

Brett C. Blum

Director, Southern Arizona Experiment Station
Agriculture, Life, Veterinary Science and Cooperative Extension
AZ Experiment Station
University of Arizona
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Education:

- 2024 PhD Student- Natural Resources, Wildlife Conservation and Management, University of Arizona
- 2017 MSc- Natural Resources, Wildlife Conservation and Management, University of Arizona, Tucson, Arizona. *Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness Area.*
- 2011 BSc-Natural Resources, Wildlife Conservation and Management. University of Arizona, Tucson, Arizona.

Professional Experience:

- 2021-Present Director, Southern Arizona Experiment Station, College of Agriculture, Life, and Environmental Sciences, AZ Experiment Station, University of Arizona
- 2018- 2021 Manager, Santa Rita Experimental Range, College of Agriculture, Life, and Environmental Sciences, AZ Experiment Station, University of Arizona
- 2017-2018 Research Specialist Senior, School of Natural Resources and the Environment, University of Arizona
- 2014-2017 Wildlife Biologist, School of Natural Resources and the Environment, University of Arizona
- 2013-2014 Wildlife Biologist, Human Impacts Study on Endangered Sonoran Pronghorn, University of Arizona
- 2011-2012 Solar Technician, Technicians for Sustainability, Tucson, Arizona
- 2010 Field Technician, Invasive Species Remediation Study, Office of Arid Lands, University of Arizona
- 2009 Field Technician, Jaguar Conservation Team, Campeche, Mexico
- 2009 Field Technician, NDVI Bulk Vegetation Production and Fire Regime Assessment, Office of Arid Lands Study, University of Arizona

Grants and Scholarships:

- 2024 Arizona Institute for Resilience, Resilience Grant Sub Award
- 2024 Freeport Community Investment Grant
- 2020 Arizona Game and Fish Heritage Grant
- 2016 T&E Inc. Conservation Grant
- 2016 Arizona Desert Bighorn Sheep Society Scholarship
- 2015 Arizona Game and Fish Heritage Grant
- 2015 T&E Inc. Conservation Grant
- 2015 Dr. Ervin Zube Award, School of Natural Resources and the Environment
- 2015 Richard F. Seegmiller Memorial Scholarship

Awards and Inductions:

- 2018 Best Graduate Student Research Paper, The Wildlife Society, Arizona/ New

Mexico Chapter

- 2018 Leadership Award, Doris Duke Graduate Student Mentors, School of Natural Resources and the Environment, University of Arizona
- 2017 AAAS Student Program for Excellence in Science

Publications:

- Blum, Brett. 2020. The Santa Rita Experimental Range: A brief history of livestock and wildlife in a semi-arid ecosystem. *Arizona Wildlife News*. Summer 2020: 64-2.
- Blum, Brett. 2017. Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness Area. *The Rams Horn*, October-December: 15-16:19.
- Mayer, Brandon, Amber Dalke, Andrew Antaya, Sarah Noelle, Brett Blum, Carter Blouin, George Ruyle, Joslyn K. Beard, and Aaron Lien. Using Virtual Fence to Manage Livestock in Semiarid Ecosystems. *Rangelands*. In Press
- Antaya, Andrew, Amber Dalke, Brandon Mayer, Carter Blouin, Sarah Noelle, Brett Blum, Joslyn Beard, George Ruyle, and Aaron Lien. Challenges and Opportunities to Leverage Virtual Fence Data for Rangeland Management. *Rangelands*. In Press
- Antaya, Andrew M., Amber Dalke, Brandon Mayer, Sarah Noelle, Joslyn Beard, Brett Blum, George Ruyle, and Aaron Lien. What is Virtual Fence? Basics of a Virtual Fencing System. University of Arizona Extension Publication az2079, Tucson, Arizona. February 2024
- Mayer, Brandon, Amber Dalke, Andrew Antaya, Joslyn Beard, Sarah Noelle, and Aaron Lien. Foundations of Virtual Fencing: Training and Animal Welfare. University of Arizona Extension Publication az2079, Tucson, Arizona. June 2024
- Antaya, Andrew M., Amber Dalke, Brandon Mayer, Brett Blum, Joslyn K. Beard, Carter Blouin, Sarah Noelle, George Ruyle, and Aaron Lien. Foundations of Virtual Fencing: The Vital Role of High-Quality GIS Data. University of Arizona Extension Publication az2087, Tucson, Arizona. July 2024
- Mayer, Brandon, Amber Dalke, Andrew Antaya, Flavie Audoin, Tegan May, Brett Blum, Sarah Noelle, Joslyn Beard, Carter Blouin, and Aaron Lien. Foundations of Virtual Fencing: Exploring the Complexities and Challenges. University of Arizona Extension Publication. In Press

Publications in Preparation:

- Blum, Brett, Randy Gimblett, Jesse Alston, and Dave Christianson. Exp.2025. Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness Area
- Blum, Brett, Sarah Noelle, Brandon Mayer, Andrew Antaya, Aaron Lien, Jake Henig, and George Ruyle. Exp 2025. Quantifying resource utilization in a multi species grazing system.
- Brandon Mayer, Brett Blum, Sarah Noelle, Andrew Antaya, Jake Henig, and George Ruyle. 2025. Ecological interactions of free roaming hoes in montane riparian systems.
- Nichols, M., B., Blum, A., Antaya, B., Mayer, S., Noelle, and G., Ruyle. Exp 2025. Monitoring geomorphological transformation and bank stability in high use montane riparian systems.
- Dari Duval, Jose Quintero, Brett Blum, Aaron Lien, Sarah Noelle, Amber Dalke and others. Foundations of Virtual Fencing: Economics. University of Arizona Extension Publication. In Preparation
- Antaya, Andrew M., Tegan Man, William Burnidge, Brandon Mayer, Flavie Audoin, Sarah Noelle, Brett Blum, Carter Blouin, Joslyn Beard, Aaron Lien, and Amber Dalke.

Foundations of Virtual Fencing: Strategies for Collar Management. University of Arizona Extension Publication. In Preparation
Audoin, Flavie, Andrew Antaya, Tegan May, William Burnidge, Brandon Mayer, Sarah Noelle, Brett Blum, Carter Blouin, Joslyn Beard, Aaron Lien, and Amber Dalke. Foundations of Virtual Fencing: Collaring and Proper Fit. University of Arizona Extension Publication. In Preparation

Products/Inventions:

Blum, Brett. 2018. Differential Use Metric: algebraic expression to quantify multiple metrics of ecological interactions at a single site amongst diverse species. UA Invention ID INV24-594.

Board Memberships:

2022 Altar Valley Conservation Alliance, Science Advisory Board
2022-24 International Wild Felid Association, General Council

Current Organization Affiliation and Membership:

2024 Society for Range Management (Arizona Chapter)
2024 The Wildlife Society (National and Arizona Chapters)
-Human Dimensions Working Group
-Spatial Ecology and Telemetry Working Group
2024 Next-Gen Sonoran Desert Researchers

Professional lectures and presentations:

2024 History and Opportunity on the Santa Rita Experimental Range, School of Natural Resources and the Environment, University of Arizona, 50th Anniversary, Fall seminar
2024 An Introduction to Virtual Fencing, Western SARE/NIFA Webinar
2023 Brush management and habitat management on the Santa Rita Experimental Range: past, present, and future. USFS Conservation and Adaptation Resources Toolbox webinar
2023 Exploring the Boundaries of Virtual Fencing, Department of Defense, Ft. Huachuca Sentinel Landscapes project, Sierra Vista, Arizona
2023 Exploring the Boundaries of Virtual Fencing, Bureau of Land Management field office, Tucson, Arizona
2023 Use of Virtual Fencing in Livestock Management on a Semi-Arid Ecosystem, Society for Rangeland Management, Maricopa, Arizona.
2022 A Brief History of Woody Species Management on the Santa Rita Experimental Range, Altar Valley Conservation Alliance, Pima Co., Arizona
2022 A History of the Santa Rita Experimental Range in Natural Resources, School of Natural Resources and the Environment, University of Arizona, Fall seminar series
2021-present The Santa Rita Experimental Range, Opportunities and Year in Review, Research Insights into Semi Arid Ecosystems.
2020 Seminar, *Santa Rita Experimental Range: Discovery Fridays*. Florida Biological Research Station, Green Valley, Arizona.
2019 Presentation, *Ecological Interactions of Salt River Horse Herd*, Salt River Horse Advisory Committee, Fountain Hills, Arizona
2018-present Presentation, *Santa Rita Experimental Range: past, present, and future* array of presentations throughout SE Arizona

- 2018 Presentation, *Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness*, Joint Annual Meeting of the Wildlife Society, Arizona/New Mexico Chapter, Flagstaff, Arizona
- 2018 Presentation, *Examining Ecological Interactions of Feral Horses on Montane Riparian Systems*, Joint Annual Meeting of the Wildlife Society, Arizona/New Mexico Chapter, Flagstaff, Arizona
- 2018 Presentation, *Examining Ecological Interactions of Feral Horses on Montane Riparian Systems*, Society for Range Management National Conference, Reno/Sparks, Nevada
- 2017 Science Suite, *Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness*, Arizona Game and Fish Department, Carefree, Arizona
- 2017 Presentation, *Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness*, The Wildlife Society National Conference, Albuquerque, New Mexico
- 2017 Presentation, *Effects of recreation and urban development on desert bighorn sheep*, Arizona Wildlife Federation board meeting, Tucson, Arizona
- 2017 Presentation, *Assessment of Urban Visitor Use and Recreation on Desert Bighorn Sheep in the Pusch Ridge Wilderness*, Pusch Ridge bighorn public outreach event and celebration, Westward Look Resort, Catalina Foothills, Arizona
- 2016 Guest Lecturer, *Social dimensions of wildlife conservation and working as a young biologist*, Arizona State University Polytechnic, Mesa, Arizona
- 2016 Guest Lecturer, Santa Rita High School, Tucson, Arizona, *Life as a young wildlife biologist/applied ecological research*
- 2015-present Guest Lecturer, Oller Life Long Learning Institute, Tucson/Green Valley, Arizona, *Social dimensions of wildlife conservation and Effects of recreation and urban development on desert bighorn sheep*
- 2014-present Guest Lecturer, *Wildlife Biology* Community Share, Tucson, Arizona
- 2008 Guest Lecture, *The Economics of Conservation*, Better Business Bureau, Flagstaff, Arizona

Outreach, Extracurricular and Special Appearances:

- 2024 Conservation Cowboys, Applications of Virtual Fencing in Sustainable Land Management, Scripps Media
- 2023 Project Development Coordinator, Ecological Interactions of Livestock and Mexican Gray Wolves, Apache County, Arizona
- 2022 UA Landmark Documentary, Virtual Fence on the Santa Rita Experimental Range, in production
- 2020 Field guide and assistant, BBC *Mammals: Heat* shoot, University of Arizona, Santa Rita Experimental Range
- 2020-present Career Day, Wildlife Biology and Rangeland Scientist, Continental PreK-8 Public School, Green Valley/Continental, Arizona
- 2020 Data Consultant, Tumamoc Hill, Desert Laboratory, University of Arizona, Tucson, Arizona
- 2019-present Schoolyard habitat development and science outreach coordination, Continental PreK-8 Public School, Green Valley/Continental, Arizona
- 2019 Lead, wildlife tracking workshop, Palo Freire Freedom School, Arizona
- 2019 Meandering the Mesquite, full length article, Wick Group Publications, Arizona
- 2018 FFA student workshop, Telemetry and Wildlife Techniques, Tucson, Arizona
- 2018 Field Science Instructor, Ironwood Tree Experience, Tucson, Arizona
- 2018 Curriculum development and wildlife field course lecture, Girls on Adventure

Developing Leadership and Science program (GALS),
 2018-present U of A Wildcat Center, motion activated trail camera project, SE Arizona
 2018 Data Consultant, research database development, Sky Island Alliance, Tucson, Arizona
 2018 Data Consultant, research database development, Fishing Cat Conservancy, Tucson, Arizona
 2017 Antelope jackrabbit survey development, BANWR and Kings Anvil Ranch
 2017 Report, *Effects of recreation and urban development on desert bighorn sheep*, Region V, Arizona Game and Fish Dept., Tucson, Arizona
 2017 Acknowledgement, *And Then There Were None: The demise of desert bighorn sheep in the Pusch Ridge Wilderness*, Krausman and Merkle, Book
 2017 Report, *Effects of recreation and urban development on desert bighorn sheep*, Bighorn Advisory Committee, Tucson, Arizona
 2017 Trail camera survey, recreation effects on wildlife, U of A Science Sky School, Sabino Canyon, Arizona
 2017 Bighorn population connectivity and DNA survey, Pinacate Biosphere Reserve, Pinacate, Sonora, Mexico
 2016-2017 Analyst, Antelope Jackrabbit Population Dynamic Survey, David E. Brown, Arizona State University/AZGFD
 2016 Transect development/implementation, desert bighorn survey, Organ Pipe National Monument (ORPI), Arizona
 2016 Survey site selection and development for Pusch Ridge bighorn sheep survey, PRW, Arizona
 2015 Trail Camera Project, U of A Wildcat Center, SE Arizona
 2015 C-Suite Leadership Development, Lead Local, Tucson, Arizona
 2015 Appearance, *Jack Hanna's Into the Wild*, Ep. 810 Bighorn Transport
 2014-present Volunteer, Arizona Desert Bighorn Sheep Society
 2014 Desert Bighorn Sheep Survey, Armendariz Ranch, Turner Enterprises, New Mexico
 2012 Safari guide, Kiripotib, Namibia
 2011 Farm and Agriculture Management, Pima County/Tucson Foodbank, Marana, Arizona
 2010 Data analyst, Cheetah Conservation Fund, Otjiwarongo, Namibia
 2010 Field Assistant, Rattlesnake Venom Protein Study, University of Arizona
 2010 Mountain lion tracking, kill site assessment, and collar collection for Arizona Game and Fish Department, Pima County, Arizona
 2009 Field Assistant, King Vulture Study, Campeche Mexico
 2005 Volunteer, Arizona Antelope Foundation, Arizona
 2005 Volunteer, Arizona Game and Fish Department, Summer Internship Assistant, Region II, Flagstaff, Arizona
 2005 Prairie Dog Habitat Assessment, Habitat Branch, AZGFD, Region II, Flagstaff, Arizona
 2003-2005 Volunteer, Coconino Sportsman, Arizona Wildlife Federation, Flagstaff, Arizona