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Education

2016-2021	Ph.D.	University of Colorado Denver Integrative and Systems Biology
2002-2006	B.A.	Colorado College Biology

Relevant Employment

2023-Present	Postdoctoral Research Fellow, University of Michigan
2023	Associate Research Scientist, Yale University
2021-2023	Postdoctoral Associate, Yale University
2010-2022	Owner/Biologist, ClearPath Environmental, LLC
2020-2021	Research Assistant, University of Colorado Denver
2016-2021	Teaching Assistant, University of Colorado Denver
2004-2015 (seasonal)	Research Assistant, Colorado College Department of Biology
2009-2010	Biologist, Natural Resources Consulting/STANTEC
2007-2009	Biologist, ARCADIS U.S.
2003	Teacher Naturalist, Massachusetts Audubon Society

Refereed Publications

- [13] AK Pierce*, **SW Yanco***, MB Wunder. 2024. Migration alters energetic trade-off optimization and shapes life history. In press: *Ecology Letters*
(*shared first authorship)
Preprint available: <https://doi.org/10.1101/2023.09.12.557441>
- [12] Carello, C and **SW Yanco**. 2023. Early successional forests support a unique composition of avian species and are especially important for migratory species. *Journal of Tropical Ecology* 39: e22.

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- [11] Gábor, L., W. Jetz, A. Zarzo-Arias, K. Winner, **S. Yanco**, S. Pinkert, C. J. Marsh, J. Mäkinen, D. Rocchini, V. Barták, S. Sharma, V. Moudrý. 2023. Species distribution models affected by positional uncertainty in species occurrences can still be ecologically interpretable. *Ecography* 2023: e06358
- [10] Contina, A, AK Pierce, **SW Yanco**, ES Bridge, JF Kelly, MB Wunder. 2022. Application of stable isotopes to study movement ecology and diet variation in a migratory songbird. *Journal of Field Ornithology* 93(4):6
- [9] Jetz W, Tertitski G, Kays R, Mueller U, Wikelski M, and Supporting authors [including **SW Yanco**]. 2022. Biological Earth observation with animal sensors. *Trends Ecol. Evol.* 2022;37: 293–298. doi:10.1016/j.tree.2021.11.011
- [8] **Yanco, SW***, AK Pierce*, MB Wunder. 2022. Bioenergetics of seasonality suggests life history diversity in terrestrial animals. *Ecography* 10.1111/ecog.05900.
(*shared first authorship)
- [7] **Yanco, SW**, BD Linkhart, PP Marra, M Mika, M Ciaglo, A Carver, MB Wunder. 2021. Niche dynamics suggest ecological factors influencing migration in an insectivorous owl. *Ecology* 10.1002/ecy.3617
Press Coverage: [National Audubon Society](#)
- [6] Ciaglo, M[†], R Calhoun[†], **SW Yanco**, C Stricker, M Wunder, B Linkhart. 2020. Evidence of fall prospecting in a long-distance migrant. *Ecology and Evolution* 11: 599-611
([†]student mentees)
- [5] Contina, A, **SW Yanco**, AK Pierce, M DePrenger-Levin, MB Wunder, AM Neophytou, CP Lostroh, BM Benito, J Chipperfield, RB O’Hara, CJ Carlson. 2020. Comment on “A global-scale ecological niche model to predict SARS-CoV-2 coronavirus infection rate”, author Coro. *Ecological Modelling* 436: 109288
- [4] **Yanco, SW**, A. McDevitt, C. Trueman, L Hartley, and MB Wunder. 2020. A modern method of multiple working hypotheses to improve inference in ecology. *R. Soc. open sci.* 7200231
- [3] **Yanco, SW** and BD Linkhart. 2018. Changing fire regimes and faunal responses: Post-burn habitat use by Flammulated Owls in Colorado. *In:* Shuford, WD, Gill, RE Jr., and Handel CM, eds. *Trends and Traditions: Avifaunal Change in Western North America*. Studies of Western Birds 3. Western Field Ornithologists, Camarillo, CA. (invited paper)
Press Coverage: [The Wren](#)
- [2] Linkhart, BD, JW Fox, and **SW Yanco**. 2016. Migration timing and routes, and wintering areas of Flammulated Owls. *Journal of Field Ornithology* 87 (1): 42-54.
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[1] Linkhart, BD, EM Evers, JD Megler, EC Palm, CM Salipante, and **SW Yanco**. 2008. First observed instance of polygyny in Flammulated Owls. *Wilson Journal of Ornithology* 120 (3): 645-648.

Preprints and Manuscripts In Review

Yanco, SW, RY Oliver, F Iannarilli, G Heine, I Pokrovsky, U Mueller, N Richter, B Vorneweg, Y Andryushchenko, El Ilyashenko, VY Ilyashenko, EA Mudrik, AE Gavrilov, OA Goroshko, N Batbayar, B Galtbalt, S Sherub, T Sukhbaatar, T Natsagdorj, W Jetz, M Wikelski. Migratory birds modulate niche tradeoffs in rhythm with seasons and life history. In review: PNAS

Linek, N*, **SW Yanco***, T Volkmer, M Wikelski, and J Partecke. Migratory lifestyle carries no energy cost in songbirds. In review: Nature Ecology & Evolution.
(*shared first authorship)

Parker, T., H. Fraser, S. Nakagawa, E. Gould, S. Griffith, P. Vesk, F. Fidler and 200+ co-authors in alphabetical order, including **S. Yanco**. (Stage 1 Registered Report, passed peer review and granted in-principle acceptance March 2020) Same data, different analysts: variation in effect sizes due to analytical decisions in ecology and evolutionary biology. BMC Biology.

https://springernature.figshare.com/registered-reports_bmcb

Preprint available: <https://ecoevorxiv.org/repository/view/6000/>

Press Coverage: [Nature](#)

Wikelski, M, M Quetting, J Bates, T Berger-Wolf, G Bohrer, L Börger, T Chapple, MC Crofoot, SC Davidson, DKN Dechmann, D Ellis-Soto, ER Ellwood, W Fiedler, A Flack, B Fruth, N Franconi, RW Havmøller, J Hirt, N Hussey, F Iannarilli, M Landwehr, ME Müller, T Müller, U Müller, R Oliver, J Partecke, L Pokrovskaya, DR Rubenstein, C Rutz, K Safi, A Santangeli, L van Schalkwyk, A Sequeira, T Ramesh, P Viljoen, KA Wasik, **SW Yanco**, and R Kays. Introducing a Unique Animal ID and Digital Life History Museum for Wildlife Data. In review: Methods in Ecology and Evolution.

Other Publications

Yanco, SW. 2022. Small grants like DFO's increase fair access for students to do vital avian research. *Lark Bunting* 58 (1): 22-23.

Yanco, SW. 2021. South for the winter: the basics of fall migration. *Colorado Birds* 55 (4): 213-217

Yanco, SW, ER Pansing, AK Pierce, MB. Wunder. Better models make for softer landings: A comment on Yeh et al. 2019. *BMJ Rapid Response* to Yeh et al. *BMJ* 2018;363:k5094.

Michonneau et al. [including **S. Yanco**] 2019. datacarpentry/R-ecology-lesson: Data Carpentry: Data Analysis and Visualization in R for Ecologists, June 2019. doi: [10.5281/zenodo.3264888](https://doi.org/10.5281/zenodo.3264888), <http://datacarpentry.org/R-ecology-lesson/>.

Yanco, SW and Pansing, E. 2018. Everything is a model. *Rapid Ecology*. URL: <https://rapidecology.com/2018/09/05/everything-is-a-model/>

Yanco, SW. 2018. How a tiny migratory owl can teach us about the changing role of fire in the American west. *The Lark Bunting* 54 (5).

Grants

Thirteen grants awarded, total: \$696,507

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|------|-----------|--|
| 2023 | \$316,521 | Enhancing our understanding of Kirtland's Warbler population dynamics through improved parameter estimation and use of a full-annual-cycle integrated population model
<i>U.S. FWS, Great Lakes Fish and Wildlife Restoration Act</i>
Role: Co-PI |
| 2021 | \$83,368 | Documenting post-breeding survival of Kirtland's Warblers to inform a full annual cycle integrated population model
<i>U.S. FWS, Upper Mississippi/Great Lakes Joint Venture</i>
Role: Key Personnel |
| 2020 | \$2,000 | Drivers of flammulated owl movement behaviors in Colorado
<i>Denver Field Ornithologists</i>
Role: PI |
| 2020 | \$1,500 | Ecological drivers of multi-scale movements in a sensitive raptor.
<i>Colorado Field Ornithologists</i>
Role: PI |
| 2019 | \$2,000 | Drivers of flammulated owl movement behaviors in southern Colorado
<i>Denver Field Ornithologists</i>
Role: PI |
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2019	\$114,736	<p>Assessing influences of prescribed fire within the Hot Creek RNA on the demography, movement patterns, and habitat use of Flammulated Owls.</p> <p><i>Challenge Cost Share between U.S. Forest Service and Colorado College.</i></p> <p>Role: Site manager</p>
2019	\$1,000	<p>Proximate ecological drivers of habitat selection behavior by a sensitive raptor.</p> <p><i>Colorado Field Ornithologists</i></p> <p>Role: PI</p>
2019	\$9,600	<p>Migratory connectivity of Flammulated Owls.</p> <p><i>Migratory Connectivity Project, Smithsonian Conservation Biology Institute (in-kind valuation)</i></p> <p>Role: PI</p>
2018	\$1,000	<p>Multi-scale habitat selection behavior by a sensitive raptor following prescribed fire.</p> <p><i>Colorado Field Ornithologists</i></p> <p>Role: PI</p>
2018	\$1,500	<p>Multi-scale avian habitat selection: detecting process from pattern.</p> <p><i>Denver Field Ornithologists</i></p> <p>Role: PI</p>
2018	\$6,000	<p>Migratory routes and timing of Flammulated Owls.</p> <p><i>Migratory Connectivity Project, Smithsonian Conservation Biology Institute (in-kind valuation)</i></p> <p>Role: PI</p>
2017	\$2,100	<p>Spatially dynamic habitat selection in Flammulated Owls.</p> <p><i>Denver Field Ornithologists</i></p> <p>Role: PI</p>
2015	\$147,682	<p>Assessing influences of prescribed fire within the Hot Creek RNA on the demography, movement patterns, and habitat use of Flammulated Owls.</p> <p><i>Challenge Cost Share between U.S. Forest Service and Colorado College.</i></p> <p>Role: Site manager</p>

2007 \$7,500 Territory size and habitat use by Flammulated Owls in a recently burned Forest
U.S. Forest Service
Role: Co-investigator

Software Authored

GitHub: <https://github.com/syanco>

pinpointreadR R Package: Convenience functions for reading Lotek PinPoint GPS tag data into R. Available at:
<https://github.com/syanco/pinpointreadR>

checkyourself R Package: Functions to run simple individual-based simulation models in spatial ecology. Available at
<https://github.com/syanco/checkyourself>

Invited Presentations, Workshops, and Other Lectures

SW Yanco, NW Cooper, PP Marra. *Survival Debt: Kirtland's Warblers pay the costs of winter conditions during migration and breeding*. American Ornithological Society – Society of Canadian Ornithologists Joint Meeting. London, Ontario, Canada, August 8-12, 2023.

NW Cooper, B Dossman, S Mackenzie, A Smith, C Tonra, and **SW Yanco**. Session Organizer: *Automating ornithology: Advancing our understanding of avian ecology through automated radio telemetry*. American Ornithological Society – Society of Canadian Ornithologists Joint Meeting. London, Ontario, Canada, August 8-12, 2023.

Yanco, SW. *Fitness in dynamic environments: movement and the pace of life*. Smithsonian Conservation Biology Institute and National Zoo Invited Seminar. Washington, D.C. 02/07/2023

Yanco, SW & RY Oliver. Session Organizer: *Organized Oral Session: An individual eye on a global problem: Unique insights from animal tracking on biodiversity responses to climatic change*. Ecological Society of America Annual Meeting 08/16/2022 Montreal, Quebec, Canada.

Yanco, SW. *Dynamic environments, migration, and the pace of life: exploring the causes and consequences of animal movement*. Yale Institute for Biospheric Studies, Invited Seminar. New Haven, CT (04/08/2022)

Yanco, SW, BL Linkhart, PP Marra, MB Wunder. *Niche dynamics and ecological drivers of migration in an insectivorous owl*. Invited oral presentation to symposium: "Making the most of Disparate Data to Map Opportunities for Migratory Bird

Conservation” at North American Ornithological Conference VII (virtual)
(8/15/2020)

❖ *Won A. Brazier Howell award for “best presentation on any topic”*

Yanco, SW. *Fire, Snow, and the Red Queen: how Flammulated Owls cope with environmental change.* Colorado Field Ornithologists Virtual Annual Meeting. (07/25/2020)

Yanco, SW. *Change is hard: animal movement strategies in variable environments.* University of Colorado, Colorado Springs. (12/9/2019)

Yanco, SW and A Pierce. *Introduction to Occupancy Modeling.* Workshop presented at XVII Congreso para el estudio y conservacion de las aves en México. (8/31/2019-9/1/2019)

Yanco, SW. 2019. *Flammulated Owl Research at the Hot Creek Research Natural Area.* Presented to the Rio Grande National Forest Leadership Team Meeting. Monte Vista, CO (2/14/2019)

Yanco, SW. 2019. *SeminR: Introduction to R.* University of Colorado Denver, Denver, CO. (1/29/2019)

Contributed Presentations (*presenting author listed first or denoted by**)

SW Yanco, R Oliver, F Iannarilli, Data Providers, M Wikelski, W Jetz. *Migrant cranes modulate niche tradeoffs in rhythm with seasons and life history.* Contributed poster presentation to the 2023 Gordon Research Conference, Movement Ecology of Animals, Barga, Italy. May 29 – June 2, 2023.

Oliver, RY[‡], **SW Yanco**^{*‡}, D Ellis-Soto[‡], B Jesmer, W Jetz. *The COVID-19 anthropause reveals mechanisms of human impacts on animal movement.* Contributed oral presentation to the 2022 Ecological Society of America Annual Meeting, Montreal, Quebec, Canada, August 14-19, 2022.

SW Yanco[‡], AK Pierce[‡], MB Wunder. *Life history diversity in terrestrial animals is associated with metabolic response to seasonally fluctuating resources.* Contributed poster presentation to Ecology Across Borders, Joint Annual Meeting of the British Ecological Society and the French Society for Ecology and Evolution. December 12-15, Liverpool, UK (virtual). (originally accepted as oral presentation, converted due to COVID-19)

Carello, C, **SW Yanco**^{*}, S Way. *Bird community dynamics across a successional gradient in a tropical wet forest.* Contributed poster presentation to North American Ornithological Conference VII. August 10-15, 2020 (virtual).

Yanco, SW, BD Linkhart, M Micah, A Carver, M Ciaglo, P Marra, MB. Wunder. 2019. *Towards a full annual biogeography of the flammulated owl.* Contributed oral

- presentation to the Raptor Research Foundation Annual Conference, November 5-10, 2019, Fort Collins, CO.
- Linkhart, BD, **SW Yanco**, J Fox. *Migratory Pathways, Stopover Locations, and Wintering Destinations of Flammulated Owls Breeding in Colorado*. Contributed oral presentation to the 137th state meeting of the American Ornithological Society, Anchorage, AK, June 24-28, 2019.
- Yanco, SW**, A Pierce, MB Wunder. *Using genetic algorithms and agent-based models to explore landscapes and life histories which give rise to migration*. Contributed poster presented at Movement Ecology of Animals Gordon Research Conference. Lucca (Barga), Italy, March 2-8, 2019.
- Yanco, SW**, AL McDevitt, LM Hartley, BD Linkhart, and MB Wunder. *Check yourself: using agent-based models to test the logic of hypotheses*. Contributed oral presentation to 2018 Ecological Society of America Annual Meeting, New Orleans, LA, August 5-10, 2018.
- Yanco, SW**, BD Linkhart, and MB Wunder. *Home-range scale habitat selection patterns do not necessarily imply home-range scale decisions*. Contributed oral presentation to the 136th state meeting of the American Ornithological Society, Tucson, AZ, April 9-14, 2018.
- Yanco, SW**, A McDevitt, L Hartley, and MB Wunder. *Non-inferential approaches to agent-based modeling*. Contributed oral presentation to the 24th annual Front Range Student Ecology Symposium, Fort Collins, CO, February 13-15, 2018.
- Yanco, SW** and BD Linkhart. *Scale-dependent habitat selection by a sensitive forest raptor following wildfire*. Contributed oral presentation to the 23rd annual Front Range Student Ecology Symposium, Fort Collins, CO, February 22-23, 2017.
- Yanco, SW** and BD Linkhart. *Habitat selection by breeding Flammulated Owls in a post-fire environment*. Invited oral presentation to the 39th annual conference of the Western Field Ornithologists, San Diego, CA, October 8-12, 2014.
- Yanco, SW** and BD Linkhart. *Home-range and habitat use by Flammulated Owls (*Otus flammeolus*) following a large-scale forest fire in central Colorado*. Contributed poster presented at the 130th stated meeting of the American Ornithologists Union, Vancouver, BC, August 14-18, 2012.
- Yanco, SW**, BD Linkhart and RT Reynolds. *Nest habitat characteristics of Flammulated Owls (*Otus flammeolus*) in Colorado*. Contributed oral presentation to the 128th stated meeting of the American Ornithologists Union, San Diego, CA, February 9, 2010.
- Yanco, SW** and BD Linkhart. 2008. *Nest site selection by Flammulated Owls (*Otus flammeolus*) in a post-fire environment in Colorado*. Contributed poster
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2016-2021	Teaching Assistant BIOL 6764 Biological Data Analysis BIOL 3763 Biostatistics BIOL 1500 Basic Biology: Cells to Organisms	University of Colorado Denver
2020	Guest Lecturer BIO 4280 Ornithology	Metropolitan State University of Denver
2018	Guest Lecturer BIOL 3763 Biostatistics <i>The Central Limit Theorem</i>	University of Colorado Denver

Academic Service

Invited Reviewer *Movement Ecology, Basic and Applied Ecology, Scientific Reports, Ecology, eLife, Global Ecology and Biogeography, Frontiers in Ecology and the Environment, PLoSOne, Oecologia, Condor: Ornithological Applications, Journal of Experimental Marine Biology, Journal of Raptor Research, Avian Conservation & Ecology, Ornithology, Ecological Indicators, Journal of Avian Biology, Royal Society Open Science*

Guest Editor *eLife*

Board Member International Bio-Logging Society, COVID-19 Initiative Steering Committee

Board Member Center for Biodiversity and Global Change Seminar Committee

Board Member 2023 Gordon Research Seminar on Movement Ecology of Animals, Program Committee

Panelist "Interacting with your invisible audience", American Ornithological Society

Founder and organizer University of Colorado, Department of Integrative Biology Graduate Student Seminar Series.

Organizer University of Colorado Denver, Department of Integrative Biology Ecology and Evolutionary Biology Journal Club

Representative University of Colorado Denver, Department of Integrative Biology Space and Facilities Use Committee