

# Jacob S. Ivan

## Education

Ph. D. Fish, Wildlife, and Conservation Biology, Colorado State University (2011)  
M. S. Wildlife Biology, University of Montana (2000)  
B. S. Wildlife Science, Purdue University (1997)

## Positions Held

Wildlife Research Scientist, Colorado Parks and Wildlife (2010-Present)  
Affiliate Faculty, Colorado State University, Fish, Wildlife, and Conservation Biology (2014-Present)  
Refuge Biologist, U.S. Fish & Wildlife Service (2003-2005)  
Piping Plover Recovery Biologist, The Nature Conservancy (2000-2003)

## Refereed Publications

- Magee, P. A., J. D. Coop, and J. S. Ivan. In Press. *Thinning alters avian occupancy in pinon-juniper woodlands*. *Condor* 00:000-000.
- Ivan, J. S., A. E. Seglund, R. L. Truex, and E. S. Newkirk. 2018. *Mammalian responses to changed forest conditions resulting from bark beetle outbreaks in the southern Rocky Mountains*. *Ecosphere* 9:e02369.
- Olson, L. E., J. R. Squires, E. K. Roberts, J. S. Ivan, and M. Hebblewhite. 2018. Sharing the same slope: behavioral responses of a threatened mesocarnivore to motorized and nonmotorized winter recreation. *Ecology and Evolution* 8:8555-8572.
- Buderman, F. E., M. B. Hooten, J. S. Ivan, and T. M. Shenk. 2018. *Large-scale movement behavior in a reintroduced predator population*. *Ecography* 41:126-139.
- Olson, L. E., J. R. Squires, E. K. Roberts, A. D. Miller, J. S. Ivan, and M. Hebblewhite. 2017. *Modeling large-scale winter recreation terrain selection with implications for recreation management and wildlife*. *Applied Geography* 86:66-91.
- Baigas, P. E., J. R. Squires, L. E. Olsen, J. S. Ivan, and E. K. Roberts. 2017. *Using environmental features to model highway crossing behavior of Canada lynx in the Southern Rocky Mountains*. *Landscape and Urban Planning* 157:200-213.
- Buderman, F. E., M. B. Hooten, J. S. Ivan, and T. M. Shenk. 2016. *A functional model for characterizing long-distance movement behavior*. *Methods in Ecology and Evolution* 7:264-273.
- Hooten, M. B., F. E. Buderman, B. M. Brost, E. M. Hanks, and J. S. Ivan. 2016. *Hierarchical animal movement models for population-level inference*. *Environmetrics* 27:322-333.
- Ivan, J. S., and T. M. Shenk. 2016. *Winter diet and hunting success of Canada lynx in Colorado*. *Journal of Wildlife Management* 80:1049-1058.
- Ivan, J. S., and E. S. Newkirk. 2016. *CPW Photo Warehouse: a custom database to facilitate archiving, identifying, summarizing, and managing photo data collected from camera traps*. *Methods in Ecology and Evolution* 7:499-504.
- Ellis, M. M., J. S. Ivan, J. M. Tucker, and M. K. Schwartz. 2015. *rSPACE: Spatially based power analysis for conservation and ecology*. *Methods in Ecology and Evolution* 6:621-625.
- Ivan, J. S., G. C. White, and T. M. Shenk. 2014. *Density and demography of snowshoe hares in central Colorado*. *Journal of Wildlife Management* 78:580-594.
- Gerber, B. D., J. S. Ivan, and K. P. Burnham. 2014. *Estimating the abundance of rare and elusive carnivores from photographic-sampling data when the population size is very small*. *Population Ecology* 56:463-470.
- Trainor, A. M., O. J. Schmitz, J. S. Ivan, and T. M. Shenk. 2014. *Enhancing species distribution modeling by characterizing predator-prey interactions*. *Ecological Applications* 24:204-216.

- Ellis, M. M., J. S. Ivan, and M. K. Schwartz. 2014. *Spatially explicit power analyses for occupancy-based monitoring of wolverine in the U.S. Rocky Mountains*. Conservation Biology 28:52-62.
- Ivan, J. S. 2013. *Density estimation*. Pages 20.1-20.19 in E. Cooch and G. White, Editors. Program MARK - 'A Gentle Introduction'. 11th Edition. 983pp.
- Ivan J. S., G. C. White, and T. M. Shenk. 2013. *Using simulation to compare methods for estimating density from capture-recapture data*. Ecology 94:817-826.
- Ivan, J. S., G. C. White, and T. M. Shenk. 2013. *Using auxiliary telemetry information to estimate animal density from capture-recapture data*. Ecology 94:809-816.
- Stromborg, K. L., J. S. Ivan, J. K. Netto, and C. R. Courtney. 2012. *Survivorship and mortality patterns of double-crested cormorants at Spider Island, Wisconsin, 1988-2006*. Waterbirds 35:31-39.
- Ivan, J. S., and R. K. Murphy. 2005. *What preys on piping plover eggs and chicks?* Wildlife Society Bulletin 33:113-119.
- Murphy, R. K., I. M. G. Michaud, D. R. C. Prescott, J. S. Ivan, B. J. Anderson, M. L. French-Pombier. *Predation on adult piping plovers at predator exclosure cages*. 2003. Waterbirds 26:150-155.
- Murphy, R. K., R. J. Greenwood, J. S. Ivan, K. A. Smith. 2003. *Predator exclusion methods for managing endangered shorebirds: are two barriers better than one?* Waterbirds 26:156-159.
- Ivan, J. S., and R. K. Swihart. 2000. *Selection of mast by granivorous rodents of the central hardwood forest region*. Journal of Mammalogy 81:549-562.

### Manuscripts in Review/Revision

- Buderman, F. E., M. B. Hooten, M. W. Alldredge, E. M. Hanks, and J. S. Ivan. In Review. *Time-varying predatory behavior is primary predictor of fine-scale movement of wildland-urban cougars*. Movement Ecology 00:000-000.
- Squires, J. S., L. E. Olson, E. K. Roberts, J. S. Ivan, and M. Hebblewhite. In Review. *Winter Recreation and Canada Lynx: Reducing conflict through Niche Partitioning*. Ecosphere 00:000-000.

### Recent Non-Refereed Publications

- Ivan J., and A. Seglund. 2017. *Mammal and breeding bird response to bark beetle outbreaks in Colorado*. Pages 1-6 in Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 45 pp.
- Ivan J., E. Odell, and S. Wait. 2017. *Canada lynx monitoring in Colorado*. Pages 7-10 in Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 45 pp.
- Ivan J., and A. Seglund. 2016. *Mammal and breeding bird response to bark beetle outbreaks in Colorado*. Pages 1-5 in Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 45 pp.
- Ivan J., E. Odell, and S. Wait. 2016. *Canada lynx monitoring in Colorado*. Pages 6-10 in Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 45 pp.
- Ivan J., and A. Seglund. 2015. *Mammal and breeding bird response to bark beetle outbreaks in Colorado*. Pages 1-5 in Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 45 pp.
- Ivan J., E. Odell, and S. Wait. 2015. *Canada lynx monitoring in Colorado*. Pages 6-9 in Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 45 pp.

- Ivan J. and A. Seglund. 2014. Mammal and breeding bird response to bark beetle outbreaks in Colorado. Pages 1-4 *in* Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 50 pp.
- Ivan, J. S. 2013. Small mammal and breeding bird response to bark beetle outbreaks in Colorado. Pages 1–13 *in* Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 310 pp.
- Ivan, J. S. 2013. Statewide Monitoring of Canada lynx in Colorado: Evaluation of options. Pages 15–27 *in* Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 310 pp.
- Ivan, J. S., 2012. Monitoring Canada Lynx in Colorado Using Occupancy Estimation: Initial Implementation in the Core Lynx Research Area. Pages 26–34 *in* Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 195 pp.
- Ivan, J. S. 2012. Putative Canada Lynx (*Lynx canadensis*) Movements across I-70 in Colorado. Wildlife Research Report. Colorado Division of Wildlife, Fort Collins, CO.
- Ivan, J. S. 2012. Putative Canada Lynx (*Lynx canadensis*) Movements across Hwy 40 near Berthoud Pass, Colorado. Wildlife Research Report. Colorado Division of Wildlife, Fort Collins, CO.
- Ivan, J. S., and T. M. Shenk. 2011. Monitoring Canada Lynx in Colorado Using Occupancy Estimation: Initial Implementation in the Core Lynx Research Area. Pages 11–20 *in* Wildlife Research Report, Mammals Research Program, Colorado Division of Parks and Wildlife, Fort Collins, CO. 296 pp.
- Ivan, J. S., M. Rice, P. M. Lukacs, T. M. Shenk, D. M. Theobald, and E. Odell. 2011. Predicted lynx habitat in Colorado. Colorado Division of Parks and Wildlife.
- Ivan, J. S. 2011. Putative Canada Lynx (*Lynx canadensis*) Movements across Hwy 114 near North Pass, Colorado. Wildlife Research Report. Colorado Division of Wildlife, Fort Collins, CO.
- Ivan, J. S. 2011. Putative Canada Lynx (*Lynx canadensis*) Movements across Hwy 50 near Monarch Ski Area. Wildlife Research Report. Colorado Division of Wildlife, Fort Collins, CO.

## Recent Professional Presentations

- Ivan, J. S., A. Seglund, and R. Truex. 2018. *Sampling mammalian species using the IMBCR protocol*. Colorado Chapter, The Wildlife Society.
- Ivan, J. S., A. Seglund, and R. Truex. 2016. *Impact of bark beetle outbreaks on mammals in Colorado*. Central Mountains & Plains Section, The Wildlife Society.
- Ivan, J. S., A. Seglund, and R. Truex. 2015. *Impact of bark beetle epidemics on mammals in Colorado*. 22<sup>nd</sup> Annual Meeting of The Wildlife Society.
- Ivan, J. S., A. Seglund, and R. Truex. 2015. *Impact of bark beetle epidemics on mammals in Colorado*. Colorado Chapter, The Wildlife Society.
- Ivan, J. S., G. C. White, and T. M. Shenk. 2012. *Using auxiliary telemetry information to estimate animal density from capture-recapture data*. Symposium: Recent Developments in and Applications of Spatial Capture-Recapture Models, 19<sup>th</sup> Annual Meeting of The Wildlife Society.
- Ivan, J. S., Rice, M., Theobald, D., T. M. Shenk, and E. Odell. 2012. *Predicted habitat use of Canada lynx in Colorado*. 19<sup>th</sup> Annual Meeting of The Wildlife Society.
- Ivan, J. S., G. C. White, and T. M. Shenk. 2011. *Density and demography of snowshoe hares in central Colorado*. Colorado Chapter, The Wildlife Society.

## Teaching Experience

### Guest Lecturer

- FW 663 (Sampling/Analysis of Vertebrate Populations), Colorado State University, February 2018
- FW 663 (Sampling/Analysis of Vertebrate Populations), Colorado State University, February 2014
- FW 663 (Sampling/Analysis of Vertebrate Populations), Colorado State University, February 2012
- The Colorado Lynx Reintroduction, University of Denver Adult Enrichment Program, April 2011

### Teaching Assistant

- FW 663 (Samp/Analysis of Vert Populations), Colorado State University, 2010
- BIOL 306 (Mammalogy), University of Montana, 1998, 1999
- WBIO 470 (Conservation of Wildlife Populations), University of Montana, 1997
- BIOL 108 (Biology of Plants), Purdue University, 1995

### Honors Research Advisor

- Caylen Cummins, Senior Wildlife Student, Colorado State University, May 2009-Dec 2009
  - "Summer habitat use and movements of snowshoe hares (*Lepus americanus*) in southern Colorado"

### Workshop Instructor

- Advanced MARK Workshop, August 2013, Colorado State University
- Advanced MARK Workshop, August 2011, Colorado State University
- Non-invasive sampling of wildlife populations, The Wildlife Society (Colorado Chapter), 2012

### Workshop Teaching Assistant

- Intermediate Program MARK Workshop, June 2009, Colorado State University
- Intermediate Program MARK Workshop, May 2009, Central Michigan University
- Intermediate Program MARK Workshop, April 2009, Alaska Department of Fish & Game,
- Intermediate Program MARK Workshop, June 2008, Colorado State University
- Intermediate Program MARK Workshop, February 2008, Idaho Fish and Game
- Intermediate Program MARK Workshop, August 2007, Colorado State University

## Technical and Advisory Service

- WAFWA Western States Wolverine Working Group (2015-present)
  - Assist with design, data storage, and analysis of 4-state wolverine monitoring program.
- USFWS Expert Elicitation Group (2015-2016)
  - Provide expertise and review regarding status and research of Canada lynx in Colorado for 2017 Species Status Assessment.
- GMUG SBEADMR Science Team (2015 - present)
  - Provide research updates and scientific expertise to monitor impacts and minimize damage to snowshoe hare and Canada lynx habitat during salvage operations on the Grand Mesa, Uncompahgre, and Gunnison National Forests.
- USFS Region 2 Lynx-Silviculture Team (2018-present)
  - Gather input from Regional and Forest silviculturalists to identify information needs and design future research. Interpret research results to silviculturalists to enhance their understanding and influence implementation.
- Interagency Lynx-Ski Area Blueprint Group (2010-2014)
  - Provide research updates and expertise to guide multiple-use decisions for ski areas in lynx habitat and to streamline the consultation process.

## Professional Memberships, Certifications

- The Wildlife Society (Biometrics Working Group)
- Ecological Society of America
- American Society of Mammalogists
- Certified Wildlife Biologist (The Wildlife Society)

## Awards

- Outstanding Wildlife Partner, U. S. Forest Service Region 2 (2013)
- Professional Achievement Award in Wildlife Research, The Wildlife Society, CO Chapter (2017)
- Special Recognition Award for Western States Wolverine Conservation Project, Western Association of Fish and Wildlife Agencies (2017)

## Invited Peer Review

- Animal Conservation 2014
- Biological Conservation 2012, 2013
- Canadian Journal of Zoology 2018
- Condor 2015
- Ecology 2014, 2016
- Ecology and Evolution 2018
- Ecosphere 2017
- Journal of Applied Ecology 2012
- Journal of Fish and Wildlife Management 2012
- Journal of Herpetology 2016
- Journal of Mammalogy 2017
- Journal of Wildlife Diseases 2016
- Journal of Wildlife Management 2011(2), 2015, 2016
- Methods in Ecology and Evolution 2013, 2014, 2016
- Preventative Veterinary Medicine 2016
- Ursus 2014
- Wildlife Society Bulletin 2012, 2016, 2018