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Senckenberganlage 25, Frankfurt, Germany 60325

EDUCATION

- 2022 Ph.D. in Environmental Science, Policy, and Management
University of California, Berkeley, Berkeley, CA, USA
Dissertation: *Hindered Hooves and the Wires that Bind Them*
Committee: Lynn Huntsinger (Chair), Arthur Middleton (Co-chair), Justin Brashares
- 2016 M.S. in Geography (with Geospatial Information Science Certificate)
University of Georgia, Athens, GA, USA
Thesis: *Landscape Connectivity for Elephant Movement in Kruger National Park, South Africa*
Committee: Marguerite Madden (Chair), Nate Nibbelink, Lan Mu, Andrea Presotto
- 2014 B.S. in Geography
China University of Geosciences (Wuhan), Wuhan, China
Thesis: *Object-based Land Cover Classification with Hyperspectral and Hyperspatial Imagery*

PROFESSIONAL EXPERIENCES

Research appointments

- Present **Postdoctoral Researcher**
Senckenberg Biodiversity and Climate Research Centre, Frankfurt am Main, Germany
- 2022-2023 **Postdoctoral Researcher**
School for Environment and Sustainability, University of Michigan, Ann Arbor, MI
- 2021 **Visiting Researcher**
Senckenberg Biodiversity and Climate Research Centre, Frankfurt am Main, Germany
- 2019 **Predoctoral Fellow**
Smithsonian Conservation Biology Institute, Front Royal, VA
- 2017 **Graduate Student Research Fellow**
Smithsonian Conservation Biology Institute, Front Royal, VA
- 2016 **Project Lead**
NASA DEVELOP National Program, Athens, GA
- 2014-2015 **Research Consultant**
NASA DEVELOP National Program, Athens, GA

Other appointments

- Present **Associate Producer**
Fenced (documentary film, in pre-production. Dir. Gabriella Garcia-Pardo).
- 2020 **Mentor Fellow**
Berkeley Connect Program, Berkeley, CA
- 2019 **Filmmaker Fellow**

International Wildlife Film Festival LABS, Missoula, MT
 2018 **Global Diversity Fellow**
 Global Environments Summer Academy, Global Diversity Foundation, Oxford, UK
 2016 **Field Assistant**
 Wildlife Conservation Society (China West Office), Tibet Autonomous Region, China
 2016 **Science Consultant**
 Nyanpo Yutse Conservation Association, Qinghai, China

PUBLICATIONS

Journal articles

- Serota, M. W., Barker, K. J., Gigliotti, L. C., Maher, S. M. L., Shawler, A. L., Zuckerman, G. R., **Xu, W.**, Verta, G., Templin, E., Andreozzi, C., Middleton, A. D. (2023). Incorporating Human Dimensions Improves Wildlife Restoration Outcomes. *Nature Communication*. 14(1):2119.
- Xu, W.**, Gigliotti, L., Royauté, R., Sawyer, H., Middleton, A. (2023). High fence density amplifies individual differences in movement with implications on survival in two migratory herbivores. *Journal of Animal Ecology*. 92(3): 677-689.
- Han, Y., **Xu, W.**, Liu, J., Zhang, X., Wang, K., Wang, D, Mei, Z. (2023). Ecological impacts of unsustainable sand mining: urgent lessons learned from a critically endangered freshwater cetacean. *Proceedings of the Royal Society B*. 290(1990), 20221786.
- Media coverage by *Natural History Museum*.
- Gigliotti, L., **Xu, W.**, Zuckerman, G., ... (17 other authors) ..., Middleton, A. D. (2022). Wildlife migrations highlight importance of both private lands and protected areas in the Greater Yellowstone Ecosystem. *Biological Conservation*. 275: 109752.
- Media coverage by *Jackson Hole Conservation Alliance, Big Horn Radio Network, Wyoming Public Media*.
- Xu, W.**, Huntsinger, L. (2022). Minding the boundary: social-ecological contexts for fence ecology and management. *Frontiers in Ecology and the Environment*. 20(7):405-412.
- Barker, K. J., **Xu, W.**, Van Scoyoc, A., ..., Middleton, A. D. (2021). Toward a new framework for restoring lost wildlife migrations. *Conservation Letters*. 15.2: e12850.
- Xu, W.**, Barker, K. †, Shawler, A. †, Van Scoyoc, A. †, ..., Middleton, A. (2021). The plasticity of ungulate migration in a changing world. *Ecology*. 102.4: e03293.
- Kauffman, M. J., Cagnacci, F., Chamaille-Jammes, ... (86 other authors) ..., **Xu, W.**, Zuther, S. Mapping out a future for ungulate migrations. (2021). *Science*. 372.6542: 566-569.
- Covered by > 50 media outlets, including *Scientific America, U.S. News, SFGate*.
- Xu, W.**, Nandintsetseg, D., Sawyer, H., Middleton, A. (2021). Barrier Behavior Analysis (BaBA) reveals extensive effects of fencing on wide-ranging animals. *Journal of Applied Ecology*. 58.4 (2021): 690-698.
- Media coverage by High Country News, National Geographic, *Yale E360, Mother Jones, WyoFile, Berkeley News, Wyoming Public Media, The Daily California*.
- Parker-Shames, P., **Xu, W.**, Rich, L., Brashares, J. S. (2020). Coexisting with cannabis: wildlife response to marijuana cultivation in the Klamath-Siskiyou Ecoregion. *Calif. Fish Game*, 92-106.

McInturff, A., **Xu, W.**, Wilkinson, C., Nandintsetseg D., Brashares, J.S. (2020). Fence ecology: Frameworks and approaches for assessing the global ecological effects of fences. *BioScience*. 70(11), 971-985.

- Media coverage by *The Economist*, *Anthropocene Magazine*, *Treehugger*, *American Institute of Biological Sciences*.

Xu, W., Huang, Q., Stabach, J., Hoshino, B., Leimgruber, P. (2019). Railway Underpass Location Affects Migration Distance in Tibetan Antelope (*Pantholops hodgsonii*). *PLoS ONE* 14(2): e0211798.

- Media coverage by *the Smithsonian Magazine*.

Sawyer, H., LeBeau, C. W., McDonald, T. L., **Xu, W.**, Middleton, A. D. (2019). All routes are not created equal: An ungulate's choice of migration route can influence its survival. *Journal of Applied Ecology*, 56(8), 1860-1869.

Xu, W., Bernardes S., Bacchus, S., Madden, M. (2018). Management Implications of Aquifer Fractures on Ecosystem and Habitat Suitability for Panthers in Southern Florida. *Journal of Geoscience and Environment Protection*, 6, 184-208.

Xu, W., Fayrer-Hosken, R., Madden, M., Simms, C., Mu, L., Presotto, A. (2017). Coupling African Elephant Movement and Habitat Modeling for Landscape Availability-suitability-connectivity in Kruger National Park, South Africa. *Pachyderm*, 58(2017): 97-106.

Xu, W., Bernardes, S., Bacchus, S. T., Madden, M. (2016). Mapped Fractures and Sinkholes in the Coastal Plain of Florida and Georgia to Infer Environmental Impacts from Aquifer Storage and Recovery (ASR) and Supply Wells in the Regional Karst Floridan Aquifer System. *Journal of Geography and Geology*. 8.2(2016):76

Bacchus, S. T., Bernardes, S., **Xu, W.**, Madden, M. (2015). Fractures as Preferential Flowpaths for Aquifer Storage and Recovery (ASR) Injections and Withdrawals: Implications for Environmentally Sensitive Near-Shore Waters, Wetlands of the Greater Everglades Basin and the Regional Karst Floridan Aquifer System. *Journal of Geography and Geology*, 7(2), 117.

Xu, W., Wang, S.. (2014). Soil-Adjustment Abilities Comparison and Optimal Applied Environments Analysis of Vegetation Indices Using PROSAIL Model (in Chinese). *Journal of Remote Sensing*. 18.004 : 826-842.

In review

Van Scoyoc, A. †, **Xu, W**†, Brashares, J. Islandization of Terrestrial Protected Areas.

Xu, W., Calhoun, K. †, Serota, M. †, Blanco, A., Demers, N., Onorato, D. Den-site selection of Florida panthers in a fire prone landscape.

Han, Y., **Xu, W.**, Mei, Z., Wang, K., Wang, D. Effects of freshwater protected areas on survival of a critically endangered cetacean.

Wilkinson, E., **Xu, W.**, Solli, A. L., Kelly, M., Brashares, J. S. Spotted hyaena landscape navigation on a coexistence frontier.

Xu, W., Butt, B. Rethinking wildlife-livestock relationships at a protected area boundary in East Africa.

In preparation

Shawler, A., **Xu, W.**, Barker, K., Middleton, A. Migratory coupling between wolf and elk in eastern Greater Yellowstone Ecosystem.

Serota, M., **Xu, W.**, Middleton, A. Marine Subsidy Leads to a Divergent Behavioral Syndrome for a Terrestrial Apex Predator.

† = equal contribution

Other Publications

Pei, J., Wang, L., **Xu, W.**, Kurz, D. J., Geng, J., Fang, H., Guo, X., Niu, Z. (2019). Tibetan Antelope Again Under Threat. *Science* 366.6462: 194-194. [Letter]

Bernardes, S., Madden, M., Astuti, I., ..., **Xu, W.**, ..., Zhang, Z. (2019). Processing and Analysis Methods. In *Manual of Remote Sensing, 4th Edition*. American Society for Photogrammetry and Remote Sensing, 631-868. [Book Chapter]

Xu, W., Hays, B., Fayrer-Hosken, R., Presotto, A. (2016). Modeling the Distribution of African Savanna Elephants in Kruger National Park: An Application of Multi-Scale Globeland30 Data. *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences*, 41. [Conference proceedings]

Bacchus, S. T., Bernardes, S., **Xu, W.**, Madden, M. (2015). What Georgia Can Learn from Aquifer Storage and Recovery (ASR) in Florida. in: *Proceedings of the 2015 Georgia Water Resources Conference*, held April 28-29, 2015, at The University of Georgia, Athens, GA. 28-29. [Conference proceedings]

FUNDING and AWARDS

Fellowships & scholarships

2023	UC President Postdoc Fellowship, Finalist
2023	Schmidt Environmental Solution Postdoctoral Fellowship (\$180,000), Declined
2022	UC President Postdoc Fellowship, Finalist
2021	Philomathia Graduate Fellowship in Environmental Sciences (\$17,000)
2020	Philomathia Graduate Fellowship in Environmental Sciences (\$20,000)
2020	Berkeley Connect Fellowship (\$12,500)
2019	Smithsonian Institute Predoctoral Research Fellowship (\$36,000)
2018	Pamela and Kenneth Fong Fellowship, Center for Chinese Study, UC Berkeley (\$13,500)
2018	The Cause for Conservation Fellowship (\$21,000)
2016	Smithsonian Institute Graduate Research Fellowship (\$7000)

Research funding

2021	German Academic Exchange Service (DAAD) short-term research grant (€7,275)
2021	Global Diversity Foundation GEN Seed Funding (£1,500)
2020	UC Berkeley Wildlife and Fisheries Program Oliver Lyman Award (\$275)
2019	Smithsonian Institute Predoctoral Research Grant (\$4,000)
2019	IDEA WILD Equipment Grant (\$600)
2017	UC Berkeley Student Technology Fund (\$1,000)
2017-2019	UC Berkeley Wildlife and Fisheries Program Oliver Lyman Fund (\$2,900)

Honors & other awards

- 2022 Distinguished Graduate Student Award, ESPM, UC Berkeley
- 2021 Shortlisted, Southwood Price, the British Ecological Society
- 2019 The Wildlife Society Wyoming Chapter Regional Conference Travel Award (\$250)
- 2019 The Wildlife Society National Conference Travel Grant (\$400)
- 2019 Distinguish contribution to diversity award, Graduate Diversity Council of ESPM
- 2016 GlobleLand30 Paper Competition for Young Scientists runner-up, ISPRS XXIII Congress
- 2015 Winner, Inaugural Geography Graduate Research Symposium 3-minute presentation competition, Department of Geography, University of Georgia
- 2015 Paper of the Year, Journal of Remote Sensing
- 2014 Best Senior Thesis Award, China Administration of Education
- 2014 Savannah GIS day, Graduate Student Scholarship, GIS day Savannah Committee
- 2012 National scholarship (Top 1%), Ministry of Education of the People's Republic of China

INVITED TALKS

- 2023 Hindered hooves and the wires that bind them: ecology and conservation of ungulate migration. Department of Health and Environmental Sciences, **Xi'an Jiaotong Liverpool University**, Suzhou, China.
- 2023 Stories of ungulate migration from around the world: Tibetan antelope. **National Museum and Wildlife Art**, WY, USA.
- 2022 Ungulates of the Tibetan Plateau. **Global Initiative on Ungulate Migration** (virtual).
- 2022 Fence Ecology, Conservation, and Management: Why we need to map fences, now. **Microsoft AI for Good Research Lab** (virtual).
- 2022 Fence ecology and conservation in rangeland of western US. Livestock & Range Symposium, **Ventura County**, CA, USA
- 2022 Fence ecology and conservation in rangeland of western US. Livestock & Range Symposium, **Santa Barbra County**, CA, USA
- 2022 Hindered hooves and the wires that bind them. Distinguished graduate student lecture. ESPM seminar, **UC Berkeley**, CA, USA
- 2021 Animal Movement and Fenced Rangeland, Senckenberg Biodiversity and Climate Research Centre Seminar, **Senckenberg Biodiversity and Climate Research Centre**, Frankfurt am Main, Germany
- 2021 Effects of the Qinghai-Tibet Railway on the migration of Tibetan antelope. **USAID Linear Infrastructure in Asia (LISA) project** Training Module 4: Wildlife Safeguards for Linear Infrastructure Practitioners (virtual).
- 2021 Wires that shaped the world: fence ecology and conservation. Lunch lecture series, **Draper Natural History Museum**, Buffalo Bill Center of the West, WY, USA
- 2015 Groundwater Quantity and Quality Assessment in Southwest Georgia: An application of GRACE time series and DRASTIC model. **NOAA National Center for Environment Information**, Asheville, NC, USA
- 2013 From Place Theory to Recreational Business District, **Department of Regional Planning and Geography Information technology**, China University of Geosciences, China

CONFERENCE PRESENTATIONS

- 2023 Contextualizing boundaries for science, policy, and management. **Global Initiative on Ungulate Migration**, WY, USA.
- 2019 Migratory Plasticity of Ungulate in a Changing World. **The Wildlife Society Annual Conference**, Reno, NV, USA
- 2019 Ungulate's Survival Kit: Migratory plasticity in a changing world, **Gordon Research Conference: Movement Ecology of Animals**, Lucca, Italy
- 2016 Modeling the Distribution of African Savanna Elephants in Kruger National Park: A Multi-scale Application of Globeland30 data, **International Society for Photogrammetry and Remote Sensing XXIII Congress**, Prague, Czech Republic
- 2016 Applying NASA Observations for Groundwater Quality and Quantity Monitoring and Analysis. **American Association of Geography Annual Meeting**, San Francisco, CA, USA
- 2015 Understanding Elephants from Space: Landscape Connectivity for Elephant Movement in Kruger National Park. **Animal Behavior Society Annual Conference**, Anchorage, AK, USA
- 2015 Under the shadow of man: An agent-based model for African elephant movement in Kruger National Park. **Inaugural Geography Graduate Research Symposium**, Athens, GA, UGA
- 2014 Soil-Adjusted Power Comparison of Vegetation Indices using PROSAIL Model. **American Society for Photogrammetry and Remote Sensing Mid-south Georgia Geospatial Conference**, Athens, GA, USA
- 2012 Urban geographical information platform in managing urban flood, **Symposium for the undergraduate researchers**, China University of Geosciences, China

TEACHING

- 2022 **Guest lecturer**, Tracking animals *in-situ* and remotely, Range Assessment, UC Berkeley
- 2020 **Co-instructor**, Pedagogy in Environmental Science, Policy, and Management, UC Berkeley
- 2018 **Guest lecturer**, Conservation for both humans and nature, Environmental Biology, UC Berkeley
- 2018 **Workshop facilitator**, Multimedia Science Communication, Global Environments Summer Academy, Oxford, UK
- 2018 **Teaching assistant**, Environmental Biology, UC Berkeley
- 2015 **Teaching assistant**, Aerial Photographs and Image Interpretation, University of Georgia
- 2017 **Lecturer**, Open-source habitat modeling with R and QGIS workshop, Chengdu Research Base for Giant Panda, China
- 2016 **Lecturer**, Essentials of Open-Source GIS for Conservation workshop, Smithsonian Conservation Biology Institute, Virginia, USA

MENTORING

- present **Master's thesis co-advisor.** Oversaw study design, analysis, and writing. Jessica Silber-Byrne, *A critical review of empirical evidence of wildlife-livestock relationships in East Africa*. Master's degree practicum, University of Michigan.
- 2023 **Bilingual Science Mentor.** Mentored two Chinese-speaking students in scientific article translation. *IB 84: Breaking Language Barriers in Ecology and Evolution*. UC Berkeley.
- 2021 **Mentor.** Provided mentorship, oversaw study design, analysis, and writing. Miaoxi Chen, *Tibetan antelopes movement patterns along the greenscape*. Sponsored Projects for Undergraduate Research Program Student-Initiated Project, UC Berkeley.
- 2020 **Berkeley Connect mentor.** Provided academic guidance for 30 undergraduate students, with the majority of them being Underrepresented Minorities. UC Berkeley.
- 2019 **Conservation GIS Lab, Smithsonian Conservation Biology Institute.** Provided mentorship and geospatial analysis training to two interns. Front Royal, VA
- 2018–2022 **Sponsored Projects for Undergraduate Research Program mentor.** Supervised 9 undergraduate research apprentice (Miaoxi Chen, Kaia Hu, Caroline Ren, Giselle Vandrick, Jimmy Wehsener, Grace Ferguson, Jiarui Zhu, Elena Hausser, Alice Zhu) in research methods, data analysis, and literature review. UC Berkeley.

ACADEMIC SERVICES

Symposium organizing

- 2023 Co-organizer, Fence ecology and conservation, Ecological Society of America, Portland, OR

Reviewer

Journal of Applied Ecology, Trends in Ecology and Evolution, Biological Conservation, Ecosphere, Movement Ecology, Journal of Wildlife Management, Rangeland Ecology & Management, Global Ecology and Conservation, Animals, Biology, Wildlife Biology.

OUTREACH AND COMMUNITY SERVICES

- 2023 **Moderator**, Deliberative Polling, Sense & Sensibility & Science, UC Berkeley, CA
- 2023 **Scientist mentor**, Be A Scientist, Willard Middle School, Berkeley, CA
- 2021 **Volunteer**, Absaroka Fence Initiative, community fence removal event, Cody, WY
- 2020 **Science consultant**, *Our Planet II (2023)*.
- 2020–2021 **Curator**, BIPOC Scholars in Wildlife Ecology Soliciting Group, UC Berkeley
- 2018–2020 **Media and outreach coordinator**, ESPM, UC Berkeley
- 2018 – **Scientist member**, Science and entertainment exchange, National Academy of Science
- 2017 **Workshop co-organizer**, Natural education with local community, Baiyu, Qinghai (Tibetan region), China
- 2016 **Virtual Youth Forum Leaders**, International Fund for Animal Welfare (virtual)

MULTI-MEDIA SCIENCE COMMUNICATION

- 2022 The Graduate podcast. KALX. [Fence and Telegram: with historian Sophie FitzMaurice](#).
- 2019 Short film: [Tributary](#). Screened at the International wildlife Film festival.
- 2018 Wonderer: a video series highlighting graduate student research

Ep 01: [The Hidden Forest](#) (Feat. Elodie Moureau)

Ep 02: [Worms inside of Snails that behave like Ants](#) (Feat. Brian Whyte)

Podcast: [Beehive ginger: the call from the garden](#)

2017 Short film: [Tibetan Medicine](#)

Pre-Doctoral Research Experience

- 2016 **Field Assistant**, Population Status of the Snow Leopards in Changtang Natural Reserve, Tibet, Wildlife Conservation Society (China West), Tibet Autonomous Region, China
- 2016 **Research Fellow**, Impact of Qinghai-Tibet Railway on the Tibetan Antelope Migration, Conservation Ecology Center, Smithsonian Conservation Biology Institute, Front Royal, VA
- 2016 **Research Consultant**, Identifying Key Urban Areas to Reduce Stormwater Runoff in Metropolitan Atlanta and Maximize Conservation Efforts, NASA DEVELOP National Program, Athens, GA
- 2015–2016 **Research Assistant**, The Effect of Fire on Florida Panther Den Site Selection, University of Georgia & Florida Gulf Coast University, Athens, GA
- 2015–2016 **Research Assistant**, Diversifying Next Generation of Geoscientists through Popular Gaming Platforms and Multi-user Virtual Environments, University of Georgia, GA
- 2015 **Project Lead**, Southwest Georgia Groundwater Quantity and Quality Assessment: An Application of GRACE time series and Satellite-based DRASTIC Model, NASA DEVELOP National Program, Athens, GA
- 2015 **Research Consultant**, Sinkhole Monitoring and Formation Risk Modeling in Dougherty County, Georgia, NASA DEVELOP National Program, Athens, GA
- 2014–2015 **Research Assistant**, A MODIS Biophysical Parameters Centered Framework for Monitoring Carbon Sequestration Potential of Gulf Coast Salt Marshes, Remote Sensing and Spectroscopy Laboratory, University of Georgia, GA
- 2014 **Research Assistant**, Savannah Harbor Expansion Project: wetland mapping and landscape change analysis, Center for Geospatial Research, University of Georgia, GA
- 2013–2014 **Research Assistant**, Applied techniques for geological remote sensing in western China, 3S lab, China University of Geosciences, Wuhan, China
- 2012–2014 **Research Assistant**, Interpreting hyperspatial imagery of mining area, 3S lab, China University of Geosciences, Wuhan, China

LANGUAGES

Spoken/written

Mandarin (native), German (beginner), Japanese (limited phrases), standard Tibetan (limited phrases)

Computer Programming

R, Python, JavaScript (Google Earth Engine)