

SUMMARY

I am an interdisciplinary conservation biologist and Liber Ero postdoctoral fellow, studying the ecological impacts of human activities and develop novel techniques to prioritize conservation areas and strategies. I have an excellent theoretical and applied background in quantitative ecology and statistics and spatial big data analysis. I develop novel analytical tools for researchers and other practitioners to explore and use in the conservation planning and management.

EDUCATION

PhD University of British Columbia (UBC)
July 2014 Forest and Conservation Sciences
Faculty of Forestry

Dissertation Title: Systematic conservation planning in human-dominated landscapes: maximizing efficiency in biodiversity conservation via carbon sequestration and land management

Advisors: Peter Arcese (Principal Advisor, UBC), Sarah Gergel (UBC), Tara Martin (Commonwealth Scientific and Industrial Research Organisation), Valerie LeMay (UBC).

MSc University of Graz (UG)
June 2009 Zoology

Thesis Title: The Crowsnest Highway and its effects on a multi-species community of mammals.

Advisor: Heinrich Römer (UG)

Wildlife Ecology and Game Management courses University of Natural Resources and Applied Life
June 2008 Sciences (BOKU)
Department of Integrative Biology and Biodiversity
Research

Academic exchange for MSc at UG Uppsala University
September 2005 – Mai 2006 Department of Ecology and Evolution

BSc University of Graz (UG)
June 2006 Zoology

Project Titles: The Wildebeest migration in the Serengeti.
Software application for cricket movement tracking.

Advisors: Gerald Kastberger (UG), Heinrich Römer (UG)

Diploma
October 1997

College of Electrical Engineering
Power Engineering and Power Electronics
Wels, Austria

PROFESSIONAL HISTORY

Liber Ero Postdoctoral Research Fellow
11/2016 – current (including part time and full
time parental leave)

Carleton University
Department of Biology

- Combining full annual cycle population models and conservation optimization to address population declines of migratory birds in Canada

Decision support tool developer
01/2018 – 12/2018

The Nature Trust of British Columbia

- Relative Ecological Assessment Tool. Developed a climate refugia layer to extend the existing tool and allow for property acquisition planning with climate change effects in mind.

Web portal developer
05/2018 – 06/2019

Wildlife Conservation Society Canada

- Website development with online form and data storage for research partnership with Moose Cree First Nation to study lake sturgeon

Data analyst
08/2018 – current

Wildlife Conservation Society Canada

- Systematic testing WCS Intact Forest Tool its efficacy in boreal forest regions. Provide recommendations for improvements, and regional changes.

Parental leave

04/2018 – 9/2018
10/2018 – 04/2019 (part time; 3 days a week)

Data analyst
03/2018

Ducks Unlimited Canada

- Province wide (BC) interpolation of probability of observation data for 240 bird species

Web framework developer
02/2018

Fisheries and Oceans Canada

- Arctic Salmon project community data input pilot project to allow participating community members to enter their catch data.

Web app developer
02/2018

Fisheries and Oceans Canada

- Arctic Salmon Mapping Tool to help visualize fish catch data collected by participating community members and create annual reports that are emailed back to communities.

Web app developer

Maclean Environmental Consulting

12/2017 – 03/2018 (5 days)

- Mikisew Cree First Nation: Flow data visualization tool (pilot).

Web app developer

Inter-Tribal Council of Michigan, Inc.

01/2018

- Inter-Tribal Forest Understory Adaptation Project Mapping Tool (pilot).

Expert Task Team member

Environment and Climate Change Canada

09/2017 – 10/2017

- Identifying areas important for Biodiversity and Ecosystem Services report.

Decision support tool developer

The Nature Trust of British Columbia

08/2017 – 12/2017

- Relative Ecological Assessment Tool. Updates and staff training.

Decision support tool developer

Simon Fraser University

08/2017 – 10/2017

- Run-of-River decision support tool as an R Shiny app

Analyst

Wildlife Conservation Society Canada

03/2017 – 12/2017

11/2016 – 01/2017

- Key Biodiversity Area's Criterion C (ecological integrity) applied to Canada and Alaska as a first case study using this new IUCN criterion.

Parental leave

04/2016 – 10/2016

Postdoctoral Research Fellow

The Nature Trust of British Columbia (TNTBC) +
University of British Columbia (UBC)
Forest and Conservation Sciences

06/2015 – 03/2016

- Cross-boundary Planning for Resilience and Restoration of Endangered Oak Savannah and Coastal Douglas-fir Forest Ecosystems
- Tax shifting as an option for funding conservation initiatives
- Species distribution model performance using multiple modelling techniques and variable types
- Relative Ecological Assessment Tool updates for TNTBC

Postdoctoral Research Fellow

07/2014 – 06/2015 (10h/week)

(in addition to full time parental leave)
University of British Columbia (UBC)

Forest and Conservation Sciences

- Web application development for the Marxan conservation planning software
- Application and extension of PhD thesis methods to regional and local government levels

Service Contractor

Independent contractor

06/2015, 03/2015, 10/2014, 06/2014, 03/2014

- Mapping support for the development of a Coastal Douglas-Fir and Associated Ecosystems Conservation Partnership (CDFCP) Conservation Strategy.
- Marxan Conservation Tool Development for the Islands Trust Area. (Islands Trust)
- Identification of optimal candidate areas for conservation and stewardship efforts in the Coastal Douglas-fir zone. (CDFCP)
- Carbon and biodiversity mapping for the Islands Trust area as well as cost effectiveness analysis of land protection in the Islands Trust area compared with the larger region. (Islands Trust)
- Identification of optimal candidate areas for conservation and stewardship efforts in the Coastal Douglas-fir zone. (CDFCP)

Integrative Training & Education internship

The Nature Trust of British Columbia
Vancouver, British Columbia

04/2014-09/2014

- Relative Ecological Assessment Tool development
- Web application development using R that allows TNTBC to more thoroughly and efficiently evaluate potential land purchases using scientific assessments, spatial data, and information about compatible or incompatible land uses

Visiting Scientist

Commonwealth Scientific and Industrial
Research Organisation (CSIRO)
Brisbane, Australia

09/2013-01/2014

- Visiting scientist with the Conservation Decisions Team at CSIRO, supported by an Endeavour Research Fellowship. Work on a collaborative project on Marxan conservation solutions with members of the Environmental Decisions Group, University of Queensland.

Research Assistant

University of British Columbia (UBC)
Centre for Applied Conservation Research

10/2009-03/2010

- Demography, genetics and behaviour of island bird populations.
- Development of GIS, R and Visual Basic tools for application in the analysis of bird and plant species count data from the Southern Gulf Islands.

Lead developer

Webak Games Austria
Gmunden, Austria

2002

- Lead developer of software applications using C and C++
- Systems manager

Design engineer
2000

Lederhilger automation engineering
Allhaming, Austria

- Designing engineer of Recycling Machines
- Systems manager

Paramedic
1999, 2001

Detachment: Kirchdorf/Krems
Austrian Red Cross, Upper Austria

- Paramedic and driver for the Red Cross Ambulance service

AWARDS AND GRANTS

2019-21	Pacific Institute for Climate Solutions. Climate Adaptive Planning for British Columbia. (\$166,695 CAD) PIs: Oscar Venter, Peter Arcese
2017	SESYNC workshop. Indigenous communities: Pathways to promote social-ecological sustainability in the face of climate change, Annapolis, Maryland.
2016-20	Liber Ero post-doctoral Fellowship (\$150,000 CAD) (2 yr program + 2 yrs parental leave)
2014	North Pacific Landscape Conservation Cooperative (NPLCC). Cross-boundary Planning for Resilience and Restoration of Endangered Oak Savannah and Coastal Douglas-fir Forest Ecosystems (\$52,500 CAD) PI: Peter Arcese
2013	UBC Mary and David Macaree Fellowship (\$3,000 CAD)
2013	Australia Endeavour Research Fellowship (\$18,500 AUD)
2013	UBC Killam Graduate Teaching Award (\$1,000 CAD)
2013	UBC W. and H. Hesse Research Award (\$2,400 CAD)
2012	UBC Hesse Fellowship in Ornithology (\$16,000 CAD)
2012	UBC W. and H. Hesse Research Award (\$3,150 CAD)
2011	UBC Hesse Fellowship in Ornithology (\$16,000 CAD)
2011	UBC Mary and David Macaree Fellowship (\$3,000 CAD)
2010	UBC Hesse Fellowship in Ornithology (\$10,000 CAD)
2008	UG Faculty of Science Scholarship (\$3,000 EUR)
2007	Federal Science and Research (FRS) Grant for Study Abroad (\$6,000 EUR)
2006-09	FRS Masters Study Grant (\$35,000 EUR)
2006	Upper Austrian Govt. Special Sponsorship for Studies Abroad (\$800 EUR)
2005	FRS Grant for Study Abroad (\$6,000 EUR)
2002-06	FRS Bachelor Study Grant (\$43,000 EUR)

PEER-REVIEWED PUBLICATIONS

30. Raymond, C., McCune, J., Rosner-Katz, H., Chades, I., **Schuster, R.**, Gilbert, B., Bennett, J. (in press) Combining Species Distribution Models and Value of Information Analysis for spatial allocation of conservation resources. *Journal of Applied Ecology*.
29. Wilson, S., **Schuster, R.**, Rodewald, A., Bennett, J., Smith, A., Arcese, P. (2019) Prioritize diversity or declining species? Trade-offs and synergies in spatial planning for the conservation of migratory birds. *Biological Conservation* 239, 108285.
28. McCune, J. L., Colla, S. R., Cristine, L. E., Davy, C. M., Flockhart, D. T. T., **Schuster, R.**, Orihel, D. M. (2019) Are we accurately estimating the potential role of pollution in the decline of species at risk in Canada?. *FACETS* 4 (1), 598-614.
27. Rodewald, A., Strimas-Mackey, M., **Schuster, R.**, Arcese, P. (2019) Tradeoffs in the value of biodiversity feature and cost data in conservation prioritization. *Scientific Reports* 9 (1), 1-8.
26. Locke, H., Ellis, E. C., Venter, O., **Schuster, R.**, Ma, K., Shen, X., Woodley, S., Kingston, N., Bhola, N., Strassburg, B. B. N., Paulsch, A., Williams, B., Watson, J. E. M. (2019) Three Global Conditions for Biodiversity Conservation and Sustainable Use: an implementation framework. *National Science Review* 2019 6(6). DOI:10.1093/nsr/nwz136.
25. Roy, C., Michel, N. L., Handel, C. M., Van Wilgenburg, S. L., Burkhalter, J. C., Gurney, K. E. B., Messmer, D. J., Princé, K., Rushing, C. S., Saracco, J. F., **Schuster, R.**, Smith, A. C., Smith, P. A., Sólymos, P., Venier, L. A., Zuckerberg, B. (2019) Monitoring boreal avian populations: how can we estimate trends and trajectories from noisy data? *Avian Conservation and Ecology* 14(2):8.
24. Rodewald, A., Strimas-Mackey, M., **Schuster, R.**, Arcese, P. (in press) Beyond canaries in coal mines: impacts of Andean mining concessions on migratory birds. *Perspectives in Ecology and Conservation*.
23. **Schuster, R.***, Germain, R. R.*, Bennett, J. R., Reo, N.J., and Arcese, P. (2019) Biodiversity on Indigenous-managed lands equals that in protected areas. *Environmental Science & Policy*. Doi: 10.1016/j.envsci.2019.07.002
*denotes co-lead authors
22. Hanson, J., **Schuster, R.**, Strimas-Mackey, M., Bennett, J. (2019) Optimality in prioritizing conservation projects. *Methods in Ecology and Evolution*. Doi: 10.1111/2041-210X.13264
21. **Schuster, R.**, Wilson, S., Rodewald, A. D., Arcese, P., Fink, D., Auer, T., & Bennett, J. R. (2019). Optimizing the conservation of migratory species over their full annual cycle. *Nature communications*, 10(1), 1754. Doi: 10.1038/s41467-019-09723-8
20. Hill, C. J., **Schuster, R.**, & Bennett, J. R. (2019). Indigenous involvement in the Canadian species at risk recovery process. *Environmental Science & Policy*, 94, 220-226. Doi: 10.1016/j.envsci.2019.01.017
19. Dey, C. J., Yurkowski, D. J., **Schuster, R.**, Shiffman, D. S., & Bittick, S. J. (2018). Patterns of uncertainty in life-history and extinction risk for Arctic vertebrates. *Arctic Science*, 4(4), 710-721. Doi: 10.1139/as-2018-0006

18. Coristine*, L.E., Jacob*, A.L., **Schuster*, R.**, Otto*, S.P., Baron, N.E., Bennett, N.J., Bittick, S.J., Dey, C., Favaro, B., Ford, A., et al. (2018). Informing Canada's commitment to biodiversity conservation: A science-based framework to help guide protected areas designation through Target 1 and beyond. *FACETS* 3, 531–562. doi: 10.1139/facets-2017-0102 *denotes co-lead authors
17. Germain, R. R., **Schuster, R.**, Tarwater, C. E., Hochachka, W. M. and Arcese, P. (2017), Adult survival and reproductive rate are linked to habitat preference in territorial, year-round resident Song Sparrows *Melospiza melodia*. *Ibis*. doi:10.1111/ibi.12557
16. **Schuster, R.**, Law, E. A., Rodewald, A., Martin, T.G., Wilson, K. A., Watts, M., Possingham, H. P. and Arcese P. (2017) Tax-shifting and incentives for biodiversity conservation on private lands. *Conservation Letters*. doi:10.1111/conl.12377
15. Arcese, R., Rodewald, A, **Schuster, R.**, Venter, O., and Bennett, J. R. (2017) Public-private partnerships to meet international biodiversity treaty targets and stem extinction. Book chapter in: Reflections of Canada: Illuminating Our Opportunities and Challenges at 150+ Years. Peter Wall Institute for Advanced Studies, UBC.
14. Loretto, M.-C., **Schuster, R.**, Itty, C., Marchand, P., Genero, F. and Bugnyar, T. (2017): Fission-fusion dynamics over large distances in raven non-breeders. *Scientific Reports*, **7**, 380, DOI:10.1038/s41598-017-00404-4.
13. Lee-Yaw J.A., Kharouba H.M., Mahony C., Bontrager M., Csergő A.M., Noreen A.M.E., Li Q., **Schuster R.**, and Angert A.L. (2016) A synthesis of transplant experiments and ecological niche models suggests that range limits are often niche limits. *Ecology Letters* 19 (6) 710-722.
12. Jackson, C. L., **Schuster, R.**, and Arcese, P. (2016) Release date influences first-year site fidelity and survival in captive-bred Vancouver Island marmots. *Ecosphere* 7 (5).
11. Loretto, M.-C., Reimann, S., **Schuster, R.**, Graulich, D. M., and Bugnyar, T. (2016) Shared space - individually used: Spatial behaviour of non-breeding ravens (*Corvus corax*) close to a permanent anthropogenic food source. *Journal of Ornithology* 157 (2), 439-450.
10. Loretto, M.-C., **Schuster, R.**, and Bugnyar, T. (2016) GPS tracking of non-breeding ravens reveals the importance of anthropogenic food sources during their dispersal in the Eastern Alps. *Current Zoology* 62 (4), 337-344.
9. Schmitt, V., Federspiel, I., Eckert, J., Keupp, S., Tschernek, L., Faraut, L., **Schuster, R.**, Michels, C., Sennhenn-Reulen, H., Bugnyar, T., Mussweiler, T., Fischer, J., (2015). Do monkeys compare themselves to others? *Animal Cognition*. 19 (2), 417-428.
8. Germain, R.R., **Schuster, R.**, Delmore, K.E., and Arcese, P. (2015) Habitat preference facilitates successful early breeding in an open-cup nesting songbird. *Functional Ecology* 29 (12), 1522-1532.

7. **Schuster R.** and Arcese P. (2015). Effects of disputes and easement violations on the cost-effectiveness of land conservation. *PeerJ*, 3, e1185.
6. Delmore, K.E., Hübner, S., Kane, N.C., **Schuster, R.**, Andrew, R.L., Câmara, F., Guigó, R., and Irwin, D.E. (2015) Genomic analysis of a migratory divide reveals candidate genes for migration and implicates selective sweeps in generating islands of differentiation. *Molecular Ecology* 24, 1873–1888.
5. Arcese P., **Schuster R.**, Campbell L., Barber A., and Martin T.G. (2014) Deer density and plant palatability predict shrub cover, richness, diversity and aboriginal food value in a North American archipelago. *Diversity and Distributions* 20, 1368-1378.
4. **Schuster R.**, Martin T.G. and Arcese P. (2014) Bird community conservation and carbon offsets in western North America. *PloS One* 9, e99292.
3. **Schuster R.**, Römer H. and Germain R.R. (2013) Using multi-scale distribution and movement effects along a montane highway to identify optimal crossing locations for a large-bodied mammal community. *PeerJ* 1, e189.
2. **Schuster R.** and Arcese P. (2013) Using bird species community occurrence to prioritize forests for old growth restoration. *Ecography*, 36, 499–507.
1. Trobe D., **Schuster R.** and Römer H. (2011) Fast and reliable decisions for a dynamic song parameter in field crickets. *Journal of Comparative Physiology – A*, 197, 131-135.

PUBLICATIONS IN REVIEW

Schuster, R., Hanson, J., Strimas-Mackey, M., Bennett, J. Integer linear programming outperforms simulated annealing for solving conservation planning problems. *Ecography*.

Loretto, M.-C., **Schuster, R.**, Federspiel, I, Heinrich, B., and Bugnyar T. Contextual imitation in juvenile common ravens (*Corvus corax*). *Animal Behaviour*.

Bolliger, C., Raymond, C., **Schuster, R.**, Bennett, J. Spatial coverage of habitat protection for terrestrial species under the Canadian Species at Risk Act. *FACETS*.

PUBLICATIONS IN PREPRINT/REVISION/PREPARATION

Schuster, R., Hanson, J., Strimas-Mackey, M., Bennett, J. (2019) Integer linear programming outperforms simulated annealing for solving conservation planning problems. *BioRxiv*, [Link](#). Preprint.

Schuster, R., Germain, R., Bennett, J., Reo, N., Secord, D., and Arcese, P. (2018). Biodiversity on Indigenous lands equals that in protected areas. *BioRxiv*, [Link](#). Preprint.

Schuster, R., Wilson, S., Rodewald, A., Arcese, P., Fink, D., Auer, T., and Bennett, J. (2018). Optimizing conservation of migratory species over their full annual cycle in the Western Hemisphere. *BioRxiv*, [Link](#). Preprint.

Schuster, R., and Arcese, P. (2015) Efficient routes to land conservation given risk of covenant failure (No. e1269). PeerJ PrePrints. [Link](#)

Schuster, R. and Arcese P. Biodiversity surrogates for conservation based on composite occurrence maps and expert opinion. *In revision, Ecological Indicators*.

Hanson, J., **Schuster R.**, Morrell, N., Strimas-Mackey, M., Watts, M., Arcese, P., Bennett, J., and Possingham, H. prioritizr: Systematic conservation planning in R. *In preparation*.

Schuster, R., Tulloch A., Pobert W., Maloney R., Joseph L., Di Fonzi M., and Bennett J. Improving research strategies by analysing likelihood of success and cost of threatened species management. *In preparation*.

Boag, A. E., **Schuster, R.**, Bennett, J. R., and Arcese P. Consensus among species richness model predictions from multiple datasets in a fragmented landscape. *In preparation*.

Federspiel, I., Schmitt, V., **Schuster, R.**, Fischer, J., Bugnyar, T., Michels, C., and Mussweiler, T. Social comparisons in carrion crows (*Corvus corone*). *In preparation*.

NON-PEER REVIEWED PUBLICATIONS, REPORTS AND SOFTWARE

Software

Hanson JO, **Schuster R**, Morrell N, Strimas-Mackey M, Watts ME, Arcese P, Bennett J, Possingham HP (2019). prioritizr: Systematic Conservation Prioritization in R. R package version 4.1.3.2. Available at <https://github.com/prioritizr/prioritizr>.

Hanson JO, **Schuster R**, Strimas-Mackey M, Bennett J (2019). oppr: Optimal Project Prioritization. R package version 0.0.4, <https://CRAN.R-project.org/package=oppr>.

Schuster R, O'Connor C (2019) Learning from lake sturgeon: data entry app to report observations about the health of the river. R Shiny tool. Available here: <http://www.learningfromlakesturgeon.ca/contributing-to-data-collection/>

Hanson JO, **Schuster R**, Morrell N, Strimas-Mackey M, Watts ME, Arcese P, Bennett J, Possingham HP (2019). prioritizrdata: Conservation Planning Data Sets. R package version 0.2.3. <https://github.com/prioritizr/prioritizrdata>.

Schuster R, Hanson JO, Morrell N, Strimas-Mackey M, Watts ME, Arcese P, Bennett J, Possingham HP (2019). prioritizrshiny: Shiny interface for Systematic Conservation Prioritization in R. R package version 0.0.1. Available at <https://github.com/prioritizr/prioritizrshiny>.

Schuster R., Morrell N., Crombie M., Arcese P (2018). CDFCP prioritization: A prioritization tool for the conservation of Coastal Douglas-fir Forest and Savannah Habitats of the Georgia Basin. R Shiny tool. Available at https://github.com/ricschuster/CDFCP_prioritization.

Schuster R., Dunmall K. (2018) Interactive, browser-based mapping tool that allows to map salmon harvest by species, abundance, and locations. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R., Mann J., Wright P. (2019) Peace River Break prioritization: supporting tool for developing a climate-change conscious approach to systematic conservation planning in the Peace River Break. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R., Popescu V., Munshaw R., Dubman E., Wood Laurie, Palen W. (2018) BC Run of River Decision Support Tool. Interactive tool to identify groups of future Run-of-River projects that overlap the least with user-defined biodiversity values while prioritizing user criteria for power production, cost, and geography. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R., Curtis I, Wright P. (2018) Wild hearts prioritization: supporting tool for systematic conservation planning in the Wild Harts region. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R., Maclean B (2018) Flow data visualization tool. Processing of trip track and hazard kml data and trip track and river hazard visualization. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R., Warman L (2018) Relative Ecological Assessment tool. This tool allows the Nature Trust of BC staff to thoroughly and efficiently evaluate potential land purchases using scientific assessments, spatial data, and information about compatible or incompatible land uses. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R., Cristine L.E., Jacob A.L., Otto S.P., Baron N.E., Bennett N.J., Bittick S.J., Dey C., Favaro B., Ford A., et al. (2018). Online supporting app for: Informing Canada's commitment to biodiversity conservation: A science-based framework to help guide protected areas designation through Target 1 and beyond. R Shiny tool. Available here: https://forbasin.forestry.ubc.ca/LEF_Target1_support/

Schuster R., Clark R (2018) Inter-Tribal Forest Understory Adaptation Project Mapping Tool. Interactive, browser-based mapping tool that allows visualization for current and future importance values for two tree species across Michigan. R Shiny tool. Not available online due to data sharing restrictions.

Schuster R (2017) Fire risk assessment app. Supporting tool for a National Socio-Environmental Synthesis Center workshop on "Indigenous communities: Pathways to promote social-ecological sustainability in the face of climate change". R Shiny tool. Available here:

https://forbasin.forestry.ubc.ca/SESYNC_UN/

Schuster R., Crombie M., Morrell N., Arcese P (2016) NPLCC prioritization: A Prioritization Tool for the Conservation of Coastal Douglas-fir Forest and Savannah Habitats of the Georgia Basin and Puget Sound Lowland. R Shiny tool. Available at <https://forbasin.forestry.ubc.ca/NPLCC.v0.13/>

Reports

Robertson, C., **Schuster, R.**, Mitchell, M., Cameron, R., Jacob, A., Preston, S., Neupane, A., Vickers, A., and McMillan, S. (2018) Identifying Areas Important for Biodiversity and Ecosystem Services in Canada. A Pathway to Canada Target 1 Expert Task Team paper. Prepared for Government of Canada (110pp). [Link](#)

Morell, N., **Schuster, R.**, and Arcese, P (2017) Marxan Tutorial for the Coastal Douglas-Fir Conservation Partnership. Software documentation (42pp). [Link](#)

Ford, A. T., Coristine, L., Davies, K., Flockhart, T., Jacob, A., Palen, W., Pittman, J., **Schuster, R.**, Orihel, D., and Otto, S. (2016) Improving environmental assessment in Canada. Liber Ero Fellowship program letter to Minister Catherine McKenna in input for the Canadian Environmental Assessment Act reform. [Link](#)

Coristine, L, Pittman, J., and **Schuster, R.** (2016) Early-career researchers in Canada's science-policy landscape: barriers and opportunities. Canadian Science Policy Centre. [Link](#)

Schuster, R. and Warman L. (2016) The Nature Trust of British Columbia: Relative Ecological Assessment Tool (37pp).

Schuster, R., Crombie, M., Morrell, N., and Arcese, P. (2016) A Prioritization Tool for the Conservation of Coastal Douglas-fir Forest and Savannah Habitats of the Georgia Basin and Puget Sound Lowlands (56pp). [Link](#)

Emmings, K., Golumbia, T., Miller, K., and **Schuster, R.** (2015) Coastal Douglas-fir and Associated Ecosystems Conservation Partnership (CDFCP) Conservation Strategy: Study Area and Local Government Scenarios. Technical report for the CDFCP 15pp.

Schuster, R. (2015) Protected Area Network development for the Islands Trust Area. Technical report for The Islands Trust (37pp).

Schuster, R. (2014) Relative Ecological Assessment tool. Software documentation for The Nature Trust of British Columbia (34pp).

Schuster, R. (2014) Coastal Douglas-fir and Associated Ecosystems Conservation Partnership (CDFCP) Summary Table. Technical report for the CDFCP (13pp).

Schuster, R. (2014) Carbon and Biodiversity Mapping and Assessment for the Islands Trust Area. Technical report for The Islands Trust (14pp).

Schuster, R. (2005) Software application for cricket movement tracking. University of Graz, Austria. 45pp

SKILLS AND EXPERIENCE

- Fluency in English and German (mother tongue)
- Extensive professional expertise in programming: C, C++, R, Visual Basic, Python, Perl
- Extensive GIS experience, including development of analytical Python scripts.
- Proficiency in a variety of scientific field techniques and equipment

CAREER DEVELOPMENT

- 2017 *Cultural Sensitivity Training*
Effective ways to engage Indigenous and local communities in conservation research, including: diversity-inclusion, cross-cultural collaboration, legacy impacts, and the Sahtú region and Délı̨nę Dene language and orthography.
- 2017 *Facilitation Training*
Facilitation planning, tools, and strategies for conflict scenarios and non-neutral facilitation events. Topics included: group climate and norms, scoping and assessment, process design, managing group discussions, and interventions.
- 2016 *Science communication and policy interface*
Bridging the worlds of science and journalism, power tools for science communication, practice interview with attending journalists, the power of storytelling, creating policy briefs and discussing them in meetings with MP's.
- 2016 *Media and Communications Training*
Training to enhance written, audio, and video communication of scientific research with the media and general public. Components included: using message box, developing an elevator pitch, the art of the interview, practice interview sessions with media, development of press releases, etc.

WORKSHOPS AND SYMPOSIUMS ORGANIZED

- 2018 A prioritization tool for the conservation across the province of British Columbia. Workshop at the BC Protected Areas Research Forum, Prince George, Canada. Co-organized with Oscar Venter and Peter Arcese. 40 Participants, ½ day.
- 2018 Canada's pathway to meeting Aichi Target 11: current state and next steps. Symposium at the North American Congress for Conservation Biology, Toronto, Canada. Co-organized with Jeff Wells and Aerin Jacob. 11 invited speakers, 3h.
- 2016 Key Biodiversity Areas Criterion C Workshop: Assessing Sites with Ecological Integrity. Hosted by Wildlife Conservation Society Canada, Toronto, Canada. Host: Justina Ray. My role: analyst. 18 participants, 2 days.

TEACHING EXPERIENCE

- 2012-14 Guest lecturer for UBC courses FRST 532B (Spatial Statistics), CONS 101, FRST 495, FRST 532B (Bayesian analysis) and University of the Fraser Valley Forest Ecology (BIO 430)
- 2019 Instructor: Prioritizing conservation actions: development and application of Marxan type spatial planning tools workshop, University of Northern British Columbia (UNBC), Canada.
- 2019 Guest lecture: Democratizing Spatial Planning for Nature and People, Environmental Resource Management (ENVS 6119), York University, Canada.
- 2018 Instructor: Prioritizing conservation actions: development and application of Marxan type spatial planning tools workshop, University of Northern British Columbia (UNBC), Canada.
- 2018 Guest lecture: Using hierarchical models to identify old-forest patches, UNBC.
- 2018 Instructor, Statistical analysis in R; 2 day workshop Vienna Doctoral School Cognition, Behavior and Neuroscience, University of Vienna, Austria.
- 2018 Guest lecture: Introduction to conservation prioritization tools, Planning for Agriculture, University of Waterloo, Canada.
- 2017 Instructor, Statistical analysis using R; 1 day workshop for members of the Biology department at Carleton University.
- 2017 Lecturer, Systematic Conservation Planning with practical examples using online tools, Carleton University.
- 2016 Lecturer, Prioritizing conservation actions: development and application of Marxan spatial planning tools in the Georgia Basin. Topics: 'Species Distribution Models' and 'Algorithms and Approaches to Systematic Conservation Planning' (FRST 507c). UBC
- 2015 Instructor, Introduction to R; Workshop for participants at the Graduate Meeting 2015. Konrad Lorenz Forschungsstelle, University of Vienna, Austria.
- 2014 Teaching Assistant (TA), Advanced Regression Analysis (FRST 530). UBC
- 2011-13 TA, Biological Diversity and Forest Management (FRST 495). UBC
- 2013 Main Instructor, Advanced Occupancy and Abundance Modelling; 2 day workshop for members of the Wildlife Institute of India. UBC
- 2013 Main Instructor, Statistical analysis using R; 2 day workshop for members of the Wildlife Institute of India. UBC.
- 2013 TA, Applied Multivariate Statistics (FRST 531). UBC
- 2011 TA, Introduction to Conservation Science (CONS 101). UBC
- 2010 Instructional Skills Program for International Teaching Assistants. UBC

- 2008 TA, Aggression Behaviour. University of Graz (UG), Austria.
- 2008 TA, Methods of Analyzing Social Systems in the Animal Kingdom. UG
- 2008 TA, Social Behaviour of Animals and Humans. UG

STUDENT SUPERVISOR

Graduate Student Committee member

Karen Dietrich, UNBC (2018 – current) Climate Adaptive Planning for British Columbia

Allison Binley, Carleton (2018 - current) Using citizen science to increase monitoring efficiency and prioritize conservation efforts.

Jaimie Vincent, Carleton (2018 – current) Can we use eBird data as a proxy for inferring migratory connectivity?

Kristen Hirsh-Pearson, UNBC (2018 - current) A framework for mapping cumulative threats and its application to Canada.

Nina Morell, UBC (2016 - 2018) Using species distribution models to prioritize conservation in the Northern Andes.

Cassie Hill, Carleton (2016 - 2018) Involvement of Indigenous Peoples in Species at Risk recovery planning in Canada.

Calla Raymond, Carleton (2016 - 2018) Value of information to improve the decision-making process associated with endangered species conservation.

Honours

Clark Bolliger, Carleton (2018) How well protected are Canada's species at risk? An examination of SARA's coverage on federal land?

M.-A. Leclerc, UBC (2013) Species Management in Human Dominated Landscapes

Undergraduate Student Research Projects

C. Bolliger, Carleton (2018) An Assessment of SARA's Habitat Coverage for Terrestrial Species at Risk.

J. Pon, Carleton (2016)

W. Wang, UBC (2015) Map comparisons for different species distribution model techniques.

N. Morrell, UBC (2015) Cross-boundary planning for ecosystem resilience and restoration.

A. Barber*, UBC (2011) Deer density and plant palatability predict shrubs.

L. Cambell*, UBC (2011) Deer density and plant palatability predict shrubs.

M. Combie, UBC (2010) Demography of song sparrows.

(* resulted in co-authorship on a paper)

PROFESSIONAL SERVICE

- Peer reviewer: Animal Conservation, Journal of Avian biology, Diversity, Ecography, Ecological Indicators (2), Ecology, Landscape Ecology (2), PLoS One, Journal of Biogeography, PeerJ, Avian Conservation and Ecology, Natural Sciences Education, Regional Environmental Change, Biological Conservation (2), Land Use Policy
- Scientific reviewer for the Cooperative Monitoring, Evaluation and Research (CMER) Committee of the University of Washington (2014)
- Award and grant committee member:
 - International Forestry Students' Association (IFSA) Food and Agriculture Organization of the United Nations (FAO) internship (2013)
 - IFSA travel grants for the International Forestry Student' Symposium (2013)
 - Graduate Teaching Award UBC (2014)

STUDENT SERVICE

2013	Received the UBC Killam Graduate Teaching Assistant Award
2012	Recognized as a UBC "Student Leader" by the President's Office.
2011 – 2012	International Forestry Student Association (IFSA) – Head of Web Commission (elected). Secretariat location: Freiburg, Germany.
2011 – 2012	IFSA – Regional Representative North America (elected).
2010 – 2012	IFSA local chapter UBC: re-established IFSA membership. Chapter president 2011 -2012 (elected). UBC.
2010 – 2012	UBC Forestry Graduate Student Association. International Representative (elected).

CONFERENCE PRESENTATIONS AND INVITED SEMINARS

Schuster R., Hanson J.O. (2019) prioritizr – Systematic conservation planning in R. Roadmap for Marxan Workshop. Brisbane, Australia. (invited talk)

Schuster R. (2019) Democratizing Spatial Planning for Nature and People. National Wildlife Research Center seminar series, Ottawa, Canada. (Invited talk, remote)

Schuster R. (2018) Data interaction, analysis and communication in a unified framework. Incorporating climate change and climate adaptation data into regional conservation planning and management in northwestern Canada. Workshop at the BC Protected Areas Research Forum (BCPARF), Prince George, Canada. (invited talk)

Schuster R. (2018) Democratizing Spatial Planning for Nature and People: prioritizr + shiny. BCPARF, oral.

Schuster R. (2018) Coastal Douglas-fir conservation partnership and tool. A prioritization tool for the conservation across the province of British Columbia. Workshop at BCPARF (co-organizer with Oscar Venter and Peter Arcese)

Schuster R. (2018) Protected Areas Planning & Science-Based Framework To Help Guide Protected Areas Designation Through Target 1 & Beyond. Canadian Council on Ecological Areas Workshop, Toronto, Canada, oral. (Invited talk)

Schuster R., Hanson JO, Morrell N, Strimas-Mackey M, Watts ME, Arcese P, Bennett J, Possingham HP (2018) Democratizing Spatial Planning for Nature and People: prioritizr + shiny. Canadian Council on Ecological Areas Workshop, Toronto, Canada, oral. (Invited talk)

Schuster R., Hanson JO, Morrell N, Strimas-Mackey M, Watts ME, Arcese P, Bennett J, Possingham HP (2018) Systematic conservation prioritization in R: Democratizing Spatial Planning for Nature and People using the prioritizr package. North American Congress for Conservation Biology, Toronto, Canada, oral. (Invited symposium)

Schuster, R. (2018) Introduction to conservation prioritization tools, Seminar, Institute for Sustainable Economic Development, BOKU - University of Natural Resources and Life Sciences, Vienna, Austria.

Schuster, R. (2017) Introduction to conservation prioritization tools, Association of Professional Biology, webinar.

Schuster, R. (2017) Data interaction, analysis and communication in a unified framework. SESYNC workshop. Indigenous communities: Pathways to promote social-ecological sustainability in the face of climate change, Annapolis, Maryland.

Loretto, M-C., **Schuster, R.**, Bugnyar, T. (2017): Linking fission-fusion dynamics to social complexity in a large-brained songbird. 11th Göttinger Freilandtage, Göttingen, Germany, poster.

Loretto, M-C., Beck, K., **Schuster, R.**, Bugnyar, T. (2017): From large scale movements to local food caches - the spatial behaviour of non-breeding ravens. 6th International Bio-logging Symposium, Konstanz, Germany, poster.

Ray, J., **Schuster, R.**, Robards, M., Soares, R. (2017) Application of the new key biodiversity area (KBA) criterion for ecological integrity. International Congress for Conservation Biology, Cartagena, Colombia, oral.

Arcese, P., **Schuster, R.**, Rodewald, A., Law, E., Martin, T., Wilson, K. (2017) Complementarity in Biodiversity, Riparian and Carbon Values: Trade-offs vs Co-benefits. International Congress for Conservation Biology, Cartagena, Colombia, oral.

Law, E., **Schuster, R.**, Rodewald, A., Wilson, K., Arcese, P. (2017) Who will conserve? Understanding stakeholders to improve prioritization of private land conservation. International Congress for Conservation Biology, Cartagena, Colombia, oral.

Morrell, N., Appleton, R., Arcese, P., **Schuster, R.** (2017) Environmental co-benefits of habitat conservation for Andean bears. International Congress for Conservation Biology, Cartagena, Colombia, oral.

Loretto, M-C., Beck, K., **Schuster, R.**, Bugnyar, T. (2017): Variation in space use of non-breeding ravens: From large scale movements to local food caches. 35th International Ethological Conference, Estoril, Portugal, poster.

Loretto, M-C., **Schuster, R.**, Bugnyar, T. (2017): Movement strategies of non-breeding ravens. Annual Conference of the British Ornithologists' Union, Coventy, UK, oral.

Schuster, R., Bennett, J., Rodewald, A., Wilson, S., Marra, P., and Wells, J. (2016) Full annual cycle population models and conservation optimization for migratory birds. Oral presentation at 'Frank discussion', Cornell lab of Ornithology.

Schuster, R., Morell, N., Kleynhans, E., and Arcese, P. (2016) Cross-boundary Planning for Resilience and Restoration of Endangered Ecosystems. Oral presentation at Wildlife and Landscape Science Division, Environment and Climate Change Canada.

Schuster, R., Morell, N., Kleynhans, E., and Arcese, P. (2016) Cross-boundary Planning for Resilience and Restoration of Endangered Ecosystems. Oral presentation at Biology Seminar Series, Carleton University.

Arcese, P., **Schuster, R.**, Kleynhans, E.J., Rodewald, A.D., Wilson, S.D. (2016) Climate and Land Use Drivers of Species Distribution in Conservation Prioritization. Oral presentation North American Ornithological Conference.

Loretto, M-C., **Schuster, R.**, Bugnyar, T. (2016): Fission-fusion dynamics over large distances in wild non-breeding ravens. Oral presentation at the 8th European Conference on Behavioural Biology, Vienna, Austria.

Schuster, R., Bennett, J., Rodewald, A., Wilson, S., Marra, P., and Wells, J. (2016) Full annual cycle population models and conservation optimization for migratory birds. Oral presentation to the Conservation Science - Bird Population Studies group at Cornell lab of Ornithology.

Schuster, R., Morell, N., Kleyhans, E., and Arcese, P. (2016) eBird species distribution models and cross-boundary conservation planning. Oral presentation at 'Frank discussion', Cornell lab of Ornithology.

Schuster, R., Morell, N., and Arcese, P. (2015) Marxan tool demonstration: How does the model work and how can you make use of it? Oral presentation at the 13th Conservation Connection Forum.

Gow E., **Schuster, R.**, Laforge M. and Arcese P. (2015) Olive-sided flycatcher occurrence in relation to habitat in British Columbia. Poster presentation American Ornithologists' Union meeting.

Schuster, R. (2015) Distribution models, variables and data. Oral presentation at the Cross-boundary Planning for Resilience and Restoration of Endangered Oak Savannah and Coastal Douglas-fir Forest Ecosystems workshop.

Schuster, R. (2015) Community Maps using expert elicitation. Oral presentation at the Cross-boundary Planning for Resilience and Restoration of Endangered Oak Savannah and Coastal Douglas-fir Forest Ecosystems workshop.

Schuster, R. (2014) How does the Marxan Tool work? Oral presentation at the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership Marxan Tool Demonstration and Workshop.

Arcese, P., **Schuster, R.** and Martin T. (2012) Birds as Indicators of 'Ecological Integrity' and Human Influence: using occupancy maps to prioritize conservation effort. Oral presentation North American Ornithological Conference.

Schuster R., Arcese P., Martin T., Bennett J. and Gonzales E. (2011) Restoring old growth forests of the Pacific coast. Oral presentation to the BC Protected Areas Research Forum.

Schuster R. and Arcese P. (2011) Using bird species occurrence to prioritize Old-forest restoration. Oral presentation at the 129th American Ornithologists' Union meeting.

Schuster R., Arcese P., Martin T., Bennett J. and Gonzales E. (2011) Systematic conservation area design in the Coastal Douglas-fir zone. Oral presentation to the Coastal Douglas-fir (CDF) Stewardship Workshop.

Schuster, R., Arcese, P., Bennett, J., Blight, L.K., Essek, M. and Germain, R. (2011) Applied ecology and evolution in the Arcese Lab. Poster presentation at the Faculty of Forestry Research Evening, Forest Sciences Centre, University of British Columbia, Vancouver (FFRE)

Blight, L.K., Arcese, P., Bennett, J., Jackson, C. and **Schuster, R.** (2010) Applied ecology and evolution in the Arcese Lab. Poster Presentation at the FFRE.