

James W. Cain III

Unit Leader

New Mexico Cooperative Fish and Wildlife Research Unit

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Education

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

Unit Leader (2023 – present) – U.S. Geological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico.

Assistant Unit Leader-Wildlife (2010 – 2023) – U.S. Geological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico.

- **Graduate Courses**

Wildlife-habitat Relationships (FWCE 540) Fall 2011, 2013, 2015, 2019, 2021

Large Mammal Ecology, Conservation, and Management (FWCE 530) Fall 2012, 2014, 2016, 2018, 2020, 2022

Adjunct Professor (2021 – present). – Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, New Mexico.

Adjunct Professor (2021 – present). – Department of Biology, New Mexico State University, Las Cruces, New Mexico.

Adjunct Associate Professor (2015 – 2021). – Department of Fish, Wildlife and Conservation Ecology, New Mexico State University, Las Cruces, New Mexico.

Adjunct Associate Professor (2015 – 2021). – Department of Biology, New Mexico State University, Las Cruces, New Mexico.

Adjunct Associate Professor (2015 – 2021). – 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**

Quantitative Biology (BSc 412)

Wildlife Management I (AG/BSc 335)

Geospatial Mapping (BSc 417)

Field Methods for Wildlife and Conservation (BSc 337)

- **Semester**

Fall 2008, Spring 2009, Fall 2009, Spring 2010

Fall 2008

Fall 2009

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.

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

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

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

Graduate Students

Current

Mark Peyton, Ph.D. student. Dissertation. Influence of landscape-scale habitat disturbances on mountain lion habitat selection, foraging ecology, and intra-specific competition. Department of Biology, New Mexico State University, Las Cruces.

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.

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.

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)

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

- Ruhl, C.Q., 2022. Improving population estimates for desert bighorn sheep in New Mexico through double-observer sightability modeling and the estimation of residual heterogeneity. MS Thesis. Department of Fish, Wildlife and Conservation Ecology, New Mexico State University. 213 pp.
- Thompson, C.J. 2022. Elk habitat selection in response to predation risk from Mexican gray wolves. M.S. Thesis. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces. 112 pp.
- Farley, Z. 2022. Influence of Mexican gray wolves on elk behavior in relation to maternal constraints, multitasking, and predation risk. M.S. Thesis. Department of Fish, Wildlife, and Conservation Ecology, New Mexico State University, Las Cruces. 117 pp.
- 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

Publications

Published and in press manuscripts:

78. Pitman, J.W., **J.W. Cain III**, W.R. Gould, N.T. Tatman, and S.G. Liley. In Press. Habitat selection and survival of elk neonates. *Southwestern Naturalist*.
77. Nams, V., et al. 2023. Spatial patterns of large African cats: a large-scale study on density, home range size, and home range overlap of lions *Panthera leo* and leopards *Panthera pardus*. *Mammal Review* 53:49–131.

76. Reddell, C.D., G.W. Roemer, D.K. Delaney, T. Karish, and **J.W. Cain III**. 2023. Anthropogenic subsidies influence resource use during a mange epizootic in a desert coyote population. *Oecologia* 201:435–447
75. 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. 2022. 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. *Ecology and Evolution* 12:e9406 .
74. Yiu, S-W., N. Owen-Smith, and **J.W. Cain III**. 2022. How do lions move at night when they hunt? *Journal of Mammalogy* 103:855–864.
73. Harris, G.M., M.J. Butler, D.R. Stewart, and **J.W. Cain III**. 2022. The abundance and persistence of *Caprinae* populations. *Scientific Reports* 12:13807.
72. Butler, M.J., K.L. Metzger, C.R. Sanspree, **J.W. Cain III**, and G.M. Harris. 2022. Whooping and sandhill cranes visit upland ponds proportional to migration phenology on the Texas coast. *Wildlife Society Bulletin* 46:e1290.
71. Hennig, J.D., K.A. Schoenecker, **J.W. Cain III**, G.W. Roemer, and J.L. Laake. 2022. Accounting for residual heterogeneity in double-observer sightability models to decrease bias in feral burro abundance estimates. *Journal of Wildlife Management* 86:e22239.
70. Rossette, T.S., T.W. Perry, and **J.W. Cain III**. 2022. Noninvasive sampling of mountain lion hair by modified foothold traps. *Wildlife Society Bulletin* 46:e1257.
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. Denkhous. 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. Scallopleaf 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. Hervert. 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

Bowyer, R.T., K.M. Stewart, **J.W. Cain III**, and B.R. McMillan. 2023. Competition with other ungulates. Pages 141-157 in J.R. Heffelfinger and P.R. Krausman, Editors. Ecology and Management of Black-tailed and Mule Deer in North America. CRC Press, Boca Raton, FL, USA.

Cain, J.W., III, P.R. Krausman, S.T. Boyle, and S.S. Rosenstock. 2022. Water and Other Welfare Factors, Pages 239–267 in P.R. Krausman and J.W. Cain III, Editors. Wildlife Management: Contemporary Principles and Practices, 2nd Edition. The Wildlife Society and Johns Hopkins University Press.

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.

Research Grants and Contracts (PI or Co-PI; Current as of 1 July 2022)

- 2022 – 2026 Kermit Conveyor System- Mule Deer and Pronghorn Monitoring. Atlas Sand Company. \$499,586 (PI)
- 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. \$132,256 (PI)
- 2020 – 2023 Rocky Mountain Bighorn Society. Influence of Recreational Disturbance on Desert Bighorn Sheep in Western Colorado. \$49,872 (PI)
- 2020 – 2023 Rocky Mountain Elk Foundation, Arizona Chapter. Blue Range Mexican wolf recover area elk habitat use and predation. \$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 – 2023 US Geological Survey. Mapping Big Game Migration Corridors-New Mexico. \$156,963 (Co-PI)
- 2022 – 2023 New Mexico Department of Game and Fish. Mapping Big Game Migration Corridors-New Mexico. \$36,0326 (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. \$1,580,467 (PI)
- 2019 – 2023 Rocky Mountain Elk Foundation, New Mexico Chapter. Elk demography, movements and habitat selection in the Mexican wolf recovery area year 2. \$49,500 (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. \$999,985 (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. \$1,334,428 (PI)
- 2018 U.S. Fish and Wildlife Service, Modeling New Mexico's Peregrine Falcon Population. \$16,800 (PI)
- 2015 – 2019 New Mexico Department of Game and Fish. Estimation of mountain lion density in New Mexico. \$659,335 (PI).
- 2015 – 2017 Department of Defense. Kirtland Air Force Base Mountain Lion Study. \$260,000 (Co-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)
- 2015 New Mexico Chapter of the Rocky Mountain Elk Foundation. Influence of large-scale forest restoration treatments on forage resources and habitat selection of elk in north-central New Mexico \$8,600 (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)
- 2014 – 2016 U.S. Fish and Wildlife Service. An assessment of the landscape genetic structure of the western continental golden eagle population. \$120,041.77 (Co-PI)
- 2014 New Mexico Chapter of the Rocky Mountain Elk Foundation. Influence of large-scale forest restoration treatments on forage resources and habitat selection of elk in north-central \$8,600 (PI)
- 2014 – 2016 U.S. Fish and Wildlife Service. Quantifying habitat selection and predicting habitat use by Whooping Crane. \$85,709 (PI)
- 2013 – 2017 Pueblo of Jemez. Resource selection and movements of mule deer and elk on the Jemez Pueblo. \$161,053 (PI)
- 2013 – 2015 U.S. Fish and Wildlife Service. Population trends and predicted trajectories of American Pronghorn (*Antilocapra americana*) in the American Southwest \$39,291 (PI)
- 2013 – 2016 U.S. Geological Survey, National Climate Change & Wildlife Science Center. Assessment of drought impacts on selected fish and wildlife species in the southwestern U.S. \$260,000 (Co-PI)
- 2013 New Mexico Chapter of the Rocky Mountain Elk Foundation. Influence of large-scale forest restoration treatments on forage resources and habitat selection of elk in north-central \$8,600 (PI)
- 2013 Dallas Safari Club. Responses of elk, mule deer, black bear and mountain lions to large-scale forest restoration in New Mexico. \$5,000 (PI)

- 2012 – 15 New Mexico Department of Game and Fish. Research Cooperative Agreement. Habitat selection, survival and cause-specific mortality of translocated mule deer in southern New Mexico. \$98,614 (PI)
- 2012 – 2014 New Mexico Department of Game and Fish. Research Cooperative Agreement. Influence of livestock grazing on activity budgets, foraging efficiency, and forage resources of desert bighorn sheep. \$94,028 (PI)
- 2011 – 2015 U.S. Geological Survey, Science Support Partnerships. Population dynamics and reintroduction characteristics of Mexican wolves in Arizona and New Mexico's Blue Range Wolf Recovery Area. \$89,088 (Co-PI)
- 2013 T & E, Inc. Influence of Livestock Grazing on Desert Bighorn Sheep. \$2,500 (Co-PI)
- 2013 T & E, Inc. Cause specific mortality of neonatal desert bighorn sheep in the Peloncillo Mountains, New Mexico. \$2,500 (Co-PI)
- 2013 T & E, Inc. Use of noninvasive genetic analysis to estimate the abundance and density of black bears in New Mexico. \$2,000 (Co-PI)
- 2013 T & E, Inc. Distribution and Habitat Selection of Golden Eagles (*Aquila chrysaetos*) in Areas with High Potential for Wind Energy Development. \$2,500 (Co-PI)
- 2013 T & E, Inc. Black bear feeding on ungulate prey in a multi-predator system: Using GPS cluster analysis to locate feeding sites. \$1,875 (Co-PI).
- 2012 T & E, Inc. Microhabitat selection and survival of elk calves in the Blue Range Wolf Recovery Area. \$2,000 (Co-PI)
- 2012 Dallas Safari Club. Microhabitat selection and survival of elk calves in the Blue Range Wolf Recovery Area. \$5,000 (Co-PI)
- 2011 Arthur A. Seeligson, Jr. Conservation Fund. Research Grant. Population status and habitat selection of an inland alligator (*Alligator mississippiensis*) at the Fort Worth Nature Center and Refuge. \$3,842 (PI)
- 2011 – 2014 New Mexico Department of Game and Fish. Research Cooperative Agreement. Survival and cause-specific mortality of neonatal desert bighorn sheep in New Mexico. \$109,866 (PI)
- 2011 – 2016 New Mexico Department of Game and Fish. Research Cooperative Agreement. Estimation of black bear abundance and densities in New Mexico using noninvasive genetic analysis. \$423,672 (Co-PI)

Awards, Scholarships, and Fellowships

- 2023 – Honor Plaque, Desert Bighorn Council
- 2010 – Outstanding Scientific Publication Award – Wildlife Monograph. The Wildlife Society.
- 2010 – Outstanding Scientific Publication Award. Texas Chapter of The Wildlife Society.
- 2007 – Postdoctoral Research Fellowship. National Research Foundation, South Africa.
- 2007 – Postdoctoral Research Fellowship. School of Animal, Plant, & Environmental Sciences, University of the Witwatersrand, South Africa.
- 2006 – Postdoctoral Research Fellowship. School of Animal, Plant, & Environmental Sciences, University of the Witwatersrand, South Africa.
- 2006 – Doug Morrison Award, Arizona Chapter of The Wildlife Society
- 2005 – Rick F. Seegmiller Memorial Scholarship.
- 2005 – Hansen-Welles Memorial Scholarship, Desert Bighorn Council.
- 2004 – Arizona Desert Bighorn Sheep Society Scholarship.
- 2003 – Hansen-Welles Memorial Scholarship, Desert Bighorn Council.
- 2003 – Arizona Desert Bighorn Sheep Society Scholarship.
- 2002 – National Fish and Wildlife Foundation Budweiser Conservation Scholarship.

- 2002 – Hansen-Welles Memorial Scholarship, Desert Bighorn Council.
- 2001 – Biological Conservation Scholarship. Department of Biological Sciences, California State University, Sacramento.
- 2001 – Graduate Research Award. Biological Sciences Alumni Chapter, Department of Biological Sciences, California State University, Sacramento.
- 2000 – Biological Conservation Scholarship. Department of Biological Sciences, California State University, Sacramento.

Professional Affiliations

- American Society of Mammalogists
- Desert Bighorn Council
- The Wildlife Society
 - Certified Wildlife Biologist

Professional and Public Service

Member. Citizen Advisory Committee. New Mexico Department of Game and Fish Habitat Stamp Program (2021 – present)

Editorial Service

- Editor: Krausman, P.R., and Cain, J.W. III, editors. 2022. *Wildlife Management: Contemporary Principles and Practices, Second Edition*. The Wildlife Society and Johns Hopkins University Press.
- 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 Johns 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 21st 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 (Since 2010)

- Tech Staff (2019 – present), Desert Bighorn Council
- Project Advisory Committee (2011 – present). New Mexico Chapter of the Rocky Mountain Elk Foundation
- Session chair. (2022). Annual Meeting of the American Society of Mammalogists. Tucson, Arizona.
- President-elect (2020), President (2021), Past President (2022). Southwest Section of The Wildlife Society.
- The Wildlife Society, Albuquerque National Conference, Fundraising Committee Member (January 2016 - September 2017)
- Subcommittee Chair (2014 – 2015). Contributed Papers Subcommittee. 5th 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. 4th International Wildlife Management Congress, Durban, South Africa.
- Committee Chair (2010). Conservation Affairs Committee, Texas Chapter of The Wildlife Society.