Stakeholders Meeting*. Fort Collins, CO (Organizer).
2022 Introduction to weather radar. In *Radar Aeroecology Training School*. Fort Collins, CO (Organizer).
2020 R for Spatial Data and Statistics. *A workshop offered by the Geospatial Centroid and Warner College faculty*. Fort Collins, CO.
2017-2019 Radar validation and integration. In *Radar Aeroecology Training School*. Norman, OK.
2015 Analysis tools and dual-polarization for biological applications. In *Short Course on Radar Aeroecology*. American Meteorological Society. Norman, OK.
2015 Dual-polarization for biological applications. In *Weather radar ornithology 101*. American Ornithologists' Union and Cooper Ornithological Society. Norman, OK.

AWARDS

2021 Warner College Outstanding Publication Award
2020 Joseph B. Whitehead Educator of Distinction Award – Presented by the Coca-Cola Scholars Foundation and the Joseph B. Whitehead Foundation
2019 James G. Cooper Young Professional Award – American Ornithological Society
2018 Provost's Dissertation Prize – Honorable mention – University of Oklahoma
2017 Best Oral Presentation – American Ornithological Society
2016 Best Oral Presentation – North American Ornithological Conference
2016 Biology Graduate Student Research Award – University of Oklahoma
2015 Best Scientific Mission and Dissemination – European Network for the Radar Surveillance of Animal Movement (ENRAM)
2011 Best Oral Presentation – Cooper Ornithological Society
2011 Highest Achievement in Biology – John Kalb Award for Exemplary Research – Canisius College

PROFESSIONAL MEMBERSHIPS

2011–present American Ornithological Society (Elective Member, 2019)

2012–present Association of Field Ornithologists

2009–present Wilson Ornithological Society

SERVICE

NSF Macrosystems Reviewer

NSF GRFP Reviewer

NSF Ad-hoc Reviewer

NOAA RESTORE ACT Reviewer

DIVERSITY, EQUITY, AND INCLUSION TRAININGS

2021 Understanding Oppression Training

2021 Diversity, Equity and Inclusion Foundations Training

2021 Uncovering Bias Training

2021 Social Construction of Identity

2021 Student Mental Health and Wellbeing: Data and Resources

2020 The History of Black Lives Matter and What it Looks Like Today

2020 Culture and Racial Climate Seminar

2019 Safe Zone Training hosted by the Pride Resource Center