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EDUCATION

1977 Ph.D., Yale University, New Haven, Connecticut.
1975 M.Phil., Yale University, New Haven, Connecticut.
1974 M.S., University of Alaska, Fairbanks.
1972 B.S., Iowa State University, Ames.

ACADEMIC POSITIONS

Professor of Ecology, and Alberta Conservation Association Chair in Fisheries and Wildlife, 1999-present (Endowed Chair renewed 2022 July 1), Department of Biological Sciences, University of Alberta, Edmonton.

Vallier Chair of Ecology, and Wisconsin Distinguished Professor (UW-System), 1993-1999, College of Natural Resources, University of Wisconsin, Stevens Point.

Professor, 1987-1993, Department of Zoology and Physiology, University of Wyoming, Laramie.

Associate Professor, 1981-1987, Department of Zoology and Physiology, University of Wyoming, Laramie.

Visiting Professor, 1984-1985, Department of Mathematics, University of Wyoming, Laramie.

NATO Postdoctoral Research Fellow, 1982-1983, Animal Ecology Research Group, Department of Zoology, University of Oxford.

Assistant Professor, 1977-1981, Department of Zoology and Physiology, University of Wyoming, Laramie.

Instructor, 1976-77, Department of Zoology and Physiology, University of Wyoming, Laramie.

HONORS AND AWARDS

- Stan Hodgkiss Canadian Outdoorsperson of the Year**, 2023, Canadian Wildlife Federation, June 17.
- Life Membership**, 2022, The Wildlife Society, August.
- Alberta Conservation Association Chair in Fisheries and Wildlife**, 2022, 7-year renewal, Department of Biological Sciences, University of Alberta, March.
- Kristine Nordstrom Dedicated Service Award**, 2022, Alberta Chapter of The Wildlife Society, March 17.
- J. Gordin Kaplan Award for Research**, 2021, University of Alberta, Nov 18.
- Wilderness and Wildlife Defender's Award**, 2019, Alberta Wilderness Association, Nov 23.
- Publication of the Year Award** (with Anne Loosen), 2019, Alberta Chapter of The Wildlife Society, March 16.
- Patron, American Society of Mammalogists**, 2018, elected July 16.
- C. Hart Merriam Award**, 2017, American Society of Mammalogists, June 24.
- Special Recognition Team Award** (with Evelyn H. Merrill), 2017, Alberta Chapter of The Wildlife Society, March 11.
- Mirosław Romanowski Medal**, 2016, Royal Society of Canada, November 18.
- ASTech Award, Outstanding Leadership in Alberta Science**, 2014, Alberta Science and Technology Leadership Foundation, October.
- Fellow, Royal Society of Canada**, inducted 2014 November.
- President's Award**, 2014, Safari Club International, April 5.
- Emerald Award**, 2013, Montane Research Program, Province of Alberta, June.
- Publication of the Year Award**, 2013, Alberta Chapter of The Wildlife Society, March.
- TWS Fellow**, lifetime award, 2012, The Wildlife Society, Bethesda, Maryland, USA, October.
- Best Wildlife Publication Award "Popular Category,"** 2012, Alberta Chapter of The Wildlife Society, March.
- Killam Annual Professorship**, 2011-12, University of Alberta.
- Publication of the Year Award**, 2011, Alberta Chapter of The Wildlife Society.
- Award of Merit**, 2010, Alberta Trappers Association.
- William Rowan Distinguished Service Award**, 2008, The Wildlife Society.
- International Conservationist of the Year**, 2007, Safari Club International Foundation.
- Erskine Fellowship**, 1999, Canterbury University, Christchurch, New Zealand.
- Phi Kappa Phi**, 1998, University of Wisconsin-Stevens Point.
- University Scholar Award**, 1996, University of Wisconsin-Stevens Point.
- Chancellor's Merit Award**, 1996, University of Wisconsin-Stevens Point.
- Faculty Scholar Award**, 1994, Sigma Xi-University of Wisconsin-Stevens Point Chapter.
- Distinguished Professorship**, 1993, 1999 University of Wisconsin System, Madison.
- Vallier Chair of Ecology**, 1993, University of Wisconsin-Stevens Point.
- Outstanding Research Merit Award**, 1993, College of Arts and Sciences, Univ. Wyoming.
- Fulbright Scholar to India**, 1992, U.S. Educational Foundation in India, Bangalore.
- Senior Research Fellow**, 1991-92, American Institute of Indian Studies, Bangalore.
- Kuehn Professorship Award**, 1984-85, College of Arts and Sciences, University of Wyoming.
- N.A.T.O. Postdoctoral Fellowship**, 1982-83, National Science Foundation, Univ. Oxford, UK.
- Academy Exchange to Poland**, 1982, National Academy of Sciences, Jagiellonian University.
- Outstanding Achievement Award**, 1974, University of Alaska, Fairbanks.

SABBATICALS

2018, Department of Zoology, University of Oxford, U.K.

2017, Centre of Excellence for Biosecurity Risk Analysis (CEBRA), University of Melbourne, AUSTRALIA.

2010-11, University of Queensland, Brisbane, AUSTRALIA;
Imperial College London, Silwood Park, U.K.

2003-04, University of British Columbia, Vancouver, CANADA.

1991-92, Fulbright Fellow/American Institute of Indian Studies, Centre for Ecological Sciences and Centre for Theoretical Studies, Indian Institute of Science, Bangalore, INDIA.

1982-83, NATO Postdoctoral Fellowship, Department of Zoology, University of Oxford, U.K.

OTHER POSITIONS

1989-1993, Director, UW-National Park Service Research Center, University of Wyoming.

PUBLICATIONS

Books:

- Boyce, M. S., and A. Haney. 1997. *Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources*. Yale University Press, New Haven, Conn. 361pp.
- Thorne, E. T., M. S. Boyce, P. Nicoletti, and T. J. Kreeger (eds.). 1997. *Brucellosis, Bison, elk, and Cattle in the Greater Yellowstone Area: Defining the Problem, Exploring the Solutions*. Wyoming Game and Fish Department, Cheyenne, Wyo. 219pp.
- Keiter, R. B., and M. S. Boyce. 1991. *The Greater Yellowstone Ecosystem: Redefining America's Wilderness Heritage*. Yale University Press, New Haven, Conn. 425pp.
- Boyce, M. S. 1989. *The Jackson Elk Herd: Intensive Wildlife Management in North America*. Cambridge University Press, Cambridge, U.K., 305 pp.
- Boyce, M. S., ed. 1988. *Evolution of Life Histories of Mammals*. Yale Univ. Press, New Haven, Conn., 373 pp.
- Boyce, M. S., and L. D. Hayden-Wing. 1979. *North American Elk: Ecology, Behavior and Management*. Univ. Wyoming, Laramie, 294pp.

Scientific Articles:

- Scrafford, M., J. Seguen, L. McCaw., M. S. Boyce, and J. Ray. 2024. Wolverine density, survival, and population trajectory in the Canadian boreal forest. *J. Wildl. Manage.* (in press).

- Khatri-Chhetri, U., K. A. Thompson, S. A. Quideau, M. S. Boyce, S. X. Chang, E. W. Bork, C. N. Carlyle. 2024. Adaptive Multi-paddock grazing increases mineral associated soil carbon in Northern grasslands. *Agric. Ecosys. Environ.* (in press).
- Burton, C., et al. 2024. Mammal responses to global changes in human activity vary by trophic group and landscape. *Nature Ecol. Evol.* (in press, NATECOLEVOL-23030556-T).
- Grenke, J. S. J., E. W. Bork, C. N. Carlyle, M. S. Boyce, and J. F. Cahill. 2024. Adaptive multi-paddock grazing management systems increase plant productivity: A case for the grazing optimization hypothesis. *Agric. Ecosys. Environ.* (submitted).
- Enns, G., B. Jex, and M. S. Boyce. 2024. Stone's sheep (*Ovis dalli stonei*) lambing and nursery habitat selection. *Can. J. Zool.* (accepted, in press).
- Granados, A., C. Sun, J. Fisher, A. Ladle, K. Dawe, C. Beirne, M. S. Boyce, E. Chow, M. Fennell, N. Heim, J. Klees van Bommel, R. Naidoo, M. Procko, F. Stewart, and C. Burton. 2024. Mammalian predator and prey responses to recreation and land use across multiple scales provide limited support for the human shield hypothesis. *Ecol. Evol.* (ECE-2023-03-00485.R1).
- Boczulak, H., N. Boucher, A. Ladle, M. S. Boyce, and J. Fisher. 2023. Industrial development alters wolf spatial distribution mediated by prey availability. *Ecol. Evol.* (in press, ECE-2023-02-00318).
- Barnas, A., A. Ladle, J. Burgar, C. Burton, M. S. Boyce, L. Eliuk, F. Grey, N. Heim, J. Paczkowski, F. Stewart, E. Tattersall, and J. Fisher. 2024. How landscape traits affect boreal mammal responses to anthropogenic disturbance. *Sci. Total Env.* **915**:169285.
- Upama Khatri-Chhetri, M. S., S. Banerjee, K. A. Thompson, S. A. Quideau, M. S. Boyce, E. W. Bork, C. N. Carlyle. 2024. Cattle grazing management affects soil microbial diversity and community network complexity in the Northern Great Plains. *Sci. Total Envir.* **912**:169353.
- Etter, D., M. M. Nichols, and M. S. Boyce. 2024. American and Pacific marten. In T. L. Hiller, ed. *Wild furbearer management and conservation in North America*. Ontario Trappers Association, Toronto, ON. (in press).
- Hood, G., and M. S. Boyce. 2024. Habitat selection. Chapter 8 In T. L. Hiller, ed. *Wild furbearer management and conservation in North America*. Ontario Trappers Association, Toronto, ON. (in press).
- Proctor, M. F., C. T. Lamb, J. Boulanger, A. G. Machutchon, W. F. Kasworm, D. Paetkau, M. S. Boyce, and C. Servheen. 2023. The dance of berries and bullets: the influence of food resources and mortality risk on grizzly bear populations in southeastern British Columbia. *Wildl. Monogr.* **213**:1-79.
- Warbington, C. H., and M. S. Boyce. 2023. Water-level fluctuations and ungulate community dynamics in a central Uganda. *Water* **15**:2765 (doi.org/10.3390/w15152765).
- Enns, G., B. Jex, and M. S. Boyce. 2023. Diverse migration patterns and seasonal habitat use of Stone's sheep (*Ovis dalli stonei*). *Peer J* **11**:e15215 <http://doi.org/10.7717/peerj.15215>.
- Murphy, K. J., D. R. Roberts, W. F. Jensen, S. E. Nielsen, S. K. Johnson, B. M. Hosek, B. Stillings, J. Kolar, M. S. Boyce, and S. Ciuti. 2023. Mule deer fawn recruitment dynamics in an energy-disturbed landscape. *Ecol. Evol.* **13**:e9976 (doi.org/10.1002/ece3.9976).
- Trump, T., K. Knopff, A. T. Morehouse, and M. S. Boyce. 2022. Sustainable elk harvests in Alberta with increasing predator populations. *PLoS ONE* **17**(10):e0269407. (doi.org/10.1371/journal.pone.0269407).

- Foca, J., and M. S. Boyce. 2022. Bison and elk spatiotemporal interactions in Elk Island National Park. *Front. Conserv. Sci.* **3**:937203.
- Khatri-Chhetri, U., K. A. Thompson, S. A. Quideau, M. S. Boyce, E. W. Bork, and C. N. Carlyle. 2022. Adaptive multi-paddock grazing alters soil microbial community composition in Canadian grassland soils. *Appl. Soil Ecol.* **179**:104590.
- Grenke, J. S. J., E. W. Bork, C. N. Carlyle, M. S. Boyce, and J. F. Cahill. 2022. Limited impacts of adaptive multi-paddock grazing systems on plant diversity in the Northern Great Plains. *J. Appl. Ecol.* **59**:1734-1744.
- Broekman, M. J. E., et al. 2022. Empirical validation of expert-based habitat suitability information with GPS-tracking data of terrestrial mammals. *Global Ecol. Biogeogr.* doi: 10.1111/geb.13523.
- O'Donovan, E., and M. S. Boyce. 2022. Visual marking of ground nests might attract corvids. *Hum.-Wildl. Interact.* **15**(3):1-10.
- Brownlee, M., M. S. Boyce, and C. Warbington. 2022. Monitoring sitatunga (*Tragelaphus speki*) populations using camera traps. *Afr. J. Ecol.* **60**:377–385 (doi:10.1111/aje.12972).
- Döbert, T. F., J. Randall, M. Iravani, E. W. Bork, and M. S. Boyce. 2021. Bird community responses to rest-rotation grazing in western Canada's grasslands. *Internat. Grassland Congr. Proc.* **24**(4):12 (<https://uknowledge.uky.edu/igc/24/4/12>).
- Ma, Z., B. M. Shrestha, E. W. Bork, S. X. Chang, C. N. Carlyle, T. F. Döbert, L. S. Sobrinho, M. S. Boyce. 2021. Soil greenhouse gas emissions and grazing management in northern temperate grasslands. *Sci. Total Environ.* **796**:148975.
- Döbert, T., E. W. Bork, S. Apfelbaum, C. N. Carlyle, S. X. Chang, U. Khatri-Chhetri, L. S. Sobrinho, R. Thompson, and M. S. Boyce. 2021. Adaptive multi-paddock grazing improves water infiltration in Canadian grassland soils. *Geoderma* **401**:115314 (<https://doi.org/10.1016/j.geoderma.2021.115314>).
- Bork, E. W., T. F. Döbert, J. S. J. Grenke, C. N. Carlyle, J. F. Cahill Jr., and M. S. Boyce. 2021. Comparative pasture management on Canadian cattle ranches with and without adaptive multipaddock grazing. *Range Ecol. Manage.* **78**:5-14 (doi.org/10.1016/j.rama.2021.04.010).
- Sabal, M., M. S. Boyce, C. L. Charpentier, N. B. Furey, T. M. Luhring, H. W. Martin, M. C. Melnychuk, R. B. Srygley, C. M. Wagner, A. J. Wirsing, R. C. Ydenberg, and E. P. Palkovacs. 2021. Ecological and evolutionary effects of predators on migratory prey. *Trends Ecol. Evol.* **36**(8):737-749 (doi.org/10.1016/j.tree.2021.04.010).
- Morehouse, A. T., A. E. Loosen, T. A. Graves, and M. S. Boyce. 2021. The smell of success: Fitness related to rub behavior in grizzly bears. *PLoS ONE* **16**(3): e0247964. (doi.org/10.1371/journal.pone.0247964). [featured interview on *Quirks and Quarks*]
- Nagy-Reis, M., J. Reimer, M. A. Lewis, W. F. Jensen, and M. S. Boyce. 2021. Aligning population models with data: adaptive management for big game harvests. *Global Ecol. Conserv.* **26**:e1501. (doi.org/10.1016/j.gecco.2021.e01501).
- Shrestha, B. M., E. W. Bork, S. X. Chang, C. N. Carlyle, Z. Ma, T. F. Döbert, D. Kaliaskar, and M. S. Boyce. 2020. Adaptive multi-paddock grazing lowers soil greenhouse gas emission potential by altering extracellular enzyme activity. *Agronomy* **10**: 1781, (doi:10.3390/agronomy10111781).
- Gilbert, S., K. Hundertmark, M. Lindberg, D. Person, and M. S. Boyce. 2020. The importance of environmental variability and transient population dynamics for a northern ungulate. *Front. Ecol. Evol.* **8**:531027. (doi: 10.3389/fevo.2020.531027).

- Warbington, C. H., and M. S. Boyce. 2020. Population density of sitatunga in riverine wetland habitats. *Global Ecol. Conserv.* **23**:e01212. (doi: 10.1016/j.gecco.2020.e01212).
- Banfield, J. E., S. Ciuti, C. C. Nielsen, and M. S. Boyce. 2020. Cougar roadside habitat selection: incorporating topography and traffic. *Global Ecol. Conserv.* **23**:e01186. (doi.org/10.1016/j.gecco.2020.e01186).
- Scrafford, M. A., B. Nobert, and M. S. Boyce. 2020. Beaver (*Castor canadensis*) use of borrow pits in an industrial landscape in northwestern Alberta. *J. Environ. Manage.* **269**:110800. (doi.org/10.1016/j.jenvman.2020.110800).
- Boyce, M.S., and S. Ciuti. 2020. Data from: Human selection of elk behavioural traits in a landscape of fear. *Movebank Data Repository* (doi: 10.5441/001/1.j484vk24).
- Beale, M. M., and M. S. Boyce. 2020. Ungulate habitat selection on reclaimed coal mines in west-central Alberta. *Restor. Ecol.* **28**(4):828–840. (doi: 10.1111/rec.13137).
- Blythe, E. M., and M. S. Boyce. 2020. Trappings of success: Predator removal for duck nest survival in Alberta Parklands. *Diversity* **12**:119. (doi:10.3390/d12030119).
- Mallory, C. D., S. N. Williamson, M. W. Campbell, and M. S. Boyce. 2020. Response of barren-ground caribou to advancing spring phenology. *Oecologia* **192**: 837–852. (doi: 10.1007/s00442-020-04604-0).
- Proctor, M. F., W. Kasworm, J. Teisberg, C. Servheen, T. Radandt, C. Lamb, K. Kendall, R. Mace, D. Paetkau, and M. S. Boyce. 2020. American black bear population fragmentation detected with pedigrees in the trans-border Canada-United States Region. *Ursus* **31**e1:1-15. (doi.org/10.2192/URSUS-D-18-00003R2).
- Clark, J. D., M. S. Boyce, J. P. Beckmann, B. D. Leopold, A. Loosen, and M. R. Pelton. 2020. American black bear. In *Bears of the World*, V. Penteriani and M. Melletti (eds.) Chapter 11. Cambridge University Press, Cambridge, U.K. (doi.org/10.1017/9781108692571).
- Pruvot, M., M. Musiani, M. S. Boyce, S. Kutz, and K. Orsel. 2020. Integrating livestock management and telemetry data to assess disease transmission risk between wildlife and livestock. *Prev. Vet. Med.* **174**:104846. (doi.org/10.1016/j.prevetmed.2019.104846).
- Boyce, M. S. 2019. Adapting grassland grazing to boost carbon sequestration. *Scientia* **451** (doi.org/10.33548/SCIENTIA451).
- Proctor, M. F., B. N. McLellan, G. B. Stenhouse, G. Mowat, C. T. Lamb, and M. S. Boyce. 2019. Effects of roads and motorized human access on grizzly bear populations in British Columbia and Alberta, Canada. *Ursus* **30**: article e2.
- Nagy-Reis, M., W. F. Jensen, and M. S. Boyce. 2019. Conservation Reserve Program is a key element for managing white-tailed deer populations at multiple spatial scales. *J. Environ. Manage.* **248**: 109299.
- Bowyer, R. T., M. S. Boyce, J. R. Goheen, and J. Rachlow. 2019. Conservation of the world's mammals: status, protected areas, community efforts, and hunting. *J. Mammal.* **100**: 923–941.
- Boyce, M. S., T. Coulson, J. Heffelfinger, and P. Krausman. 2019. Mountain sheep management must use representative data: A reply to Festa-Bianchet (2019). *J. Wildl. Manage.* **83**:9–11. (doi: 10.1002/jwmg.21617).
- Mallory, C. D., and M. S. Boyce. 2019. Prioritization of landscape connectivity for the conservation of Peary caribou. *Ecol. Evol.* **9**:1–17. (doi.org/10.1002/ece3.4915).
- Loosen, A., A. T. Morehouse, and M. S. Boyce. 2019. Land tenure shapes black bear density and abundance on a multi-use landscape. *Ecol. Evol.* **9**:73–89.

- Ladle, A., T. Avgar, M. Wheatley, G. Stenhouse, S. Nielsen, and M. S. Boyce. 2019. Grizzly bear response to spatio-temporally variable human recreational activity. *J. Appl. Ecol.* **56**:375–386. (doi: 10.1111/1365-2664.13277). [Student paper award by TWS]
- Boyce, M. S. 2018. Elk. Pages 20-21 in M. J. Kauffman, J. E. Meacham, H. Sawyer, A. Y. Steingisser, W. J. Rudd, and E. Ostlind. *Wild migrations: Atlas of Wyoming's ungulates*. Oregon State University Press, Corvallis, Ore. 183pp.
- Mawdsley, J. R., J. F. Organ, D. J. Decker, A. B. Forstchen, R. J. Regan, S. J. Riley, M. S. Boyce, J. E. McDonald, Jr., C. Dwyer, and S. P. Mahoney. 2018. Artelle et al. (2018) miss the science underlying North American wildlife management. *Science Adv.* **4**: eaat8281.
- Proctor, M. F., B. N. McLellan, G. B. Stenhouse, G. Mowat, C. T. Lamb, and M. S. Boyce. 2018. Resource Roads and Grizzly Bears in British Columbia, and Alberta. *Canadian Grizzly Bear Management Series*, Resource Road Management. Trans-border Grizzly Bear Project. Kaslo, BC, Canada. (transbordergrizzlybearproject.ca/research/publications.html).
- Boyce, M. S. 2018. Wolves for Yellowstone: dynamics in time and space. *J. Mammal.* **99**:1021–1031. [cover photo]
- Scrafford, M. A., and M. S. Boyce. 2018. Temporal patterns of wolverine (*Gulo gulo luscus*) foraging in the boreal forest. *J. Mammal.* **99**:693–701.
- Morehouse, A., J. Tigner, and M. S. Boyce. 2018. Coexistence with large carnivores supported by a predator-compensation program. *Environ. Manage.* **61**:719–731.
- Scrafford, M. A., T. Avgar, R. Heeres, and M. S. Boyce. 2018. Roads elicit negative movement and habitat-selection responses by wolverines (*Gulo gulo luscus*). *Behav. Ecol.* **29**:534–542.
- Mallory, C. D., M. Campbell, and M. S. Boyce. 2018. Climate influences body condition and synchrony of barren-ground caribou abundance in Arctic Canada. *Polar Biol.* **41**(5):855–864.
- Lamb, C. T., M. Festa-Bianchet, and M. S. Boyce. 2018. Invest long term in Canada's wilderness. *Science* **359**(6379):1002.
- Ladle, A., R. Steenweg, B. Shepherd, and M. S. Boyce. 2018. The role of human recreation in shaping patterns of grizzly bear-black bear co-occurrence. *PLoS ONE* **13**(2): e0191730.
- Boyce, M. S., and P. Krausman. 2018. Controversies in mountain sheep management. *J. Wildl. Manage.* **82**(1):5–7.
- Mallory, C. D., and M. S. Boyce. 2018. Observed and predicted effects of climate change on Arctic caribou and reindeer. *Envir. Rev.* **26**:13–25. [Editor's Choice].
- Warbington, C. H., and M. S. Boyce. 2018. Ecology of Sitatunga along the Mayanja River, Uganda. IUCN Antelope Specialist Group. *Gnusletter* **35**(2):13–22,.
- Boyce, M. S., C. Mallory, A. Morehouse, C. Prokopenko, M. Scrafford, and C. Warbington. 2017. Defining landscapes and scales to model landscape–organism interactions. *Curr. Landsc. Ecol. Reports* **2**:89–95. (doi: 10.1007/s40823-017-0027-z).
- Morehouse, A. T., and M. S. Boyce 2017. Troublemaking carnivores: conflicts with humans in a diverse assemblage of large carnivores. *Ecol. Soc.* **22**(3):4. (doi.org/10.5751/ES-09415-220304).
- Thurfjell, H., Ciuti, S. and M. S. Boyce. 2017. Learning from the mistakes of others: how female elk (*Cervus elaphus*) adjust behaviour with age to avoid hunters. *PLoS ONE* **12**(6): e0178082. [MSB interviewed by *Quirks and Quarks*]

- Paton, D.G., S.Ciuti, M. Quinn, and M. S. Boyce. 2017. Hunting exacerbates the response to human disturbance in large herbivores while migrating through a road network. *Ecosphere* **8**(6):e01841. (doi: 10.1002/ecs2.1841).
- Morehouse, A., and M. S. Boyce. 2017. Male dominance interferes with intercept feeding of grizzly bears. *Ursus* **28**(1):66–80.
- Avgar, T., S. Lele, J. Keim, and M. S. Boyce. 2017. Relative Selection Strength: quantifying effect size in resource- and step-selection inference. *Ecol. Evol.* **7**:5322–5330 (doi: 10.1002/ece3.3122).
- Roberts, D., V. Bahn, S. Ciuti, M. S. Boyce, J. Elith, G. Guillera-Aroita, S. Hauenstein, J. Lahoz-Monfort, B. Schroder, W. Thuiller, D. Warton, B. Wintle, F. Hartig, and C. Dormann. 2017. Cross-validation strategies for data with temporal, spatial, hierarchical, or phylogenetic structure. *Ecography* **40**:913–929 (doi: 10.1111/ecog.02881). [ISI Heavily cited paper].
- Erickson, M. E., C. Found-Jackson, and M. S. Boyce. 2017. Habitat associations with counts of declining Western Grebes in Alberta, Canada. *Avian Conserv. Ecol.* **12**(1):12. (doi: 10.5751/ACE-00980-120112).
- Scrafford, M. A., T. Avgar, B. Abercrombie, and M. S. Boyce. 2017. Wolverine habitat selection in response to anthropogenic disturbance in the western Canadian boreal forest. *For. Ecol. Manage.* **395**, 27–36.
- Prokopenko, C., Boyce, M.S., Avgar, T. 2017. Characterizing wildlife behavioural responses to roads using integrated step selection analysis. *J. Appl. Ecol.* **54**, 470–479 (doi: 10.1111/1365-2664.12768).
- Boyce, M. S., Corrigan, R. 2017. Moose survey app for population monitoring. *Wildl. Soc. Bull.* **41**(1):125–128 (doi: 10.1002/wsb.732). [cover photo].
- Ladle, A., T. Avgar, T., Wheatley, M., Boyce. 2017. Predictive modeling of ecological patterns along linear-feature networks. *Meth. Ecol. Evol.* **8**, 329–338 (doi: 10.1111/2041-210X.12660).
- Gilbert, S.L., Hundertmark, K.J., Person, D.K., Lindberg, M.S., Boyce, M.S., 2017. Behavioral plasticity in a variable environment: snow depth and habitat interactions drive deer movement in winter. *J. Mammal.* **98**:246–259.
- Prokopenko, C., Avgar, T., Boyce, M.S., 2017. Extent-dependent habitat selection in a migratory large herbivore: road avoidance across scales. *Landsc. Ecol.* **32**:313–325.
- Christie, K., Jensen, W.F., Boyce, M.S., 2017. Resource selection by pronghorn in relation to land cover, roads, and oil and gas development in North Dakota. *J. Wildl. Manage.* **81**:154–162. [cover photo].
- Cristescu, B., G. B. Stenhouse, B. Goski, and M. S. Boyce. 2016. Grizzly bear space use and fitness in relation to human habitation and access. *Human Wildl. Interact.* **10**(2):240–257.
- Salari, A., M. Zakaria, M. S. Boyce. 2016. Habitat use by two tropical waterfowl in central Malaysia. *Wildfowl* **66**, 41–59.
- Cristescu, B., G. B. Stenhouse, M. Symbaluk, S. E. Nielsen, and M. S. Boyce. 2016. Wildlife habitat selection on landscapes with industrial disturbance. *Environ. Conserv.* **43**(4):327–336.
- Morehouse, A., T. Graves, N. Mikle, and M. S. Boyce. 2016. Nature vs. nurture: Evidence for social learning of conflict behaviour in grizzly bears. *PLoS ONE* **11**(11): e0165425.

- Webb, S. M., R. B. Anderson, D. L. Manzer, B. Abercrombie, B. Bildson, M. A. Scrafford, and M. S. Boyce. 2016. Distribution of female wolverines relative to snow cover, Alberta, Canada. *J. Wildl. Manage.* **80**(8):1461–1470.
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- Boyce, M. S. 1979. Seasonality and patterns of natural selection for life histories. *Am. Nat.* **114**:569–583.
- Boyce, M. S. 1978. Climatic variability and body size variation in the muskrats (*Ondatra zibethicus*) of North America. *Oecologia* **36**:1–19.

Boyce, M. S. 1977. Population growth with stochastic fluctuations in the life table. *Theor. Popul. Biol.* **12**:366–373.

Boyce, M. S., and J. J. Boyce. 1976. Pleistocene extinctions. *Science* **191**:102.

Menzel, B., and M. S. Boyce. 1973. First record of the pearl dace, *Semotilus margarita* (Cope), from Iowa. *Iowa State J. Res.* **47**(4):245–248.

CONTRACTS & GRANTS

Funded Projects as PI

Grant Completed	Amount Awarded	Funding Agency
ICCB 2010 (24th International Congress for Conservation Biology)		
12/31/2025	\$90,066	Carbon tax project account
Evaluating the efficacy of predator management and nesting structures for duck management in AB		
03/31/2018	\$15,000	Mitacs
03/31/2018	\$2,500	Safari Club International NAC – Hunting Heritage Fund
03/31/2018	\$3,370	AB Fish & Game Assoc. - Minister’s Special License
Ecology, density, and distribution of sitatunga in central Uganda		
03/31/2018	\$3,000	Safari Club International NAC – Hunting Heritage Fund
03/31/2019	\$12,304	Safari Club International West Texas Chapter
03/31/2019	\$5,500	Safari Club International NAC – Hunting Heritage Fund
Cougar project in Cadomin, Alberta		
08/31/2018	\$40,000	Wild Sheep Foundation of Alberta
03/31/2019	\$15,000	AB Conservation Association – Grants in Biodiversity
03/31/2018	\$9,000	Safari Club International NAC – Hunting Heritage Fund
10/31/2018	\$15,000	Mitacs
12/31/2018	\$6,500	Safari Club International Foundation
03/31/2018	\$22,000	AB Fish & Game Assoc. - Minister’s Special License
03/31/2019	\$10,000	Safari Club International NAC – Hunting Heritage Fund
03/31/2019	\$20,000	Alberta Conservation Association
03/31/2019	\$31,000	AB Fish & Game Assoc. - Minister’s Special License
04/30/2019	\$40,000	Wild Sheep Foundation of Alberta
Evaluating alternate elk harvest strategies in SW Alberta		
03/31/2018	\$7,650	Alberta Conservation Association
03/31/2018	\$4,500	Safari Club International NAB – Hunting Heritage Fund
08/31/2018	\$5,650	AB Fish & Game Assoc. - Minister’s Special License
Evaluating ungulate abundance in Elk Island National Park area, Alberta		
03/31/2019	\$5,000	Safari Club International NAC – Hunting Heritage Fund
03/31/2021	\$12,000	AB Fish & Game Assoc. - Minister’s Special License
Cassiar stone’s sheep habitat study in British Columbia		

03/31/2019	\$5,000	Safari Club International NAC – Hunting Heritage Fund
03/31/2021	\$27,745	Habitat Conserv Trst Fndtn - Enhancement & Restoration
03/31/2022	\$27,827	Habitat Conserv Trst Fndtn - Enhancement & Restoration
White-tailed deer and mule deer harvest and demographic data in North Dakota		
06/30/2020	\$130,000 US	North Dakota Game and Fish Department
Spatial and Temporal Variability Influences on Ecology and Conservation		
03/31/2023	\$220,000	NSERC – Discovery Grants Program
Conservation applications of ecological theory		
03/31/2029	\$289,322	NSERC – Discovery Grants Program
Grazing practices influence on carbon sequestration and storage		
03/31/2021	\$2,623,444	Agric Green-House Gas Program, Can Agr & Agrifoods
Winter Severity Index for Deer in Alberta		
08/10/2022	\$8,651	Enhancing Environmental Science in Alberta; AEP/UA
Wind Power Development Effects on Black Bear Movement Ecology		
03/01/2023	\$98,000	Vermont Fish & Wildlife
Genetics and distribution of Coast Wolves in British Columbia		
04/01/2023	\$50,232	BC Habitat Conservation Trust Fund
04/01/2023	\$5,500	Safari Club International-Northern Alberta Chapter
Sandhill Crane Movement Ecology		
07/01/2022	\$39,789	Environment and Climate Change Canada
04/01/2023	\$7,000	Safari Club International-Northern Alberta Chapter
04/01/2023	\$20,610.	Alberta Conservation Association
Bighorn Movements and Disease Risk		
08/10/2022	\$30,275.	Enhancing Environmental Science in Alberta; AEP/UA
04/01/2023	\$11,000	Safari Club International-Northern Alberta Chapter
04/01/2023	\$26,150	Alberta Conservation Association

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Memberships in professional societies

American Society of Mammalogists (patron life member).
 Canadian Society for Ecology and Evolution.
 Ecological Society of America (Chair, Canada Chapter 2020-2022).
 Gamma Sigma Delta (honorary).
 Phi Kappa Phi (honorary).
 Population Institute of Canada, 2019.
 Royal Society of Canada; Fellow, 2014.
 Sigma Xi (associate member 1975, full member 1978, Univ. Alberta Chapter 2000).
 Society for Conservation Biology.
 The Wildlife Society (Certified Wildlife Biologist, 2000; Fellow, 2012; Life member, 2022).
 Wild Sheep Foundation Alberta (life member, 2003; Board of Directors, 2019).
 Willmore Wilderness Foundation (life member, 2007).

Editor-in-Chief: *Journal of Wildlife Management*, 1995-1997.

Editor: *Ecology* and *Ecological Monographs*, 2001-2006.

Associate Editor: *I.M.A. Journal of Mathematics Applied in Medicine and Biology*, 1983-1994. *Journal of Wildlife Management*, 2017-2018. *Frontiers in Ecology and Evolution*, 2023-present.

Editorial Board: *Oecologia Montana*, 1992-present. *Environmental Conservation*, 2007-2010. *Oxford Bibliographies in Ecology*, 2010-present. *Animal Biotelemetry*, 2012-present.

Academic Editor: *PLoS ONE*, 2010-2019.

PROFESSIONAL SERVICES (last 5 yrs)

Living Data Project, Canadian Institute for Ecology and Evolution, University of Regina/University of British Columbia, Lek behavior of Greater Sage-Grouse, 2023.
Workshop on Private Lands Access, Alberta Conservation Association, 2023 April 3.
Workshop on Citizen Science, Alberta Conservation Association and Alberta Environment and Parks, 2022 April 20.
Federal GHG Offset System - Livestock Feed Management - Technical Expert Team, Canada Environment and Climate Change, 2022.
Review of France-Canada Research Fund proposal, Univ Alberta VP Research, March 25.
Testimony, Wyoming Senate, Resources Committee, Sage-Grouse captive rearing legislation, 2022 March 1.
Grizzly bear threat assessment panel, Environment and Climate Change Canada, 2021-2022.
Proposal reviews, Grassland landscapes conservation, Metcalf Foundation, 2021 November.
Alberta Institute of Agrologists, Webinar on advantages of adaptive multi-paddock grazing. 2021 Sept 18.
Royal Society of Canada, invited op-ed for *Globe and Mail*. “Mimic the Bison: Why we should bury carbon tax revenues in soil.” <https://rsc-src.ca/en/voices/mimic-bison-burying-carbon-tax-revenues-in-soil> (2021 May 5).
Workshop on the North American Model of Wildlife Conservation, Alberta Conservation Association and Alberta Environment and Parks, 4 hrs by Zoom, www.ab-conservation.com/media-share/ [Username: guestshare; Password: gr8b9-VC_nG] 2021 March 29.
Workshop on Adaptive Multi-Paddock Grazing, ALUS Canada, 2021 March 3 & 4.
Moderator, Wild Sheep and Goat Conference, virtual, 2020 Nov 4.
Workshop on grazing management for conservation, Alberta Conservation Association, 2020 April 15.
Affadavit for Ministry of Environment and Climate Change on Emergency Protective Order for Greater Sage-Grouse in Canada, 2019 October.
Review committee on wildlife research for Swedish Environmental Protection Agency, Sigtuna, Sweden, March 2018-April 2019.
Workshop on camera trapping, Alberta Conservation Association & Alberta Environment and Parks, 2019 April 12.

Board of Directors, Wild Sheep Foundation Alberta, 2019.
Session Chair, Movement Ecology Gordon Conference, Italy, 2019 March 6.
Herbivory Session Chair, Ecological Society of America, New Orleans, LA, August 2018.
PLoS ONE Academic Editors Meeting, New Orleans, LA, August 2018.
Student presentations juror, American Society of Mammalogists, Manhattan, KS, June 2018.
Review committee of ecology programs in the Swedish SLU System, Uppsala, Sweden, May 28-
June 1, 2018.
Workshop on habitat selection, Department of Evolutionary Ecology, Leibniz Institute for Zoo
and Wildlife Research, Berlin, Germany, May 25, 2018.
Workshop on habitat selection, Alberta Conservation Association and Alberta Environment and
Parks, Edmonton, April 19, 2018.
Edited a Special Section for the *Journal of Wildlife Management* on Management of Mountain
Sheep, January 2018.
Organized symposium on “Uncertainty in ecology and conservation” for the Canadian Society
for Ecology and Evolution and Canadian Section of The Wildlife Society. Victoria,
British Columbia, 2017 May 8.
Past-president, Canadian Section of The Wildlife Society, July 2016-May 2017.
President, Canadian Section of The Wildlife Society, March 2015-July 2016.
Chair, Conservation Affairs Committee, Alberta Chapter of The Wildlife Society, 2021-present.
Director, Northern Alberta Chapter of the Safari Club International, 2007-present.
Alberta Conservation Association, Board of Directors, 2002-present.
Chair, Operation Standards Review Committee, Board of Directors, Alberta Conservation
Association, 2002-present.

INVITED PRESENTATIONS (last 5yrs)

2023, “Wolf Recovery for Yellowstone.” Invited lecture, Conservation Biology, Department of
Biological Sciences, University of Alberta. November 2023.
2022, “Demography and population modelling.” Invited Lectures, Inland University of Norway,
Evenstad. August 29-31.
2022, “Mimic the Bison.” Ecology/Evolution Seminar, Dept Biol. Sci, Univ Alberta, Mar 4.
2022, “Harvesting in variable environments.” Invited Lecture, Ren Res 367 (Besko), University
of Alberta. Feb 11.
2022, “Volterra Principle and Elk Harvests with increasing Large Carnivores.” Office of the
Chief Scientist (Jonathan Thompson) Seminar Series, AEP, Feb 1.
2021, “Global Model of Wildlife Conservation.” Indigenizing Wildlife Management Seminar,
British Columbia Chapter of The Wildlife Society, 2021 October 22.
2021, “Global Model of Wildlife Conservation.” Alberta Chapter of The Wildlife Society Hot
Topic webinar series, 2021 October 21.
2021, “Harvest modelling.” Applied Models for Fish and Wildlife Management, Ph.D. course.
Inland Norway University of Applied Sciences (INN), Evenstad, Norway. 2021 May 4.
2021, “Population Viability Analysis.” Applied Models for Fish and Wildlife Management,
Inland Norway University of Applied Sciences (INN). Evenstad, Norway. 2021 May 3.
2020, “Adapting Grassland Grazing to Boost Carbon Sequestration.” Saskatchewan Prairie
Conservation Action Plan webinar: <https://www.youtube.com/watch?v=HpoUNywPLk8>,
March 16.

- 2019, “United Community for wilderness Protection.” Distinguished Martha Kostuch lecture, Calgary, November 23.
- 2019, “Human Predation on Migratory Elk in Alberta.” Symposium: *The Interface of Predation and Migration in Aquatic and Terrestrial Ecosystems* American Fisheries Society/The Wildlife Society joint conference, Reno, Nevada, October 3.
- 2019, Plenary: “Habitat ecology for mountain sheep in North America.” World Mountain Ungulate Conference, Bozeman, Montana, September 12.
- 2019, Plenary address: “Wolves for Yellowstone.” British Columbia Wildlife Federation, Fort St. John, BC, May 10.
- 2019, “Wolves for Yellowstone: Dynamics in Time and Space.” Whyte Museum Lecture, Banff, Alberta, March 14.
- 2019, “Sustainable harvest management for bighorns in Alberta.” Wild Sheep Foundation Alberta, Red Deer, March 9.
- 2019, “Conservation applications of movement ecology.” Gordon Conference, Italy, March 6.
- 2019, “Wolves for Yellowstone.” Department Seminar, Natural Resources Ecology and Management, Iowa State University, Ames, February 1.
- 2019, “Wolves for Yellowstone.” Research Seminar, Centre for Biodiversity Dynamics, NTNU, Trondheim, Norway, January 28.
- 2018, “Uncertainty, seasonality, and unintended consequences: the demographic Hydra Effect.” Symposium on Downscaling, Extreme Events and Stochastic Population Models at the Ecological Society of America Annual Meeting, New Orleans, Louisiana, August 8.
- 2018, “Wolves for Yellowstone: Dynamics in Time and Space.” C. Hart Merriam Award Plenary, American Society of Mammalogists Annual Meeting, Manhattan, KS, June 27.
- 2018, “Habitat modelling,” Department of Evolutionary Ecology, Leibniz Institute for Zoo and Wildlife Research-IZW, Berlin, Germany, May 25.
- 2018, “Canada’s Arctic Wildlife and Climate Change,” RSC Miroslaw Romanowski Medal Lecture, G-7 Research Summit, Arctic Sustainability Summit, Montreal, May 23.
- 2018, “Wolf recovery for Yellowstone: dynamics in time and space,” University College Dublin, Dublin, Ireland, March 29.
- 2018, “Wolf recovery for Yellowstone: dynamics in time and space,” Dept of Applied Zoology and Wildlife Management, Faculty of Forestry, Technical Univ. in Zvolen, Slovakia.
- 2018, “Wolf recovery for Yellowstone: dynamics in time and space,” University of Swansea, Swansea, Wales, Feb 26.
- 2018, “Wolf recovery for Yellowstone: Predicting dynamics,” Department of Zoology Seminar, University of Oxford, U.K., Feb 12.
- 2017, “Northern wildlife and climate change,” Cutting Edge Seminar Series, McGill University, Montreal, December 14.
- 2017, “Controversies on wolf recovery for Yellowstone.” ALES Seminar Series, University of Alberta, December 7.
- 2017, “Predator-prey systems: the wolves in Yellowstone,” Royal Society of Victoria, Melbourne, Australia, September 21.
- 2017, “Topics in non-linear dynamics in population ecology,” Quantitative and Applied Ecology (QAECO), School of Biological Sciences, University of Melbourne, Australia, August 17.
- 2017, “Habitat selection by mammals,” Symposium on Telemetry Methods, International Mammalogical Congress, Perth, Australia, July 11.

2017, “Natural selection for life histories in seasonal environments,” Symposium on Ecological and Evolutionary Dynamics in Fluctuating Environments for the Canadian Society for Ecology and Evolution, Victoria, BC, May 8.

PUBLIC SERVICE/POPULAR PRESENTATIONS (recent)

- 2024, “Hunting induced horn evolution in mountain sheep with Mark Boyce” *The Hunter Conservationist Podcast with Mark Hall*. (2024 Feb 2).
- 2022, “Wolves in Yellowstone” Taking It Global, For Primary Schools worldwide, (May 20).
- 2022, “Elk harvests and large carnivores” Alta Fish and Game Assoc Webinar (April 14).
- 2022, “Mosquitoes don’t warrant ecological warfare” *Edmonton Journal*, April 9.
- 2021, “Grizzly tinder: Bears rubbing up against trees may be their dating calling card” *Quirks and Quarks* radio interview (March 19).
- 2020, “Rudolf the vulnerable reindeer,” White Memorial Conservation Center webinar series, Litchfield, Connecticut (Dec 5).
- 2019, “Rare grizzly bear sightings near Dodge Cove,” *The Northern View*, Prince Rupert, BC (July 19).
- 2019, “Grizzly bears in Dodge Cove,” CBC Radio, Prince Rupert, BC (July 19).
- 2018, “La exitosa reintroducción del lobo en el Parque Nacional de Yellowstone,” *National Geographic Espana*. (October 29).
- 2018, “Reintroduction of wolves to Yellowstone led to unexpected ecological response,” *Newsweek* (October 17).
- 2018, “Letting nature take its course: Wolves in Yellowstone National Park,” *Science Daily*, (October 16).
- 2018, Media coverage on Yellowstone wolves, CTV, CBC Radio Active, Eurekalert, Flipboard, Phys.Org, Labroots (October 17).
- 2018, “Wolves for Yellowstone,” Pigeon Lake Regional School, Falun, Alberta (October 17).
- 2018, “A Passion for the Science of Wildlife,” *The Wildlife Professional* **12**(4):16-17.
- 2017, “Brainy elk become bulletproof by outsmarting hunters,” *Quirks & Quarks*, CBC, (Jun 16)
- 2017, “Canada’s energy policy: the urgent need for science,” Mayfield Rotary, Edmonton
- 2016, “Canada’s energy policy: the urgent need for science,” Edmonton South Rotary Club (November 23).
- 2016, “Energy development and species at risk in Canada,” Sunrise Rotary Club, Fort Edmonton (September 30).
- 2016, “Moose app for moose management in Alberta,” Strathcona Rotary Club, Edmonton (September 6).
- 2016, “Bighorn management in Alberta,” Safari Club International, Edmonton (January).
- 2015, “Licenced hunting and trapping in Canada: funding for management and research,” House of Commons Standing Committee on Environment and Sustainable Development, Ottawa (March 31).

COMMITTEES (recent)

2023, Minister’s Special Licence administration meeting, Alberta Professional Outfitter’s Society, Edmonton, July 2023

- 2022-2023, Grants review committee, Minister's Special Licence, Alberta Fish and Game Association.
- 2021-2022, organizing committee for joint CSEE/ESA meeting in Montreal, July 2022.
- 2020-2022, Chair, Canadian Chapter, Ecological Society of America.
- 2020-present, Endangered Species Conservation Committee, Alberta Environment and Protected Areas.
- 2019, First Opponent, Doctoral Examination Committee, NTNU, Trondheim, Norway.
- 2018-2019, Search Committee, Chair, Dept. Biological Sciences, Univ. Alberta.
- 2016-2017, Search committee, Fisheries biologist, Dept. Biological Sciences, Univ. Alberta.
- 2015-2020, Alberta Game Policy Advisory Council, Alberta Environment & Parks.
- 2014-2015, Alberta Game Management Advisory Group, Alberta Environment & Parks.
- 2015-2016, Grizzly bear harvest policy review, British Columbia Department of Environment.
- 2007-2019, Conservation Affairs Committee, Alberta Chapter The Wildlife Society.
- 2019-present, Chair, Conservation Affairs Committee, Alberta Chapter of The Wildlife Society.