

# BENJAMIN G. FREEMAN

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## CURRENT APPOINTMENT

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Assistant Professor, Elizabeth Smithgall-Watts Endowed Faculty      **2023 – Present**  
Georgia Institute of Technology

## PAST APPOINTMENTS

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Banting / Biodiversity Research Centre / NSF Postdoctoral Fellow      **2016 - 2022**  
University of British Columbia  
*Supervisor: Dr. Dolph Schluter*

## EDUCATION

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PhD      Cornell University, Dept. Ecology and Evolutionary Biology      **2010 - 2016**  
*Advisor: Dr. John Fitzpatrick*

BA      Macalester College      **2002 - 2006**  
*Advisor: Dr. Mark Davis*

## PUBLICATIONS

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**Author** indicates undergraduate advisee; **Author** indicates graduate advisee

- **2023** -

59. Reijenga BR, **Freeman BG**, DJ Murrell & AL Pigot. Disentangling the historical routes to community assembly in the global epicentre of biodiversity. **Global Ecology and Biogeography** 77: 26-35.

58. **Freeman BG**, **GA Montgomery**, **J Heavyside**, AE Moncrieff, O Johnson, BM Winger. On the predictability of phenotypic divergence in geographic isolation. **Evolution** 77: 26-35.

57. **Lau GCF**, AM Class Freeman, P Pulgarín-R, CD Cadena, RE Ricklefs & **BG Freeman**. Phylogeny and elevation predict infection by avian haemosporidians in a diverse New Guinean bird community. **Journal of Biogeography** 50: 23-31.

56. **Freeman BG**, M Strimas-Mackey & ET Miller. Response to comment on “Interspecific competition limits bird species’ ranges in tropical mountains”. **Science** 379: eade8043.

- 2022 -

55. **Freeman BG**, M Strimas-Mackey & ET Miller. Interspecific competition limits bird species' ranges in tropical mountains. **Science** 377: 416-420.

- Why do tropical birds live in narrow slices of mountainside? We find that elevational range sizes are explained more by interspecific competition than by climate. Lots going on in this paper, which is over a decade in the making.

54. **Freeman BG**, T Weeks, D Schluter & JA Tobias. The latitudinal gradient in rates of evolution for bird beaks, a species interaction trait. **Ecology Letters**.

- Where is evolution the fastest? It turns out the answer is the temperate zone, not in the species-rich tropics, casting doubt on hypotheses to explain species richness gradients that invoke faster evolution in the tropics.

53. Tobias JA et al. (115 authors including **BG Freeman**). AVONET: morphological, ecological and geographic data for all birds. **Ecology Letters**.

52. **Freeman BG**, J Rolland, **GA Montgomery** & D Schluter. Faster evolution of a pre-mating reproductive barrier is not associated with faster speciation rates in New World passerine birds. **Proceedings B** 289: 20211514

51. Pujolar JM et al. (16 authors including **BG Freeman**). The formation of avian montane diversity across barriers and along elevational gradients. **Nature Communications** 13: 268.

- 2021 -

50. Linck E, **BG Freeman**, CD Cadena & CK Ghalambor. Evolutionary conservatism will limit responses to climate change in the tropics. **Biology Letters** 17: 20210363.

49. **Freeman BG** & M Pennell. The latitudinal taxonomy gradient. **Trends in Ecology and Evolution** 36: 778-786.

48. **Freeman BG**, Y Song, KJ Feeley & K Zhu. Montane species track rising temperatures better in the tropics. **Ecology Letters** 24: 1697-1708.

- Biogeography predicts how montane species are changing their elevational ranges as temperatures rise. Species are on the move in the tropics but not the temperate zone; the "escalator to extinction" runs faster in the tropics.

47. Srivastava D, et al. (23 authors including **BG Freeman**). Wildcards in climate change biology. **Ecological Monographs** 91: e01471.

- 2020 -

46. Linck E, **BG Freeman** & JP Dumbacher. Speciation and gene flow across an elevational gradient in New Guinea kingfishers. **Journal of Evolutionary Biology** 33: 1643-1652.

45. **Freeman BG**, [MN Scholer](#), [MAM Boehm](#), [J Heavyside](#) & D Schluter. Adaptation and latitudinal gradients in species interactions: nest predation in birds. **American Naturalist** 196: E000.

- Species interactions are often thought to be stronger in the tropics, but adaptation to strong interactions could dampen this pattern. Here we provide an example of how adaptation flattens the latitudinal gradient in nest predation.

44. Roesti M, **BG Freeman** et al. Pelagic fish predation is stronger at temperate latitudes than near the equator. **Nature Communications** 11: 1527.  
*Press coverage in New Scientist, Cosmos Magazine, etc.*

43. Pigot AL, C Sheard, ET Miller, TP Bregman, **BG Freeman**, U Roll, N Seddon, CH Trisos, D Swindlehurst, BC Weeks, JA Tobias. Macroevolutionary convergence connects morphological form to ecological function in birds. **Nature Ecology & Evolution** 4: 230-239.

42. **Freeman BG**. Lower elevation animal species do not tend to be better competitors than their upper elevation relatives. **Global Ecology and Biogeography** 29: 171-181.

### - 2019 -

41. **Freeman BG**, JA Tobias & D Schluter. Behavior influences range limits and patterns of coexistence across an elevational gradient in tropical bird diversity. **Ecography** 42 1832-1840.

- Competition can explain why related species live in different elevational zones. Here we show that behavior is key: territorial behavior explains which closely related species live side by side and which live in separate elevational zones.

40. Miller ET, GM Leighton, **BG Freeman**, AC Lees & RA Ligon. Climate, habitat, and geographic range overlap drive plumage evolution and mimicry in woodpeckers. **Nature Communications** 10: 1602.  
*Press coverage in All About Birds, Cornell Chronicle, etc.*

39. **Freeman BG**. No evidence for a positive correlation between abundance and range size in birds along a New Guinean elevational gradient. **Emu: Austral Ornithology** 119: 308-316.

### - 2018 -

38. **Freeman BG**, [MN Scholer](#), V Ruiz-Gutierrez & JW Fitzpatrick. Climate change causes mountaintop extirpations in a tropical bird community. **Proceedings of the National Academy of Sciences** 115: 11982-11987.

*Press coverage in The Atlantic, New York Times, Washington Post, BBC, CBC, Yale e360, etc (>250 popular articles); recommended by Faculty of 1000*

- Peruvian birds that formerly lived at the mountaintop have disappeared as a consequence of warming-driven upslope shifts. This is the first evidence that climate change is causing local extinctions in high-elevation communities.

37. **Freeman BG**, JA Lee-Yaw, J Sunday & AL Hargreaves. Expanding, shifting and shrinking: The impact of global warming on species' elevational distributions. **Global Ecology and Biogeography** 27: 1268-1276.

*Press coverage in The Vancouver Sun and others*

- Globally, high elevation species are shrinking in distributional size as a consequence of warming-driven upslope shifts - the first global-scale evidence that high elevation species are already being threatened by climate change.

36. **Gulson-Castillo ER**, HF Greeney & **BG Freeman**. Cooperative misdirection: a probable anti-nest predation behavior that is widespread in Neotropical birds. **Wilson Journal of Ornithology** 130: 583-590.

35. **Freeman BG** & ET Miller. Why do crows attack ravens? The roles of predation threat, resource competition and social behavior. **The Auk: Ornithological Advances** 135: 857-867.

*Press coverage in Gizmodo, Quartz, CBC Vancouver, and several others, including many radio interviews – people love crows!*

34. **Freeman BG** & BM Beehler. Limited support for the “abundant center” hypothesis in birds along a tropical elevational gradient: implications for the fate of lowland species in a warmer future. **Journal of Biogeography** 45: 1884-1895.

33. **Montgomery, GA**, F Spooner & **BG Freeman**. Apparent cooperative breeding at a nest of the Silvery-throated Jay (*Cyanolyca argenticula*) and first nest description. **Wilson Journal of Ornithology** 130: 543-547.

32. **Van Doren, BM**, **BG Freeman**, N Aristizabal, M Alvarez-R, J Perez-Eman, AM Cuervo & GA Bravo. Species limits in the Rusty-breasted Antpitta (*Grallaricula ferruginepectus*) complex. **Wilson Journal of Ornithology** 130: 152-167.

- 2017 -

31. Miller ET, DN Bonter, C Eldermire, **BG Freeman**, EI Greig, LJ Harmon, C Lisle & WM Hochachka. Fighting over food unites the birds of North America in a continental dominance hierarchy. **Behavioral Ecology** 28: 1454-1463.

*Press coverage in All About Birds and others*

30. **Freeman BG** & **GA Montgomery**. Using song playback experiments to measure species recognition between allopatric populations in Neotropical passerine birds: a

comparison with acoustic trait analyses. **The Auk: Ornithological Advances** 134: 857-870.

*Press coverage in Discover Magazine and others*

- We provide experimental evidence that species-level diversity in Neotropical birds is drastically underestimated, with 20+ cases where additional species should be recognized.

29. **Freeman BG**, **GA Montgomery** & D Schluter. Evolution and plasticity: Divergence of song discrimination is faster in birds with innate song than in song learners. **Evolution** 71: 2230-2242.

- There is a “downside to learning” for divergence and speciation: learning increases variation within populations, which makes it more difficult for related populations to diverge from one another. This contrasts with the general expectation that plasticity/learning speeds up evolution and speciation.

28. **Freeman BG**. Little evidence for Bergmann’s Rule body size clines in passerines along tropical elevational gradients. **Journal of Biogeography** 44: 502-510.

### - 2016 -

27. **Crisologo TH**, **RB Rumelt**, **E Sibbald** & **BG Freeman**. Observations on a secondary cavity nest of Yellow-crowned Euphonia (*Euphonia luteicapilla*). **Cotinga** 38: 79-81.

26. **Freeman BG**, AM Class Freeman & W Hochachka. Asymmetric interspecific aggression in New Guinean songbirds that replace one another along an elevational gradient. **Ibis** 158: 726-737.

25. **Freeman BG**. Thermal tolerances to cold do not predict upper elevational limits in New Guinean montane birds. **Diversity and Distributions** 22: 309-317.

24. **Freeman BG**. Strong asymmetric interspecific aggression between two sympatric New Guinean robins. **Ibis** 158: 75-81.

23. **Freeman BG** & **G Montgomery**. Interspecific aggression by Swainson’s Thrush (*Catharus ustulatus*) may limit the distribution of the threatened Bicknell’s Thrush (*Catharus bicknelli*) in the Adirondack Mountains. **The Condor: Ornithological Applications** 118: 169-178.

### - 2015 -

22. **Pegan TM**, **RB Rumelt**, **S Dzielski**, **MM Ferraro**, **LE Flesher**, **N Young**, AM Class Freeman & **BG Freeman**. Asymmetric response of Costa Rican White-breasted Wood-Wrens (*Henicorhina leucosticta*) to vocalizations from allopatric populations. **PLoS ONE** 10: e0144949.

*Press coverage in All About Birds*

21. **Freeman BG**. Competitive interactions drive elevational divergence in tropical montane birds. **The American Naturalist** 186: 470-479.

- Interspecific competition drives community assembly of tropical montane birds in similar ways in each of three continents.

20. **Freeman BG & NA Mason**. The Geographic Distribution of a Tropical Montane Bird is Limited by a Tree: Acorn Woodpeckers (*Melanerpes formicivorus*) and Colombian Oaks (*Quercus humboldtii*) in the Northern Andes. **PLoS ONE** 10: e0128675.

19. Boyce A#, **BG Freeman#**, AE Mitchell & TE Martin. Clutch size declines with elevation in tropical birds. **The Auk: Ornithological Advances** 132: 424-432.

# Both authors contributed equally

- 2014 -

18. **Freeman BG & NA Mason**. New Guinean birds have globally small clutch sizes. **Emu – Austral Ornithology** 114: 304-308.

17. **Freeman BG & AM Class Freeman**. Rapid upslope shifts in New Guinean birds illustrate strong distributional responses of tropical montane species to global warming. **Proceedings of the National Academy of Sciences** 111: 4490-4494.

*Press coverage in MongaBay, All About Birds and several others*

16. **Freeman, BG & A. M. Class Freeman**. The avifauna of Mt. Karimui, Chimbu Province, Papua New Guinea, including evidence for long-term population dynamics in undisturbed tropical forest. **Bulletin of the British Ornithologists' Club** 134: 30-51.

15. **Freeman, BG**. Sexual niche partitioning in two species of New Guinean *Pachycephala* whistlers. **Journal of Field Ornithology** 85: 23-30.

- 2008-2013 -

14. **Freeman BG**, AM Class, J Mandeville, S Tomassi & B Beehler. 2013. Ornithological survey of the mountains of the Huon Peninsula, Papua New Guinea. **Bulletin of the British Ornithologists' Club** 133: 4-18.

13. **Freeman BG**, AM Class, CA Olaciregui & E Botero-Delgadillo. 2012. Breeding biology of the Blue-naped Chlorophonia (*Chlorophonia cyanea*) on Santa Marta Mountain. **Ornitología Colombiana** 12: 10-16.

12. **Freeman BG & JA Arango**. 2012. The nest and egg of the Empress Brilliant (*Heliodoxa imperatrix*) in Western Colombia. **Boletín SAO** 20: 67-71.

11. **Freeman BG**, SL Hilty, D Calderón-F, T Ellery & LE Urueña. 2012. New and noteworthy bird records from central and northern Colombia. **Cotinga** 34: 5-16.

10. Greeney HF, PR Martin, RA Gelis, A Solano-Ugalde, F Bonier, **BG Freeman** & ET Miller. 2011. Notes on the breeding of high Andean birds in northern Ecuador. **Bulletin of the British Ornithologists' Club** 131: 24-31.
9. Greeney HF, B Suson, RA Gelis, **BG Freeman** & ET Miller. 2011. The nest and eggs of Yellow-throated Bush Tanager *Chlorospingus flavigularis*. **Cotinga** 33: 83-84.
8. **Freeman BG** & JA Arango. 2010. The nest of the Gold-ringed Tanager (*Bangsia aureocincta*), a Colombian endemic. **Ornitología Colombiana** 9: 71-75.
7. Jahn AE, DJ Levey, IP Faria, AM Mamani, Q Vidoz & **BG Freeman**. 2010. Morphological and genetic variation between migratory and non-migratory Tropical Kingbirds during spring migration in central South America. **Wilson Journal of Ornithology** 122: 236-243.
6. **Freeman BG** & CJ Rojas. 2010. The nest and egg of Cinnamon Screech-Owl *Megascops petersoni* in central Colombia. **Cotinga** 32: 107.
5. **Freeman BG** & HF Greeney. 2009. Parental care of the Black-capped Tanager (*Tangara heinei*) in northeastern Ecuador. **Boletín SAO** 19(2): 32-37.
4. Morales-Rozo A, E Rodríguez Ortiz, CD Cadena & **BG Freeman**. 2009. Notas sobre el nido y los pichones del Abanico Colombiano *Myioborus flavivertex*: Parulidae. **Ornitología Neotropical** 20: 19-26.
3. **Freeman BG** & HF Greeney. 2008. Parental care of the Long-tailed Tapaculo (*Scytalopus micropterus*) in northeastern Ecuador. **Ornitología Neotropical** 19: 581-585.
2. **Freeman BG** & HF Greeney. 2008. First description of the nest and eggs of Sharpe's Wren (*Cinnycerthia olivascens*). **Ornitología Colombiana**: 88-92.
1. Greeney HF, **BG Freeman**, KC Sheldon, RC Dobbs & RA Gelis. 2008. Notes on the nest architecture and nesting biology of Black-capped Tanager (*Tangara heinei*) in northeastern Ecuador. **Boletín SAO** 18(1).

## BOOKS

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Cooper M & **BG Freeman**. 2012. Aves en Colombia. Villegas Editores: Bogotá, Colombia.

## NON-REVIEWED PUBLICATIONS

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**Freeman BG** & A Class Freeman. 2015. Book Review of *Birds of New Guinea: Second Edition*. **Emu – Austral Ornithology** 115: 86-87.

**Freeman BG & AM Class Freeman.** 2014. Reply to Rehm: Why rates of upslope shifts in tropical species vary is an open question. **Proceedings of the National Academy of Sciences** 111: E1677-E1677.

## TEACHING EXPERIENCE

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<b>2022</b>	Ecology (GT)	Instructor of Record
<b>2022</b>	Evolutionary Ecology (UBC)	Instructor of Record
<b>2022</b>	Biostatistics (UBC)	Instructor of Record
<b>2020</b>	Evolutionary Ecology (UBC)	Instructor of Record
<b>2020</b>	Biostatistics (UBC)	Instructor of Record
<b>2015</b>	Advanced Tropical Field Ornithology (Cornell)	Instructor of Record
<b>2014</b>	Avian Vocalizations Seminar (Cornell)	Instructor of Record

**Guest lecturer:** Charles Sturt University, University of Miami (x2), Princess Margaret Secondary School (Surrey BC), University of Florida, Quest University (x2), Ornithology (UBC x2), Conservation Agriculture and Biodiversity Monitoring (UBC x2), Stratford Hall High School (Vancouver BC), Radford College, Cornell University (x3)

## UNDERGRADUATE MENTORING

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Rayyan Saiyed (UBC)

Geoff Lau (UBC)

Lau et al. 2023 Journal of Biogeography

Else Mikkelsen (UBC)

Mikkelsen & Freeman (*in prep*)

Julian Heavyside (UBC)

Freeman et al. 2023 Evolution

Alex Wiebe (Cornell)

Benjamin Van Doren (Cornell)

Van Doren et al. 2018 Wilson J Ornithology

Teresa Pegan (Cornell)

Pegan et al. 2015 PLOS ONE

Taylor Crisologo (Cornell)

Crisologo et al. 2016 Cotinga

Reid Rumelt (Cornell)

second author, Pegan et al. 2015 PLOS ONE  
co-author, Crisologo et al. 2016 Cotinga

Eric Gulson-Castillo (Cornell)

Gulson-Castillo et al. 2018 Wilson J Ornithology

Eric Sibbald (Cornell)

co-author, Crisologo et al. 2016 Cotinga

Lauren Flesher (Cornell)

co-author, Pegan et al. 2015 PLOS ONE

Mary Margaret Ferraro (Cornell)

co-author, Pegan et al. 2015 PLOS ONE

Sarah Dzielski (Cornell)

co-author, Pegan et al. 2015 PLOS ONE

Nathaniel Young (Cornell)

co-author, Pegan et al. 2015 PLOS ONE



Graham Montgomery (Cornell) Freeman & Montgomery 2015 Condor  
 Freeman, Montgomery & Schluter 2017 Evolution  
 Freeman & Montgomery 2017 The Auk  
 Montgomery et al. 2018 Wilson J Ornithology  
 Freeman et al. 2022 Proceedings B  
 Freeman et al. 2023 Evolution

Omyia Damaj (Cornell)

## FELLOWSHIPS

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<b>2018-2020</b>	UBC Biodiversity Postdoctoral Fellow	\$108,000
<b>2017-2019</b>	Banting Postdoctoral Fellowship	\$140,000
<b>2016-2017</b>	NSF Postdoctoral Research Fellowship	\$138,000
<b>2015</b>	Charles Walcott Graduate Fellowship	\$12,005
<b>2012-2015</b>	NSF Graduate Research Fellowship	\$133,500
<b>2012</b>	Cornell Lab of Ornithology Research Fellowship	\$10,900
<b>2010-2011</b>	Cornell Fellowship	\$22,500

## RESEARCH GRANTS

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<b>2016</b>	American Ornithologist's Union Research Grant	\$2,500
<b>2015</b>	Kieckhefer Adirondacks Fellowship	\$2,110
<b>2014</b>	Kieckhefer Adirondacks Fellowship	\$5,000
<b>2013</b>	Athena Fund	\$1,182
<b>2013</b>	AMNH Collection Study Grant	\$500
<b>2012</b>	Athena Fund	\$5,000
<b>2011</b>	National Geographic Research & Exploration (co-PI)	\$23,500
<b>2011</b>	Explorer's Fund	\$2,500
<b>2011</b>	Athena Fund	\$8,200
<b>2011</b>	Atkinson Center Sustainable Biodiversity Fund	\$4,200
<b>2010</b>	Athena Fund	\$1,500

## AWARDS

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<b>2022</b>	Ned Johnson Early Investigator Award (American Ornithological Society)	\$1500
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<b>2020</b>	UBC Faculty of Science “Highest student evaluations” for teaching (Winter Term 1)	
<b>2020</b>	UBC Faculty of Science “Highest student evaluations” for teaching (Summer Term 1)	
<b>2018</b>	Killam Postdoctoral Fellow Research Prize (two awards given annually to UBC postdoctoral fellows; campus-wide)	\$5,000
<b>2014</b>	Lamont C. Cole Award (outstanding paper by a Cornell EEB graduate student)	\$100
<b>2011</b>	Book Award (best talk by 1 <sup>st</sup> or 2 <sup>nd</sup> year graduate student at Cornell EEB Graduate Symposium)	\$100
<b>2006</b>	William R. Angell Foundation Prize (outstanding biology student, Macalester College)	\$100

## SELECTED RECENT PRESENTATIONS

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### INVITED

<b>2022</b>	Queen’s University
<b>2022</b>	Oregon State University
<b>2022</b>	Western Washington University
<b>2022</b>	American Ornithological Society (plenary; Young Investigator’s award)
<b>2022</b>	Florida International University
<b>2022</b>	Georgia Tech
<b>2022</b>	Louisiana State University
<b>2022</b>	Cal Poly Pomona
<b>2022</b>	University of Houston
<b>2021</b>	McGill University
<b>2021</b>	Congreso Peruano de Ornitología (keynote, in Spanish)
<b>2021</b>	University of Toronto
<b>2021</b>	Carleton University
<b>2021</b>	Kansas State University
<b>2020</b>	Humboldt Day online conference
<b>2020</b>	North American Ornithological conference
<b>2020</b>	York University
<b>2020</b>	Simon Fraser University
<b>2019</b>	American Ornithological Society conference

- 2019** UCSB  
**2018** Congreso Colombiano Zoología. Bogotá, Colombia (keynote, in Spanish)

## CONTRIBUTED

- 2023** Species on the Move  
**2021** American Naturalist Virtual Asilomar conference  
**2020** American Naturalist Asilomar conference  
**2018** International Ornithological Congress

## PUBLIC

- 2021** A day in the life of a crow. Stanley Park Ecological Society (2x; also given for Brock Society, Vancouver retired professionals).  
**2019** Ravens and crows in the Vancouver area. Lynn Canyon Regional Park.  
**2019** The “Escalator to Extinction”. Vancouver Public Library  
**2018** Crows and ravens are way cool because... Beaty Biodiversity Museum, Vancouver. Way Cool Series of public science talks

**PROFESSIONAL ACTIVITIES**

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## ORGANIZER

- 2018-20** Biodiversity Discussion Group. UBC.  
**2017-19** Eco-evo retreat. Brackendale, BC. (~125 participants for weekend retreat)  
**2017** BLISS seminar series. UBC.  
**2016** Community ecology reading group. UBC.  
**2013-14** Professional development (December symposium). Cornell University.  
**2012** Darwin reading group. Cornell University.  
**2010-11** Ornithology Seminar. Cornell University.

## OUTREACH

I am regularly quoted in local media biodiversity stories. Recent appearances include: CBC Radio, 102.7 FM, Vancouver Courier, and Vancouver Sun.

## MISC

- 2018-20** Floor warden, 2<sup>nd</sup> floor Biodiversity Research Centre.

## MEMBER

Society for the Study of Evolution, American Society of Naturalists, Ecological Society of America, American Ornithologists' Union

#### REVIEWER

Manuscripts: Nature, PNAS, Nature Climate Change, Ecology Letters, Global Change Biology, Global Ecology & Biogeography, American Naturalist, Proceedings B, Conservation Biology, Evolution, Ecography, Ecology, Journal of Biogeography, Animal Behavior, The Auk: Ornithological Advances, Ibis, etc. (~ 25 / year)

Grants: NSF DEB (ad hoc x3), Czech Science Foundation (ad hoc x5), Conicyt (Chile; ad hoc x1), Atkinson Sustainable Biodiversity Fund, UBC Hesse Research Award (x3), Graduate Women in Science (ad hoc x1)

#### SKILLS

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##### LANGUAGES

English (fluent), Spanish (good)

#### REFERENCES

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Dr. Dolph Schluter, University of British Columbia | [schluter@zoology.ubc.ca](mailto:schluter@zoology.ubc.ca)

Dr. John Fitzpatrick, Cornell University | [jwf7@cornell.edu](mailto:jwf7@cornell.edu)

Dr. Irby Lovette, Cornell University | [ijl2@cornell.edu](mailto:ijl2@cornell.edu)

Dr. Monica Geber, Cornell University | [mag9@cornell.edu](mailto:mag9@cornell.edu)