

# James W. Cain III

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New Mexico Cooperative Fish and Wildlife Research Unit  
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## Education

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- Ph.D.** Wildlife and Fisheries Science – University of Arizona, School of Natural Resources, Tucson, Arizona, May 2006  
**M.S.** Biological Conservation – California State University, Department of Biological Sciences, Sacramento, California, May 2001  
**B.S.** Biological Science – Colorado State University, Department of Biology, Fort Collins, Colorado, May 1997

## Academic and Research Positions

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**Assistant Unit Leader-Wildlife** (2010 – present) – U.S. Geological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico.

- **Graduate Courses**

<i>Wildlife-habitat Relationships</i> (FWCE 540)	Fall 2011, 2013, 2015, 2019, 2021
<i>Large Mammal Ecology, Conservation, and Management</i> (FWCE 530)	Fall 2012, 2014, 2016, 2018, 2020

**Adjunct Associate Professor** (2015 – present). – Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, New Mexico.

**Adjunct Associate Professor** (2015 – present). – Department of Biology, New Mexico State University, Las Cruces, New Mexico.

**Adjunct Associate Professor** (2015 – present). – Department of Natural Resources Management, Texas Tech University, Lubbock, Texas.

**Adjunct Assistant Professor** (2010 – 2015). – Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, New Mexico.

**Adjunct Assistant Professor** (2011 – 2015). – Department of Biology, New Mexico State University, Las Cruces, New Mexico.

**Adjunct Assistant Professor** (2010 – 2015). – Department of Natural Resources Management, Texas Tech University, Lubbock, Texas.

**Adjunct Assistant Professor** (2010 – 2014). – Department of Biological and Environmental Sciences, Texas A&M University-Commerce, Commerce, Texas.

**Assistant Professor** (2008 – 2010) – Wildlife and Conservation Science, Department of Biological and Environmental Sciences, Texas A&M University-Commerce, Commerce, Texas.

- **Undergraduate Courses**

	<b>Semester</b>
<i>Quantitative Biology</i> (BSc 412)	Fall 2008, Spring 2009, Fall 2009, Spring 2010
<i>Wildlife Management I</i> (AG/BSc 335)	Fall 2008
<i>Geospatial Mapping</i> (BSc 417)	Fall 2009
<i>Field Methods for Wildlife and Conservation</i> (BSc 337)	Spring 2010

- **Graduate Courses**

*Wildlife-habitat Relationships* (BSc 597)      Spring 2009  
*Graduate Quantitative Biology* (BSc 504)      Fall 2009

- Faculty advisor for Texas A&M University-Commerce Student Chapter of The Wildlife Society
- Organize and supervise undergraduate internships in wildlife management and conservation with outside universities, state and federal agencies and non-governmental organizations.

**Honorary Research Fellow** (2008 – present) – Center for African Ecology, School of Animal, Plant, & Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa.

- Influence of ecosystem heterogeneity and predation risk on habitat selection, resource use, and movements of formerly migratory wildebeest (*Connochaetes taurinus*) and zebra (*Equus quagga*) in Kruger National Park, South Africa.
- Competition and multi-scale habitat partitioning between tall grass grazers: sable antelope (*Hippotragus niger*), zebra (*Equus quagga*) and buffalo (*Syncerus caffer*).

**Postdoctoral Fellow** (2006 – 2008) – Center for African Ecology, School of Animal, Plant, & Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa.

- Synthesize the information gathered on spatial and temporal variation in forage and water resources and on the distribution, movement, and habitat selection of sable antelope, buffalo, and zebra.
- Generate landscape-scale model of spatial and temporal heterogeneity in forage quality using remote sensing data.
- Develop an model to guide management actions with regard to the provision of surface water and fire policy as it affects these species
- Prepare grant proposals, publications and reports.

**Adjunct Professor** (2007 – 2010) – Wildlife Conservation and Management, School of Renewable Natural Resources, University of Arizona, 325 Biological Sciences East, Tucson, Arizona

**Lecturer** (2008) – Post-graduate Project Office, University of the Witwatersrand, Johannesburg, South Africa

- Developed and taught a workshop on Quantitative Methods for Science Masters Students
- Workshop covered principles of research/experimental design, development and testing of research hypotheses, use of the hypothetico-deductive method, and statistical approaches, with an emphasis on the relationships between research hypotheses and experimental design

**Lecturer** (2007) – School of Animal, Plant, & Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa

- Taught lectures and laboratories for APES 3038: *Populations and Resources*. Course covered population dynamics, demographic processes, behavioral ecology of resource use, predator-prey and plant-herbivore interactions, competition, parasites and pathogens, food chains and webs, metapopulation dynamics, and population viability analysis.
- Co-taught APES Honors Course: *Approaches to Science*. Presented lectures on study design, statistical inference, and modeling.
- Prepared grant proposals, publications and reports.

**Lecturer** (2004 – 2005, part-time) – School of Natural Resources, University of Arizona, Tucson, Arizona.

- Assisted with Wildlife and Fisheries Science 444: *Wildlife Management - Mammalian Species*
- Prepared and presented lectures on the history and evolution of wildlife management in North America, basic concepts of population dynamics, the role of hunting in wildlife management.

## Graduate Students

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### Current

- Scott Boyle, Ph.D. student. Dissertation: Cause-specific mortality and survival of elk in the Mexican Wolf Recovery Area in New Mexico and Arizona. Department of Biology, New Mexico State University, Las Cruces.
- Joanna Ennis. M.S. student. Thesis: Identification and characterization of habitat conditions of mule deer, elk and pronghorn migration routes and stopover locations in northern New Mexico. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Ashley Evans, M.S. student. Thesis: Recreational disturbance and desert bighorn sheep in western Colorado. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Zackary Farley, M.S. student. Thesis: Assessing the impacts of a recovering predator on prey vigilance. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Matthew Keeling, M.S. student. Thesis: Habitat selection of American black bears in north-central New Mexico. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Julia Olson, M.S. student. Thesis: Elk foraging efficiency and predation risk from Mexican wolves. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Sam Martinez, M.S. student. Thesis: Kill rates and prey composition of mountain lions and Mexican wolves. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Ruth Passernig, M.S. student. Thesis: Influence of severe wildfire and forest restoration treatments on movements and habitat selection of mountain lions. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Caitlin Ruhl, M.S. student. Thesis: Improving desert bighorn population estimates using a hybrid model for aerial surveys. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces.
- Sharon Smythe, Ph.D. student. Dissertation: Influence of wildfires and landscape scale forest restoration on resource selection and foraging ecology of elk. Department of Natural Resources Management, Texas Tech University, Lubbock. (Co-supervised with Dr. Warren Conway)
- Cara Thompson, M.S. student. Thesis: Influence of Mexican gray wolf on elk resource selection. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.
- Leah White, M.S. student. Thesis: Investigation of interspecific interactions of mule deer, elk, mountain lions, black bears and coyotes using multi-species occupancy modeling. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces.

### Completed

- Etchart, J.L. 2021. Evaluating water use and seasonal ranges of desert bighorn sheep and aoudad in the Sierra Vieja Mountains, Texas. M.S. Thesis. Department of Natural Resource Management, Sul Ross State University, Alpine, Texas. (Co-supervised with Dr. Ryan O'Shaughnessy). 134 pp.

- Karish, T. 2020. Habitat selection by feral burros in the Mojave Desert. M.S. Thesis, New Mexico State University, Las Cruces. (Co-supervised with Dr. Gary Roemer). 86 pp
- Prude, C.H. 2020. Influence of habitat heterogeneity and water sources on kill site locations and puma prey composition. M.S. Thesis, New Mexico State University, Las Cruces. 97 pp.
- Kunkel, A. 2020. Breeding season survival of lesser prairie-chickens (*Tympanuchus pallidicinctus*) and fire ecology in the shinnery oak prairie of eastern New Mexico. M.S. Thesis, New Mexico State University, Las Cruces. 101 pp
- Rossette, T.S. 2019. Monitoring mountain lions in the desert southwest: Spatial density estimation and results of a novel hair sampling technique. M.S. Thesis, New Mexico State University, Las Cruces. 75 pp. (Co-supervised with Dr. Travis Perry)
- Anaya, A.J. 2019. Mountain lion (*Puma concolor*) kill rates and prey composition in north-central New Mexico. Department of Natural Resources Management, New Mexico Highlands University. 57 pp.
- Gould, M.J. 2019. Using genetic based methods to monitor American black bear populations in the American southwest. Ph.D. Dissertation. Department of Biology, New Mexico State University, Las Cruces. 217 pp. (Co-supervised with Dr. Gary Roemer)
- Reddell, C.D. 2018. Anthropogenic resource use and disease dynamics in a desert coyote population. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 120 pp. (Co-supervised with Dr. Gary Roemer)
- Kay, J.H. 2018. Top-down and bottom up influences on mule deer in central New Mexico. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 186 pp.
- Bard, S.M. 2018. Microsite habitat selection and pathogen prevalence of black bears (*Ursus americanus*) in the Jemez Mountains, New Mexico. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 89 pp.
- Roerick, T.M., 2017. Effects of Forest restoration on habitat selection of female mule deer in the Jemez Mountains, New Mexico. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 143 pp.
- Humagain, K. 2016. Ecological variation among vegetation cover types and forest stand dynamics in the south-west Jemez Mountains, New Mexico. Ph.D. Dissertation, Texas Tech University, Lubbock. 145 pp. (Co-supervised with Dr. R. Cox)
- Ashling, J.B. 2015. Survival, cause-specific mortality, and habitat selection of translocated mule deer in southern New Mexico. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 134 pp.
- Kindschuh, S.R. 2015. Efficacy of GPS cluster analysis for predicting black bear carnivory sites. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University. Las Cruces. 73 pp.
- Roberts, C. 2015. Seasonal and diel elk habitat selection in the Jemez Mountains of New Mexico. M.S. Thesis. Department of Natural Resources Management, Texas Tech University, Lubbock. 133 pp. (Co-supervised with Dr. Robert Cox)
- Garrison, K.R. 2014. Influence of livestock grazing on desert bighorn sheep (*Ovis canadensis mexicana*) forage resources and foraging behavior. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University. Las Cruces. 83 pp.
- Karsch, R.C. 2014. Desert bighorn sheep adult female and lamb survival, cause-specific mortality, and parturient female habitat selection in the Peloncillo Mountains, New Mexico, USA. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 121 pp.
- Overstreet, M.W. 2014. Body condition and survival of desert bighorn sheep in relation to habitat and precipitation on the Kofa National Wildlife Refuge, Arizona. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 69 pp.

- Pitman, J.W. 2013. Microhabitat selection and mortality site characteristics of elk (*Cervus canadensis*) calves and adult elk calf-rearing habitat selection in areas of differing predation influences in southern and northern New Mexico. M.S. Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces. 160 pp
- Lewis, J.D. 2012. Population status and habitat selection of an inland alligator (*Alligator mississippiensis*) population at the Fort Worth Nature Center and Refuge. M.S. Thesis. Department of Biological and Environmental Science, Texas A&M University-Commerce. 117 pp.
- Smith, K.N. 2011. Nesting ecology and multi-scale habitat use of the black-capped vireo. M.S. Thesis. Department of Biological and Environmental Science, Texas A&M University-Commerce. 80 pp.
- O'Shaughnessy, R. 2010. Comparative diet and habitat selection of puku (*Kobus vardonii*) and lechwe (*Kobus leche*) on the Chobe River Floodplain, Botswana. M.Sc. Thesis School of Animal, Plant, and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa. 159 pp.
- Dabengwa, A.N. 2009. Assessing the role of woody cover in resource selection by sable antelope (*Hippotragus niger*) in northern Kruger National Park. M.Sc. Thesis, School of Animal, Plant, and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa. 83 pp. (Co-supervised with Dr. Barend Erasmus)

## Publications and presentations

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### Publications

Submitted manuscripts:

- Buchalski, M.R., C.W. Epps, W.M. Boyce, M.D. Matocq, R.S. Crowhurst, L.M. Thompson, and **J.W. Cain III**. In Review. Single nucleotide polymorphism data indicate genomic differentiation among desert bighorn sheep (*Ovis canadensis nelsoni*) from different ecosystems. Submitted to Ecology and Evolution.
- Gould, M.J., **J.W. Cain III**, T.C. Atwood, L.E. Harding, H.E. Johnson, D.P. Onorato, F.S. Winslow, and G.W. Roemer. In Review. Pleistocene-Holocene vicariance not Anthropocene landscape change, explains the genetic structure of American black bear (*Ursus americanus*) populations in the American Southwest and northern Mexico. Submitted to Molecular Ecology.
- Reddell, C.D., G.W. Roemer, D.K. Delaney, T. Karish, and **J.W. Cain III**. In Review. Anthropogenic subsidies influence resource use during a mange epizootic in a desert coyote population. Submitted to Oecologia
- Nams, V., et al. In Review. Spatial patterns of large African cats: A large scale study on density, home range size, and overlap, of lions and leopards. Submitted to Mammal Review.
- Harris, G.M., M.J. Butler, D.R. Stewart, and J.W. Cain III. In Review. *Caprinae* Abundance and Population Persistence. Submitted to Scientific Reports.
- Hennig, J.D., K.A. Schoenecker, **J.W. Cain III**, G.W. Roemer, and J.L. Laake. In Review. Accounting for residual heterogeneity in double-observer sightability models to decrease bias in feral burro abundance estimates. Submitted to Journal of Wildlife Management
- Pitman, J.W., **J.W. Cain III**, W.R. Gould, N.T. Tatman, and S.G. Liley. In Review. Habitat selection and survival of elk neonates. Submitted to the Southwestern Naturalist.

*Published and in press manuscripts:*

72. Yiu, S-W., N. Owen-Smith, and **J.W. Cain III**. In Press. How do lions move at night when they hunt? *Journal of Zoology*
71. Butler, M.J., K.L. Metzger, C.R. Sanspree, **J.W. Cain III**, and G.M. Harris. In Press. Whooping and sandhill cranes visit upland ponds proportional to migration phenology on the Texas coast. *Wildlife Society Bulletin*.
70. Rossettie, T.S., T.W. Perry, and **J.W. Cain III**. In Press. Noninvasive sampling of mountain lion hair by modified foothold traps. *Wildlife Society Bulletin*.
69. Prude, C.H., and **J.W. Cain III**. 2021. Habitat diversity influences puma (*Puma concolor*) diet in the Chihuahuan Desert. *Wildlife Biology* wlb.00875.
68. Schweiger, B.R., J.K. Frey, and **J.W. Cain III**. 2021. A case for multiscale habitat selection studies of small mammals. *Journal of Mammalogy* 102:1249–1265.
67. Gedir, J.V., **J.W. Cain III**, B.C. Lubow, T. Karish, D.K. Delaney, and G.W. Roemer. 2021. Estimating abundance and simulating fertility control in a feral burro population inhabiting the Mojave Desert, California. *Journal of Wildlife Management* 85:1187–1199.
66. Reddell, C.D., F. Abadi, D.K. Delaney, **J.W. Cain III**, and G.W. Roemer. 2021. Urbanization's influence on the distribution of mange in a carnivore revealed with multistate occupancy models. *Oecologia* 195:105-116.
65. Gedir, J.V., **J.W. Cain III**, T.L. Swetnam, P.R. Krausman, and J.R. Morgart. 2020. Extreme drought and adaptive resource selection by a desert mammal. *Ecosphere* 11(7):e03175.
64. Sorensen, G.E., D.W. Kramer, **J.W. Cain III**, C.A. Taylor, P.S. Gipson, M.C. Wallace, R.D. Cox, and W.B. Ballard. 2020. Mule deer habitat selection following vegetation thinning treatments in New Mexico. *Wildlife Society Bulletin* 44:122–129.
63. Bard, S.M., and **J.W. Cain III**. 2020. Investigation of bed and den site selection by American black bears (*Ursus americanus*) in a landscape impacted by forest restoration treatments and wildfires. *Forest Ecology and Management* 460 Article 117904:1-11.
62. Bard, S.M., and **J.W. Cain III**. 2019. Pathogen prevalence in American black bears (*Ursus americanus amblyceps*) of the Jemez Mountains, New Mexico, USA. *Journal of Wildlife Diseases* 55:745–754.
61. Roerick, T.M., **J.W. Cain III**, and J.V. Gedir. 2019. Forest restoration, wildfire and habitat selection by female mule deer. *Forest Ecology and Management* 447:169–179.
60. Gould, M.J., W.R. Gould, **J.W. Cain III**, and G.W. Roemer. 2019. Validating performance of occupancy models for estimating habitat use and predicting the distribution of highly-mobile species: a case study using the American black bear. *Biological Conservation* 234:28–36.
59. **Cain, J.W. III**, R.C. Karsch, E.J. Goldstein, E.M. Rominger, and W.R. Gould. 2019. Survival and cause-specific mortality of desert bighorn sheep lambs. *Journal of Wildlife Management* 83:251–259.
58. Humagain, K., C. Portillo-Quintero, R.Cox, and **J.W. Cain III**. 2018. Estimating forest canopy cover dynamics in Valles Caldera National Preserve, New Mexico, using LiDAR and Landsat data. *Applied Geography* 99:120–132.
57. Amirkhiz, R.G., J.K. Frey, **J.W. Cain III**, S.W. Breck, D.L. Bergman. 2018. Predicting spatial factors associated with cattle depredations by the Mexican wolf (*Canis lupus baileyi*) with recommendations for depredation risk modeling. *Biological Conservation* 224:327–335.
56. **Cain, J.W. III**, J.B. Ashling, and S.G. Liley. 2018. Survival and cause-specific mortality of translocated female mule deer in southern New Mexico, USA. *Wildlife Research* 45:325–335.
55. Tatman, N.M., S.G. Liley, **J.W. Cain III**, and J.W. Pitman. 2018. Effects of nutrition and calf predation on elk vital rates in New Mexico. *Journal of Wildlife Management* 82:1417–1428.
54. Gould, M.J., **J.W. Cain III**, G.W. Roemer, W.R. Gould, and S. G. Liley. 2018. Density of American black bears in New Mexico. *Journal of Wildlife Management* 82:775–788.

53. Roberts, C.P., **J.W. Cain III**, and R.D. Cox. 2017. Identifying ecologically-relevant scales of habitat selection: behavioral patterns reveal diel-scale selection in elk. *Ecosphere* 8: art e02013.
52. Smith-Hicks, K.N., T.J. Conkling, M. L. Morrison, **J.W. Cain III**, and R.N. Wilkins. 2017. Nest height and vertical vegetation associated with black-capped vireo breeding success in southwest Texas. *Southeastern Naturalist* 16:567–583.
51. **Cain, J.W., III**, J.V. Gedir, P.R. Krausman, J.P. Marshal, J.D. Allen, G.C. Duff, B.D. Jansen and J.R. Morgart. 2017. Extreme precipitation variability, forage quality and large herbivore diet selection in arid environments. *Oikos* 126:1459–1471.
50. **Cain, J.W. III**, M.M. Avery, C.C. Caldwell, L.B. Abbot, and J.L. Holechek. 2017. Diet composition, quality, and overlap of sympatric American pronghorn and gemsbok. *Wildlife Biology* wlb00296:1-10.
49. Humagain, K., C. Portillo-Quintero, R. Cox, and **J.W. Cain III**. 2017. Mapping tree density in forests of the Southwestern USA using Landsat 8 data. *Forests* 8:287.
48. Roberts, C.P., **J.W. Cain III**, and R.D. Cox. 2016. Application of activity sensors for estimating behavioral patterns. *Wildlife Society Bulletin* 40:764–771.
47. Kindschuh, S.R., **J.W. Cain III**, D. Daniel and M.A. Peyton. 2016. Efficacy of GPS cluster analysis for predicting carnivory sites of a wide-ranging omnivore: the American black bear. *Ecosphere* 7: art e01513.
46. Doyle, J.M. T.E. Katzner, G.W. Roemer, **J.W. Cain III**, B. Millsap, C. McIntyre, S.A. Sonsthagen, N. Fernandez, M. Wheeler, Z. Bulut, P. Bloom, and J.A. DeWoody. 2016. Genetic structure and viability selection in the Golden Eagle (*Aquila chrysaetos*), a vagile raptor with a holarctic distribution. *Conservation Genetics* 17:1307–1322.
45. Karsch, R.C., **J.W. Cain III**, E.M. Rominger, and E.J. Goldstein. 2016. Desert bighorn lambing habitat: Parturition, lamb nursery, and predation sites. *Journal of Wildlife Management* 80:1069-1080.
44. Gedir, J.V., **J.W. Cain III**, P.R. Krausman, J.D. Allen, G.C. Duff, and J.R. Morgart. 2016. Potential foraging decisions by a desert ungulate to balance water and nutrient intake in a water-stressed environment. *PLoS ONE* 11(2):e0148795.doi:10.1371/journal.pone.0148795
43. Garrison, K.R., **J.W. Cain III**, E.M. Rominger, and E.J. Goldstein. 2016. Sympatric cattle grazing and desert bighorn sheep foraging. *Journal of Wildlife Management* 80:197-207.
42. Gedir, J.V., **J.W. Cain III**, G. Harris, and T.T. Turnbull. 2015. Effects of climate change on long-term population growth of pronghorn in an arid environment. *Ecosphere* 6: art 189.
41. Kramer, D.W., G.E. Sorensen, C.A. Taylor R.D. Cox, P.S. Gibson, and **J.W. Cain III**. 2015. Ungulate exclusion, conifer thinning and mule deer forage in northeastern New Mexico. *Journal of Arid Environments* 113:29-34.
40. Pitman, J.W., **J.W. Cain III**, S.G. Liley, W.R. Gould, N.T. Quintana, and W. B. Ballard. 2014. Post-parturition habitat selection by elk calves and adult female elk in New Mexico. *Journal of Wildlife Management* 78:1216-1227.
39. O’Shaughnessy, R., **J.W. Cain III**, and N. Owen-Smith. 2014. Comparative diet and habitat selection of puku and lechwe in northern Botswana. *Journal of Mammalogy* 95:933-942.
38. Lewis, J.D., **J.W. Cain, III**, and R. Denkhaus. 2014. Home range and habitat selection of an inland alligator (*Alligator mississippiensis*) population at the northwestern edge of the distribution range. *Southeastern Naturalist* 13:261-279.
37. Smith, J.B., D.P. Walsh, E.J. Goldstein, Z.D. Parsons, R.C. Karsch, J.R. Stiver, **J.W. Cain III**, K.J. Raedeke, and J.A. Jenks. 2014. Techniques for capturing bighorn sheep lambs. *Wildlife Society Bulletin* 38:165-174.
36. Turnbull, T.T., **J.W. Cain III**, and G.W. Roemer. 2013. Anthropogenic impacts to the recovery of the Mexican wolf with a focus on trapping-related incidents. *Wildlife Society Bulletin* 37:311-318.

35. Pepper, M.B., L.D. Howery, P.R. Krausman, G.B. Ruyle, **J.W. Cain III**, and D.W. Schafer. 2013. Adaptive grazing management for cattle and elk forage use in central Arizona. *Southwestern Naturalist* 58:20-27.
34. **Cain, J.W., III**, N. Owen-Smith, and V.A. Macandza. 2012. The costs of drinking: comparative water dependency of sable antelope and zebra. *Journal of Zoology* 286:58-67.
33. Conkling, T.J., T.L. Pope, K.N. Smith, H.A. Mathewson, M.L. Morrison, R.N. Wilkins, and **J.W. Cain III**. 2012. Black-capped vireo nest predator assemblage and predictors for nest predation. *Journal of Wildlife Management* 76:1401-1411.
32. Macandza, V.A., N. Owen-Smith, and **J.W. Cain III**. 2012. Habitat and resource partitioning between abundant and relatively rare grazing ungulates. *Journal of Zoology* 287:175-185.
31. Smith, K.N., **J.W. Cain III**, M.L. Morrison, and R.N. Wilkins. 2012. Nesting ecology of the black-capped vireo in southwest Texas. *Wilson Journal of Ornithology* 124:277-285.
30. Macandza, V.A., N. Owen-Smith, and **J.W. Cain III**. 2012. Dynamic spatial partitioning and coexistence among tall grass grazers in an African savanna. *Oikos* 121:891-898.
29. Smith, K.N., **J.W. Cain III**, M.L. Morrison, and R.N. Wilkins. 2012. A novel songbird nest predator: the Greater Arid-land Katydid. *American Midland Naturalist* 167:210-212.
28. Justice-Allen, A.E., C.J. Luedtke, M.W. Overstreet, **J.W. Cain III**, and T.R. Stephenson. 2011. Prevalence of *Mycoplasma ovipneumoniae* in desert bighorn sheep in Arizona. *Desert Bighorn Council Transactions* 51:1-10.
27. **Cain, J.W., III**, B.D. Jansen, R.S. Felger, and P.R. Krausman. 2010. Scallop leaf sage (*Salvia vaseyi*, Lamiaceae) discovered in Arizona. *Journal of the Botanical Research Institute of Texas* 4:755-760.
26. Flesch, A.D., C.W. Epps, **J.W. Cain III**, M. Clark, P.R. Krausman, and J.R. Morgart. 2010. Potential effects of the United States-Mexico Border fence on wildlife. *Conservation Biology* 24:171-181.
25. Marshal, J.P., **J.W. Cain III**, V.C. Bleich, and S.S. Rosenstock. 2009. Intrinsic and extrinsic sources of variation in the dynamics of large herbivore populations. *Canadian Journal of Zoology* 87:103-111.
24. Parrini, F., **J.W. Cain III**, and P.R. Krausman. 2009. *Capra ibex*. *Mammalian Species* 830:1-12.
23. Smith, S.M. and **J.W. Cain III**. 2009. Foraging efficiency and vigilance behaviour of impala: the influence of herd size and neighbor density. *African Journal of Ecology* 47:109-118.
22. **Cain, J.W., III**, P.R. Krausman, J.R. Morgart, B.D. Jansen, and M.B. Pepper. 2008. Responses of desert bighorn sheep to the removal of water sources. *Wildlife Monographs* 171.
21. **Cain, J.W., III**, B.D. Jansen, R.R. Wilson, and P.R. Krausman. 2008. Potential thermoregulatory advantages of shade use by desert bighorn sheep. *Journal of Arid Environments* 72:1518-1525.
20. Magome, H., **J.W. Cain III**, N. Owen-Smith, and S.R. Henley. 2008. Forage selection of sable antelope in Pilanesberg Game Reserve, South Africa. *South African Journal of Wildlife Research* 38:35-41.
19. Krausman, P.R., L.K. Harris, R.R. Wilson, **J.W. Cain III**, K.K.G. Koenen. 2007. Bombing and Sonoran pronghorn: a clear and present danger? *Journal of Wildlife Management* 71:2820-2823.
18. Owen-Smith, N. and **J.W. Cain III**. 2007. Indicators of adaptive responses in home range utilization and movement patterns by a large mammalian herbivore. *Israel Journal of Ecology & Evolution* 53:423-438.
17. **Cain, J.W., III**, P.R. Krausman, S.S. Rosenstock, and J.C. Turner. 2006. Mechanisms of thermoregulation and water balance in desert ungulates. *Wildlife Society Bulletin* 34:570-581.
16. **Cain, J.W., III**, K.S. Smallwood, H.L. Loffland, and M.L. Morrison. 2006. Influence of mammal activity on nesting success of passerines. *Journal of Wildlife Management* 70:522-531.
15. Krausman, P.R., J. Avey, P.K. Devers, J. Tull, B.D. Jansen, and **J.W. Cain III**. 2006. Distances moved by desert mule deer when startled. *Southwestern Naturalist* 51:436-439.

14. Krausman, P.R., S.S. Rosenstock, and **J.W. Cain III**. 2006. Introduction: Developed waters for wildlife: Science, perception, values and controversy. *Wildlife Society Bulletin* 34:563-569.
13. **Cain, J.W., III**, and B.D. Jansen. 2005. Tree swallow entangled on teddy bear cholla spines. *Southwestern Naturalist* 50:272-273.
12. **Cain, J.W., III**, H.E. Johnson, and P.R. Krausman. 2005. Wildfire and desert bighorn sheep habitat, Santa Catalina Mountains, Arizona. *Southwestern Naturalist* 50:506-513.
11. **Cain, J.W., III**, P.R. Krausman, B.D. Jansen, and J.R. Morgart. 2005. Influence of topography and GPS fix interval on GPS collar performance. *Wildlife Society Bulletin* 33:926-934.
10. Krausman, P.R., J.R. Morgart, L.K. Harris, C.S. O'Brien, **J.W. Cain III**, S. S. Rosenstock. 2005. Introduction: Management for the survival of Sonoran pronghorn in the United States. *Wildlife Society Bulletin* 33:5-7.
9. Pepper, M.B., P.R. Krausman, B.D. Jansen, and **J.W. Cain III**. 2005. Desert bighorn sheep osteology. *Desert Bighorn Council Transactions* 48:23-27.
8. **Cain, J.W., III**, P.R. Krausman, and H.L. Germaine. 2004. *Antidorcas marsupialis*. *Mammalian Species* 753:1-7.
7. **Cain, J.W., III**, D.M. Queheillalt, M.L. Morrison, and K. Christopherson. 2004. Bird habitat use and bird-aircraft strikes at Beale Air Force Base, California. *Transactions of the Western Section of the Wildlife Society* 40:90-100.
6. Krausman, P.R., V.C. Bleich, **J.W. Cain III**, T.R. Stephenson, D.W. DeYoung, P.W. McGrath, P.K. Swift, B.M. Pierce, and B.D. Jansen. 2004. Neck lesions in ungulates from collars incorporating satellite technology. *Wildlife Society Bulletin* 32:987-991.
5. **Cain, J.W., III**, and M.L. Morrison. 2003. Reproductive ecology of dusky flycatchers in montane meadows of the central Sierra Nevada. *Western North American Naturalist* 63:507-512.
4. **Cain, J.W., III**, M.L. Morrison, and H.L. Bombay. 2003. Predator activity and nest success of willow flycatchers and yellow warblers. *Journal of Wildlife Management* 67:600-610.
3. **Cain, J.W., III**, P.R. Krausman, J.R. Morgart, and J.J. Hervet. 2002. Use of GPS/Satellite telemetry systems in mountain sheep research. *Desert Bighorn Council Transactions* 46:10-17.
2. Queheillalt, D.M., **J.W. Cain III**, D.E. Taylor, M.L. Morrison, S.L. Hoover, N. Tuatoo-Bartley, L. Ruge, K. Christopherson, M.D. Hulst, M.R. Harris, and H.L. Keough. 2002. The exclusion of rare species from community level analyses. *Wildlife Society Bulletin* 30:756-759.
1. Wilson, T.G., and **J.W. Cain**. 1997. Resistance to the insecticides Lufenuron and Propoxur in natural populations of *Drosophila melanogaster*. *Journal of Economic Entomology* 90:1131-1136.

### **Book Chapters**

- Cain, J.W., III**, P.R. Krausman, S.T. Boyle, and S.S. Rosenstock. 2021. Water and Other Welfare Factors, Pages XXX-XXX in P.R. Krausman and J.W. Cain III, Editors. *Wildlife Management: Contemporary Principles and Practices*, 2<sup>nd</sup> Edition. The Wildlife Society and Johns Hopkins University Press.
- Bowyer, R.T., K.M. Stewart, **J.W. Cain III**, and B. McMillan. 2021. Competition with other ungulates. Pages XXX-XXX in P.R. Krausman and J. Heffelfinger, Editors. *Ecology and Management of Black-tailed and Mule Deer in North America*. Oxford University Scholars Publishing.
- Cain, J.W., III**, P.R. Krausman, and S.S. Rosenstock. 2013. Water and Other Welfare Factors, Pages 174-194 in P.R. Krausman and J.W. Cain III, Editors. *Wildlife Management: Contemporary Principles and Practices*. The Wildlife Society and Johns Hopkins University Press.

### **Book Reviews**

- Cain, J.W., III**. 2017. *And Then There Were None: The Demise of Desert Bighorn Sheep in the Pusch Ridge Wilderness*. Paul R. Krausman. 2017. The University of New Mexico Press,

Albuquerque, New Mexico, USA. 248 pp.

## **Recent Research Grants and Contracts** (PI or Co-PI)

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- 2020 – 2024 New Mexico Department of Game and Fish. Identification and characterization of habitat conditions of mule deer, elk and pronghorn migration routes and stopover locations in northern New Mexico \$86,066 (PI)
- 2021 – 2021 Wild Sheep Foundation. Influence of Recreational Disturbance on Desert Bighorn Sheep in Western Colorado. \$12,300 (PI)
- 2020 – 2024 Colorado Parks and Wildlife. Influence of Recreational Disturbance on Desert Bighorn Sheep in Western Colorado. \$119,640 (PI)
- 2020 – 2023 Rocky Mountain Bighorn Society. Influence of Recreational Disturbance on Desert Bighorn Sheep in Western Colorado. \$49,872 (PI)
- 2020 – 2022 Rocky Mountain Elk Foundation, Arizona Chapter. Blue Range Mexican wolf recover area elk habitat use and predation year 2. \$20,000 (PI)
- 2020 – 2022 Rocky Mountain Elk Foundation, New Mexico Chapter. Elk demography, movements and habitat selection in the Mexican wolf recovery area year 2. \$30,000 (PI)
- 2020 – 2022 Mule Deer Foundation. Identification and characterization of habitat conditions of mule deer migration routes and stopover locations in northern New Mexico \$22,616 (PI)
- 2019 – 2020 Wild Sheep Foundation. Influence of Recreational Disturbance on Desert Bighorn Sheep in Western Colorado. \$15,000 (PI)
- 2020 – 2021 US Geological Survey. Mapping Big Game Migration Corridors-New Mexico. \$62,785 (Co-PI)
- 2011 – 2025 USDA/USDIO Forest Service/Valles Caldera National Preserve. Research Cooperative Agreement. Large mammal monitoring for the southwest Jemez Mountains collaborative forest landscape restoration project. \$1,080,880 (PI)
- 2019 – 2020 Rocky Mountain Elk Foundation, New Mexico Chapter. Elk demography, movements and habitat selection in the Mexican wolf recovery area. \$9,500 (PI)
- 2019 – 2020 Arizona Elk Society. Elk demography, movements and habitat selection in the Mexican wolf recovery area in Arizona. \$15,000 (PI)
- 2019 – 2020 Houston Safari Club Foundation. Elk demography, movements and habitat selection in the Mexican wolf recovery area in Arizona. \$7,500 (PI)
- 2018 – 2024 Arizona Game and Fish Department. Elk demography, movements and habitat selection in the Mexican wolf recovery area in Arizona. \$500,000 (PI)
- 2018 – 2024 New Mexico Department of Game and Fish. Elk demography, movements and habitat selection in the Mexican wolf recovery area in New Mexico. \$826,358 (PI)
- 2018 U.S. Fish and Wildlife Service, Modeling New Mexico's Peregrine Falcon Population. \$16,800 (PI)
- 2015 – 2016 U.S. Fish and Wildlife Service. Population trajectories and extinction probabilities for populations of large ungulates. \$71,478 (PI)
- 2015 – 2018 U.S. Fish and Wildlife Service. Predation rates and use of habitat and wildlife drinkers by mountain lions. \$107,101 (PI)
- 2014 – 2018 New Mexico Department of Game and Fish (NMDGF) and New Mexico Agricultural Experiment Station (NMAES). Top-down and bottom-up influences on mule deer in central New Mexico. \$71,932 (NMDGF), \$40,000 (NMAES)(PI)
- 2014 – 2016 U.S. Army Construction Engineering Research Laboratory. The ecological web contributing to a sarcoptes mange epizootic in coyotes of the Mojave Desert, Fort Irwin, California. \$75,000 (Co-PI)

- 2014 – 2016 U.S. Army Construction Engineering Research Laboratory. An estimate of abundance and an assessment of the efficacy of sterilization techniques for the control of wild burro populations. \$168,944 (Co-PI)
- 2014 – 2016 U.S. Geological Survey, National Climate Change & Wildlife Science Center. Evaluating adaptive capacity of desert bighorn sheep to climate change. \$200,212 (Co-PI)

## Professional Affiliations

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- American Society of Mammalogists
- Association of Field Ornithologists
- Cooper Ornithological Society
- Desert Bighorn Council
- South African Wildlife Management Association
- The Wildlife Society
  - Certified Wildlife Biologist

## Professional Service

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### Editorial Service

- Editor: J.W. Cain, III and J.P. Marshal, editors. 2013. Proceedings of the IV International Wildlife Management Congress, 2012, Durban South Africa.
- Editor: Krausman, P.R., and Cain, J.W. III, editors. 2013. Wildlife Management: Contemporary Principles and Practices. The Wildlife Society and John Hopkins University Press.
- Editor: Cain, J.W., III, and P.R. Krausman, editors. 2006. Proceedings of the 2005 Conference of the Southwest Section of The Wildlife Society. Managing Wildlife in the Southwest: New Challenges for the 21<sup>st</sup> Century. Southwest Section of The Wildlife Society, Tucson, Arizona, USA.
- Editor (2015 – present): *Desert Bighorn Council Transactions*
- Subject Matter Editor (2016 – 2022): *Ecosphere*
- Associate Editor (2015 – 2022): *Journal of Wildlife Management*
- Associate Editor (2014 – 2015): *The Wildlife Society Bulletin*
- Subject Editor (2012 – 2014): *Journal of Fish and Wildlife Management*
- Associate Editor (2005): Special Section of *The Wildlife Society Bulletin*
- Technical editor (2004 – 2007): *Wildlife Monographs*

### Reviewer

- *African Journal of Ecology*
- *Animal Behaviour*
- *Canadian Field Naturalist*
- *Canadian Journal of Animal Science*
- *Desert Bighorn Council Transactions*
- *Ecosphere*
- *European Journal of Wildlife Research*
- *International Journal of Biodiversity and Conservation*
- *Journal of Applied Ecology*
- *Journal of Arid Environments*
- *Journal of Mammalogy*
- *Journal of Tropical Ecology*

- *Journal of Wildlife Management*
- *Southwestern Naturalist*
- *Studies in Avian Biology*
- *Western North American Naturalist*
- *Wildlife Society Bulletin*
- *Wilson Bulletin*

## **Professional Organization and Conference Service**

- Tech Staff (2019 – present), Desert Bighorn Council
- President-elect (2020), President (2021), Past President (2022). Southwest Section of The Wildlife Society.
- Project Advisory Committee (2011 – present). New Mexico Chapter of the Rocky Mountain Elk Foundation
- Technical Staff (2019 – present). Desert Bighorn Council
- The Wildlife Society, Albuquerque National Conference, Fundraising Committee Member (January 2016 - September 2017)
- Subcommittee Chair (2014 – 2015). Contributed Papers Subcommittee. 5<sup>th</sup> International Wildlife Management Congress, Sapporo, Japan.
- Committee Chair. (2014). Conference Planning Committee. 2015 Annual Meeting of the Arizona/New Mexico Chapter of The Wildlife Society, Las Cruces, New Mexico, USA
- President-elect (2013), President (2014), Past President (2015). New Mexico Chapter of The Wildlife Society.
- Session chair. (2013). Annual Meeting of the Arizona/New Mexico Chapter of The Wildlife Society, Albuquerque, New Mexico, USA.
- Subcommittee Chair (2011 – 2012). Contributed Papers Subcommittee. 4<sup>th</sup> International Wildlife Management Congress, Durban, South Africa.
- Committee Chair (2010). Conservation Affairs Committee, Texas Chapter of The Wildlife Society.
- Faculty Advisor (2008 – 2010). Student Chapter of The Wildlife Society, Texas A&M University-Commerce
- Board Member (2004 – 2005). Corresponding Secretary, Arizona Chapter of The Wildlife Society.
- Committee Member. (2005). Conference Planning Committee. 2006. Annual Meeting of the Arizona/New Mexico Chapter of The Wildlife Society, Flagstaff, Arizona, USA
- Committee Member (2005). Conference Planning and Program Committees. Conference of the Southwest Section of The Wildlife Society: Managing Wildlife in the Southwest: New Challenges for the 21<sup>st</sup> Century, Alpine, Texas, USA.
- Committee chair. (2005). Proceedings Committee. Conference of the Southwest Section of The Wildlife Society: Managing Wildlife in the Southwest: New Challenges for the 21<sup>st</sup> Century, Alpine, Texas, USA
- Session chair. (2006). Annual Meeting of the Arizona/New Mexico Chapter of The Wildlife Society, Flagstaff, Arizona, USA.
- Session chair. (2004). Annual Meeting of the Arizona/New Mexico Chapter of The Wildlife Society, Safford, Arizona, USA.
- Session chair. (2003). Third International Wildlife Management Congress, Christchurch, New Zealand.