






Andrew M. Antaya, M.S.

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Education



- 2016 – 2018  **M.Sc., Natural Resources, Wildlife Emphasis, University of Arizona**
Thesis title: *Effects of Human Activity on the Distribution of Desert Bighorn Sheep Along the Border in Southwestern Arizona and Northern Sonora.*
- 2009 – 2013  **B.Sc., Fish and Wildlife Sciences, Wildlife Concentration, Paul Smith's College**
Minor, *Geographic Information Systems (GIS)*

Professional Experience



- 7/2024 – Present  **Data Coordinator** West River Research and Extension, Agricultural Experiment Station, South Dakota State University.
- 8/2018 – 7/2024  **Research Professional II** School of Natural Resources and the Environment, University of Arizona, Tucson, AZ.
- 7/2016 – 5/2018  **Graduate Research Assistant (M.S.)** School of Natural Resources and the Environment, University of Arizona, Tucson, AZ.
- 3/2016 – 7/2016  **Associate Wildlife Biologist** School of Natural Resources and the Environment, University of Arizona, Tucson, AZ.
- 4/2015 – 10/2015  **Wildland Firefighter (Seasonal)** U.S. Fish and Wildlife Service, Arizona Fire District, Buenos Aires National Wildlife Refuge, Sasabe, AZ.
- 9/2013 – 5/2015  **Wildlife Technician (Internship)** U.S. Fish and Wildlife Service, Cabeza Prieta National Wildlife Refuge, Ajo, AZ.
- 5/2013 – 9/2013  **Invasive Species Technician (Internship)** U.S. Fish and Wildlife Service, Balcones Canyonlands National Wildlife Refuge, Marble Falls, TX.

Publications

Journal Articles - Peer Reviewed

- 1 **Antaya, A.**, Dalke, A., Mayer, B., Blouin, C., Noelle, S., Blum, B., Beard, J. K., Ruyle, G., & Lien, A. (2025). Challenges and opportunities to leverage virtual fence data for rangeland management. *Rangelands*, 47(1), 16–23.  10.1016/j.rala.2024.05.003.
- 2 Mayer, B., Dalke, A., **Antaya, A.**, Noelle, S., Blum, B., Blouin, C., Ruyle, G., Beard, J. K., & Lien, A. (2025). Using virtual fence to manage livestock in arid and semi-arid rangelands. *Rangelands*, 47(1), 24–33.  10.1016/j.rala.2024.05.002.

Extension Publications - Peer Reviewed

- 1 Duval, D., Audoin, F., Dalke, A., Mayer, B., **Antaya, A.**, Quintero, J., Blum, B., & Lien, A. (2025). *Foundations of Virtual Fencing: Economics of Virtual Fence (VF) Systems* (Extension Publication No. az2117). University of Arizona. Tucson, Arizona, USA.
 <https://extension.arizona.edu/sites/default/files/2025-03/az2117-2025.pdf>
- 2 Mayer, B., Dalke, A., **Antaya, A.**, Audoin, F., May, T., Blum, B., Noelle, S., Beard, J., Blouin, C., & Lien, A. (2024). *Foundations of Virtual Fencing: Exploring the Complexities and Challenges* (Extension Publication No. az2089). University of Arizona. Tucson, Arizona, USA.
 <https://extension.arizona.edu/sites/default/files/2024-12/az2089-2024.pdf>

- 3 **Antaya, A.**, May, T., Burnidge, W., Mayer, B., Audoin, F., Noelle, S., Blum, B., Blouin, C., Lien, A., & Dalke, A. (2024). *Foundations of Virtual Fencing: Strategies for Collar Management* (Extension Publication No. az2095). University of Arizona. Tucson, Arizona, USA.
<https://extension.arizona.edu/sites/default/files/2024-11/az2095-2024.pdf>
- 4 Mayer, B., Dalke, A., **Antaya, A.**, Audoin, F., Beard, J., Noelle, S., Ruyle, G. B., & Lien, A. M. (2024). *Foundations of Virtual Fencing: Training and Animal Welfare* (Extension Publication No. az2088). University of Arizona. Tucson, Arizona, USA.
<https://repository.arizona.edu/handle/10150/672954>
 Accepted: 2024-07-20T02:52:55Z.
- 5 **Antaya, A. M.**, Dalke, A., Mayer, B., Blum, B., Beard, J., Blouin, C., Noelle, S., Ruyle, G., & Lien, A. (2024). *Foundations of Virtual Fencing: The Vital Role of High-Quality GIS Data* (az2087). University of Arizona Extension Publication az2087. Tucson, Arizona, USA. <https://extension.arizona.edu/pubs/foundations-virtual-fencing-vital-role-high-quality-gis-data>
- 6 **Antaya, A. M.**, Dalke, A., Mayer, B., Noelle, S., Beard, J., Blum, B., Ruyle, G., & Lien, A. (2024). *What is Virtual Fence? Basics of a Virtual Fencing System* (Extension Publication No. az2079). University of Arizona Extension Publication az2079. Tucson, Arizona, USA.
<https://extension.arizona.edu/pubs/what-virtual-fence-basics-virtual-fencing-system>

Scientific Reports - Not Peer Reviewed



- 1 **Antaya, A.**, Mayer, B., Noelle, S., & Ruyle, G. (2022). Examination of Site Use by Grazing Animals and Effects on Vegetation within the Heber Wild Horse Territory, Arizona, USA. *University of Arizona*.
- 2 **Antaya, A.**, Mayer, B., Noelle, S., & Ruyle, G. (2020). Examination of the Ecological Interactions of Free-Roaming Horses on Montane Riparian Systems of the Apache-Sitgreaves National Forest, Arizona, USA. *University of Arizona*.
- 3 Blum, B., Noelle, S., Mayer, B., **Antaya, A.**, & Ruyle, G. (2019). Examination of Behavioral Variation, Site Use and Interspecies Interaction in the Heber Wild Horse Territory, Arizona, USA. *University of Arizona*.




Presentations, Workshops, Posters

- 1 **Antaya, A. M.**, Mayer, B., Dalke, A., Blouin, C., Noelle, S., Blum, B., Justiniani, H. E., Lien, A., Beard, J., Soto, J., & Ruyle, G. (2023, October 21). *Evaluating Virtual Fence Technology to Improve Rangeland Condition, Enhance Animal Management, and Assess Economic Feasibility*. Conference. Research Insights in Semi-Arid Ecosystems (University of Arizona, Tucson, Arizona, USA).
- 2 **Antaya, A. M.**, Mayer, B., Dalke, A., Blouin, C., Noelle, S., Blum, B., Justiniani, H. E., Lien, A., Beard, J., Soto, J., & Ruyle, G. (2023, August 25). *Virtual Fence Applications on the Santa Rita Experimental Range*. Meeting. Southern Arizona Cattleman's Protective Association (Santa Rita Ranch, Green Valley, Arizona, USA).
- 3 **Antaya, A. M.**, Brennan, J. R., & Menendez, H. M., III (2023, August 7). *From Raw Data Messages to Animal Energetics Models*. Webinar. Agriculture Genome to Phenome Initiative (AG2PI) Workshop 24 (Virtual).
- 4 Mayer, B., **Antaya, A.**, Blouin, C., Noelle, S., & Blum, B. (2023, April 13). *Virtual Fence Technology for Rangeland Livestock – What, How, Why and Should?* Workshop. Northeast Regional Range Livestock Workshop (Holbrook, Arizona, USA).
- 5 **Antaya, A.**, Mayer, B., Blouin, C., Noelle, S., & Blum, B. (2023, March 31). *Virtual Fence Technology for Rangeland Livestock – What, How, Why and Should?* Workshop. Southeast Regional Range Livestock Workshop (Wilcox, Arizona, USA).

- 6 **Antaya, A. M.**, Mayer, B., Blouin, C., Noelle, S., Blum, B., Aaron Lien, Joslyn Beard, Jose Soto, Amber Dalke, Hector Elias Justiniani, & George Ruyle (2023, March 30). *Evaluating Virtual Fence Technology to Improve Rangeland Condition, Enhance Animal Management, and Assess Economic Feasibility*. Poster. Agriculture, Life and Veterinary Sciences, and Cooperative Extension Research Poster Forum (University of Arizona, Tucson, Arizona).
- 7 **Antaya, A. M.** (2023, February 12). *Invited Speaker Virtual Fence Data Workshop*. Workshop. Virtual Fence In-Service Conference (Boise, Idaho, USA).
- 8 Noelle, S., Blouin, C., Mayer, B., **Antaya, A.**, & Ruyle, G. (2023, February 11). *Reflections on Virtual Fencing: Refining a Revolution in Rangelands*. Meeting. Virtual Fence In-Service Conference (Boise, Idaho, USA).
- 9 Blum, B., **Antaya, A.**, Mayer, B., Blouin, C., & Noelle, S. (2023, February 6). *Applications in Virtual Fencing*. Conference. Arizona Section Society for Range Management Winter Meeting (Maricopa Agricultural Experiment Station, Maricopa, Arizona, USA).
- 10 **Antaya, A.**, Mayer, B., Blouin, C., Noelle, S., & Blum, B. (2022, December 7). *Virtual Fence Applications and Considerations for Public Land Managers*. Webinar. USDA Geofencing Summit Webinar (Virtual).
- 11 **Antaya, A.**, Mayer, B., Blouin, C., Noelle, S., & Blum, B. (2022, December 6). *Virtual Fence Applications and Considerations for Public Land Managers*. Webinar. Kaibab National Forest Range Management Staff (Virtual).
- 12 Mayer, B., **Antaya, A. M.**, Dalke, A., Blouin, C., Noelle, S., Blum, B., Justiniani, H. E., Lien, A., Beard, J., Soto, J., & Ruyle, G. (2022, November 5). *Reflections on Virtual Fencing: Refining a Revolution in Rangelands*. Conference. Research Insights in Semi-Arid Ecosystems (University of Arizona, Tucson, Arizona, USA).
- 13 **Antaya, A.**, Mayer, B., Noelle, S., Blouin, C., & Ruyle, G. (2022, April 21). *Heber Wild Horse Territory: Examining Use of Forage Resources*. Meeting. Ranching Heritage Alliance (X Diamond Ranch, Eager, Arizona, USA).
- 14 **Antaya, A. M.**, & Ruyle, G. (2020, September 24). *Range Riders as Citizen Scientists*. Conference. Summer Meeting of the Arizona Section Society for Range Management (Virtual).
- 15 **Antaya, A. M.**, & Ruyle, G. (2020, January 21). *Adding Value to Range Rider Programs through Low-Cost, Scalable Citizen Science*. Conference. Winter Meeting of the Arizona Section Society for Range Management (Wickenburg, Arizona, USA).
- 16 **Antaya, A. M.**, Blum, B., Mayer, B., Noelle, S., & Ruyle, G. (2019, February 13). *Free-Roaming Horses in Montane Riparian Areas of Arizona: Examining Use of Forage Resources*. Conference. The Society for Range Management Annual Meeting (Minneapolis, Minnesota, USA).
- 17 **Antaya, A. M.**, Christianson, D., & Coleman, T. (2017, September 27). *Using Occupancy Models to Understand the Effects of Border-Related Human Activity on Desert Bighorn Sheep (*Ovis Canadensis Mexicana*)*. Poster. The Wildlife Society Conference (Albuquerque, New Mexico, USA).



Scientific Software

- 1 **Antaya, A.**, & Brennan, J. R. *Python API to Retrieve Data from Vence Corp. Virtual Fence Collars. Version 1.0.0*. Version v1.0.0.  <https://github.com/amantaya/Vence-API>
- 2 **Antaya, A. M.**, & Brennan, J. R. *Python, and Jupyter Notebook Files for the AG2PI Workshop*.  <https://github.com/amantaya/vf-workshop>
- 3 McMullen, L., & **Antaya, A.** *ArcPy (Jupyter) Notebook to Find the Optimal Location for Virtual Fence Base Stations v.0.1.0-Alpha*. Version 0.1.0-alpha.






- 4 **Antaya, A.** *R Scripts for Processing and Analyzing Camera Trap Photos and Vegetation Data from Grazing Studies.*  <https://github.com/amantaya/grazing-interaction>
- 5 **Antaya, A.** *Python API to Retrieve Data from Vence Corp. Virtual Fence Collars. Version 0.1.0-Beta.* Version v0.1.0-beta.
- 6 **Antaya, A. M.** *The Rangelands Literature Map of Arizona - A Pilot Project for Place-Based Knowledge.* Version v0.3.2.  <https://amantaya.github.io/RangelandsLiteratureMap/>
- 7 **Antaya, A.** *grazeR: R Package for Managing and Analyzing Data from Grazing Studies.*  <https://github.com/amantaya/grazeR>

Trainings/Workshops/Certifications











Trainings

- 5/2022  **CyVerse Advanced Container Camp** – Dockerfiles, virtual machines (VM), High Performance Computing (HPC), Introduction to Kubernetes (3 days).
- 3/2021  **CyVerse Container Camp** – Docker Container basics (1 day).

Workshops

- 4/2023  **2023 Research Bazaar – Instructor.** Data science trainings and discussions (4 days).
- 5/2022  **2022 Research Bazaar** – Data science trainings and discussions (4 days).
- 5/2021  **2021 Research Bazaar** – Data science trainings and discussions (4 days).
- 2/2020  **Python Image Processing Workshop** – Machine learning package “scikit-learn” (2 days).
- 2/2020  **Data Wrangling with Python Workshop** – Introduction to shell, git, Python, and Jupyter Notebooks (2 days).

Certifications

- 1/2024  **Human Research – Social and Behavioral Research Investigators** CITI Program. 
- 7/2023  **SQL Essentials.** LinkedIn Learning. 
- 7/2021  **Wildlife Research - Lab Animal Research** CITI Program. 
- 7/2021  **Working with Cattle in Agricultural Research Settings** CITI Program. 
- 7/2021  **Working with the IACUC - Investigators, Staff and Students** CITI Program. 

Service

	 <i>Rangelands, Rangeland Ecology and Management</i>
Society for Range Management	 Public Relations Committee Chair, Arizona Section Society for Range Management
	 Website Designer and Manager, Arizona Section Society for Range Management
	 Public Relations and Media Outreach Committee Chair, Society for Range Management Annual Meeting 2023 Planning Committee

References

Available on Request