

**Arica Crootof**  
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Assistant Professor of Environmental Sustainability  
Environmental Sciences Department  
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As a professor, I focus on experiential learning opportunities where students can explore human-environment interactions and practice environmental stewardship throughout the Greater Yellowstone and High Divide regions.

As a scientist, I blend physical and social science perspectives to examine water and energy resources in mountain river basins and I work to advance science education and communication.

## **EDUCATION**

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- 2019      Ph.D. School of Geography and Development  
University of Arizona, Tucson, AZ  
Dissertation: *Nepal's Hydropower Boom and its Implications for Water Resources: Challenges and opportunities at the intersection of food and energy production in the Gandaki River Basin*  
Minor: Natural Resources  
Graduate Certificate: College Teaching
- 2011      M.S. Hydrology  
University of Nevada, Reno, NV  
Thesis: *Assessing Water Resources in Khorezm, Uzbekistan for the Development of Aquaculture*
- 2007      B.A. Environmental Science  
Colorado College, Colorado Springs, CO  
Thesis: *Human Impact of Suspended Sediment Loads in Mountain Streams of Puerto Rico*

## PROFESSIONAL EXPERIENCE

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### Academic Positions

2018 – Present Assistant Professor of Environmental Sustainability, The University of Montana Western, Environmental Sciences Department, Dillon, MT

### Research Experience

2019 – Present Principal Investigator, National Science Foundation (NSF), EPSCoR CREWS Seed Funding Award: Promoting Community Resilience Through Understanding: *Social Perceptions of Water Quality and Contamination in the Upper Clark Fork River Watershed*

2017 Graduate Research PhD Fellow, International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal

2017 Graduate Research Associate, Udall Center for Studies in Public Policy, University of Arizona, Lloyd's Register Foundation (LRF): *International Water Security Network*

2015 – 2016 Graduate Research Associate, Udall Center for Studies in Public Policy, University of Arizona, NSF: *Strengthening resilience of arid region riparian corridors: Ecohydrology and decision making in the San Pedro River and Rio San Miguel watersheds*

2015 – 2016 Graduate Research Associate, Udall Center for Studies in Public Policy, University of Arizona, Consultative Group for International Agricultural Research (CGIAR): *The irrigation-hydropower nexus in the Ganges headwaters*

2009 – 2011 Graduate Research Assistant, Department of Natural Resources and Environmental Science, University of Nevada, Reno, NSF: *Investigating pesticide contamination in small lakes in Khorezm, Uzbekistan*

2006 Researcher, NSF Research Experience for Undergraduates (REU), The Water Center, Colorado State University, NSF: *CNH: Modeling Complex Interactions of Overlapping River and Road Networks in a Changing Landscape* in Luquillo Mountains, Puerto Rico

### Teaching Experience, Instructor of Record, University of Montana Western

100 – 200 Level Environmental Sustainability  
Sustaining Water Resources  
Natural Resources Conflict Resolution  
Environmental Interpretation  
Topics in Environmental Sustainability

300 – 400 Level Environmental Remote Sensing and GIS  
Environmental Education

Environmental Policy  
Sustainable Natural Resources Management  
Human Dimensions of Global Change  
Topics in Environmental Sustainability

### Teaching Experience, Instructor of Record, University of Arizona

EVS/GEOG 304: Water, Environment, and Society  
EVS 260: Environmental Studies: Ideas and Institutions (online)  
GEOG 170: Introduction to Physical Geography (online)

### Teaching Experience, Teaching Assistant

GEOG 170: Introduction to Physical Geography, University of Arizona  
NRES 682: Small Watershed Hydrology, University of Nevada, Reno  
EVS 271: Analysis of Environmental Data, Colorado College

### Consulting Experience

2011 – 2014 *Project Hydrologist II*, Lidstone and Associates, Inc., Fort Collins, CO  
Coordinated interdisciplinary water resources management and development projects that included surface and groundwater quality monitoring, stream restoration, and uranium mine permitting, monitoring, and reclamation

## PUBLICATIONS

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### Refereed Journal Articles

Albrecht, T\*., **A. Crootof\***, and C.A. Scott (2018) The water-energy-food nexus: A systematic review of methods for nexus assessment. Invited review for *Environmental Research Letters*, 13(4). <https://doi.org/10.1088/1748-9326/aaa9c6>

\* *These authors contributed equally to this work*

Won Best Review Award for 2018 by Editorial Board, *Environmental Research Letters*

Rosen, M.R., **A. Crootof**, L. Reidy, L. Saito, B. Nishnonov, and J. Scott (2018) The origin of shallow lakes in the Khorezm Province, Uzbekistan, and the history of pesticide use around these lakes. *Journal of Paleolimnology*, 159(2), 201-219. <https://doi.org/10.1007/s10933-016-9914-2>

Kelly-Richards, S., N. Silber-Coats, **A. Crootof**, D. Tecklin, and C. Bauer (2017) Governing the transition to renewable energy: A review of impacts and policy issues in the small hydropower boom. *Energy Policy*, 101, 251-264. <https://doi.org/10.1016/j.enpol.2016.11.035>

Mills-Nova, M., S. Borges, **A. Crootof**, and B. Thapa (2016) Bringing the hydro-social cycle into climate change adaptation planning: lessons from the mountain water towers of the Andes. For “Mountains” Special Issue of the *Annals of the American Association of Geographers*, 107(2), 393–402. <http://dx.doi.org/10.1080/24694452.2016.1232618>

**Crootof, A.**, N. Mullabaev, L. Saito, L. Atwell, M.R. Rosen, M. Bekchonova, E. Ginatullina, J. Scott, S. Chandra, B. Nishonov, J.P. Lamers, and D. Fayzieva (2015) Hydroecological condition and potential for aquaculture in lakes of the arid region of Khorezm, Uzbekistan. *Journal of Arid Environments*, 117, 37-46. <https://doi.org/10.1016/j.jaridenv.2015.02.012>

## Book Chapters

Scott, C.A., **A. Crootof**, S. Kelly-Richards (2016) The urban water-energy nexus: Drivers and responses to global change in the ‘urban century’. In H. Hettiarachchi, R. Ardakanian (eds.) *Environmental Resource Management and the Nexus Approach: Managing Water, Soil, and Waste in the Context of Global Change*, Springer, Berlin

Scott, C.A., **A. Crootof**, B. Thapa, R.K. Shrestha (2016) The water-energy-food nexus in the Ganges Basin: Challenges and opportunities. In L. Bharati, V. Smakhtin, B.R. Sharma (eds.) *The Ganges River Basin: Status and Challenges in Water, Environment and Livelihoods*, Earthscan, London

## Popular Writing

**Crootof, A.** [Rivers of Caution: What Dams in the Himalayas Tell Us About Energy and Justice](#) (2017) Terrian.org: A Journal of the Built + Natural Environments

**Crootof, A.** A photo essay of the water-energy-food nexus in the Himalayas (2017) International Water Security Network (IWSN) Blog: <http://www.watersecuritynetwork.org/a-photo-essay-of-the-water-energy-food-nexus-in-the-himalayas/>

**Crootof, A.** Ph.D. Research in Nepal Part 1: Packing for Nepal (2017) International Water Security Network (IWSN) Blog: <http://www.watersecuritynetwork.org/ph-d-research-in-nepal-before-and-after-part-1/>

## GRANTS, FELLOWSHIPS & AWARDS

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### Grants

2019	Montana NSF EPSCoR CREWS Seed Funding Award (\$10,000)
2019	Effectively Communication Science Workshop-Expert Witness Training Academy, Mitchell Hamline School of Law, with funding from the Paleoclimate Program at the National Science Foundation (NSF) (all expenses paid)
2018	Sustainable Development Goals Travel Grant, Univ. of Arizona (\$2,000)
2018	Graduate and Professional Student Council Travel Grant, Univ. of Arizona (\$750)
2017	U.S. Borlaug Fellow Research Grant in Global Food Security, USAID (\$20,000)
2016	Graduate and Professional Student Council Travel Grant, Univ. of Arizona (\$750)
2016	Grad Student Travel Grant, Institute of the Environment, Univ. of Arizona (\$500)
2015	SESYNC Socio-Environmental Synthesis Research Proposal Writing Workshop Travel Grant (all expenses paid)
2015	Graduate and Professional Student Council Travel Grant, Univ. of Arizona (\$750)
2007	Expedition Grant, Ritt Kellogg Memorial Fund (\$4,500)

## Fellowships

2018	School of Behavioral Sciences Summer Dissertation Fellowship (\$5,000)
2017	Confluentcenter Fellowship, Univ. of Arizona (\$5,000)
2016	Renewable Energy Network Summer Fellowship, Univ. of Arizona (\$5,000)
2016	Carson Scholar Fellow, Univ. of Arizona (\$5,000)
2006	NSF-REU Summer Fellow (\$3,000)

## Awards

2019	Best Review Article by Editorial Board <i>Environmental Research Letters</i> (£300)
2018	Scholarship Award for WaterSmart Innovations Conference (all expenses paid)
2018	Student Research Award, AAG Water Resources Specialty Group (\$200)
2018	Student Research Award, AAG Energy & Environment Specialty Group (\$500)
2018	Student Research Award, AAG Mountain Geography Specialty Group (\$500)
2011	High Impact Award in Dept. of Hydrologic Sciences, Univ. of Nevada, Reno
2011	Student Poster Award, Nevada Water Resources Association (NWRA) (\$250)
2007	Distinguished Service Award in Environmental Science, Colorado College

## CONFERENCES

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### Papers Presented

**Crootof, A.** (2018) The Transformative Power of Nepal's Hydropower Boom on Water Resources, American Association of Geographers (AAG) Annual Meeting, New Orleans, LA, April 2018

**Crootof, A.** (2017) Interventions and Interactions: Understanding Coupled Human-Water Dynamics for Improved Water Resources Management in the Himalayas (H44F-003-258094), American Geophysical Union (AGU) Fall Meeting, New Orleans, Louisiana, Dec 2017

**Crootof, A.** (2016) A Social-Ecological Systems Perspective on Small Hydropower in the Indian Himalayas, American Association of Geographers (AAG) Annual Meeting, Chicago, IL, March 2016

**Crootof, A.** (2016) Renewable Energy Transitions: Small Hydropower Development in the Indian Himalayas. Arizona Student Energy Conference, Annual Meeting, Flagstaff, AZ, September 2016

**Crootof, A.,** N. Mullabaev, L. Saito, L. Atwell, M.R. Rosen (2015) Hydroecological Condition and Potential for Aquaculture in Lakes of the Arid Region of Khorezm, Uzbekistan. Association of American Geographers (AAG) Annual Meeting, Chicago, April 2015

**Crootof, A,** L. Saito, M. Rosen, E. Marchand, B. Nishonov, J. Lamers, D. Fayzieva (2011) Assessing water resources in Khorezm, Uzbekistan for the development of aquaculture.

American Society of Limnology and Oceanography Ocean Sciences Meeting. San Juan, Puerto Rico. Feb 2011

**Crootof, A.**, L. Lassaline, and C. Fitzgerald (2011) Students Educating Students: International Water Development Through Education. American Society for Limnology and Oceanography Ocean Sciences Meeting, San Juan, Puerto Rico. Feb 2011

### **Posters Presented**

**Crootof, A\*.**, T. Albrecht\*, and C.A. Scott (2017) The Water-Energy-Food Nexus: Advancing Innovative, Policy-Relevant Methods (GC21F- 299223), American Geophysical Union (AGU) Fall Meeting, New Orleans, Louisiana, Dec 2017

*\* These authors contributed equally to this work*

Rosen MR, L. Saito, L. Reidy, **A. Crootof**, J. Scott, B. Nishonov (2015) The origin of shallow lakes in Khorezm, Uzbekistan. International Limnology Congress 2015. Reno, Nevada. June 2015

**Crootof, A.**, L. Saito, M. Rosen, E. Marchand, B. Nishonov, J. Lamers, D. Fayzieva (2011) Assessing water resources in Khorezm, Uzbekistan for the development of aquaculture. Nevada Water Resources Association Conference. Reno, Nevada. Feb 2011

**Crootof, A.**, L. Saito, E. Marchand, M. Rosen, J. Scott, B. Nishonov B. J. Lamers (2010) Determining the fate of organochlorine pesticides in Khorezm, Uzbekistan. Nevada Water Resources Association Annual Conference. Las Vegas, Nevada. March 2010

### **Panels**

**Crootof, A.** (2018) Panelist, Small Hydropower in Policy and Practice, American Association of Geographers (AAG) Annual Meeting, New Orleans, LA, April 2018

### **SERVICE & OUTREACH**

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Faculty Advisor Terra Verde Club, University of Montana Western  
Southwest Montana Rural Advisory Council, U.S. Forest Service, Dillon, MT  
Southwest Montana Collaborative Committee on Public Lands with Efficient Public Collaboration, Potlatch, ID